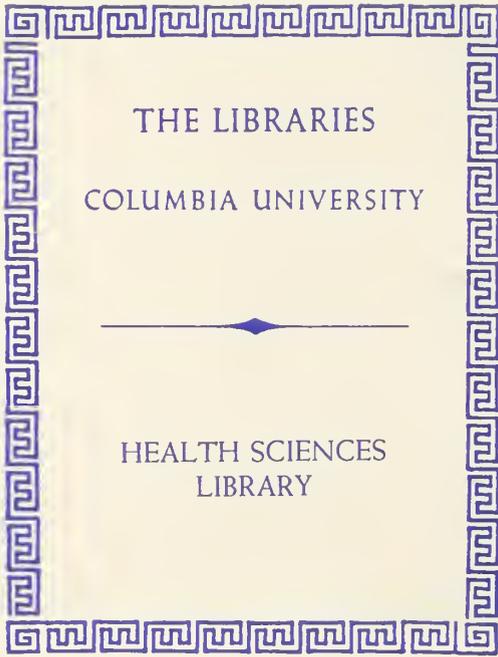


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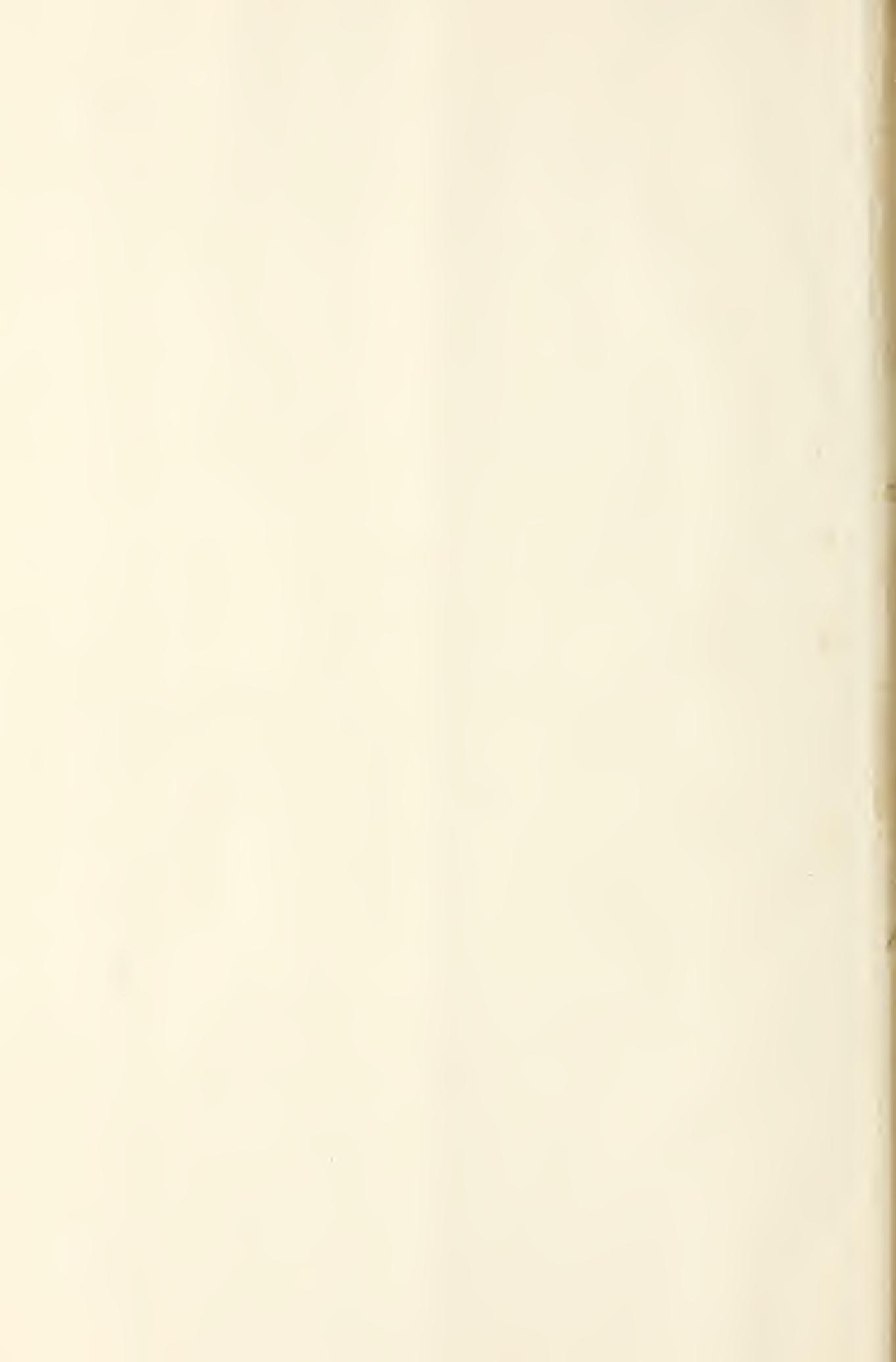




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FRANK P. FOSTER, M.D.

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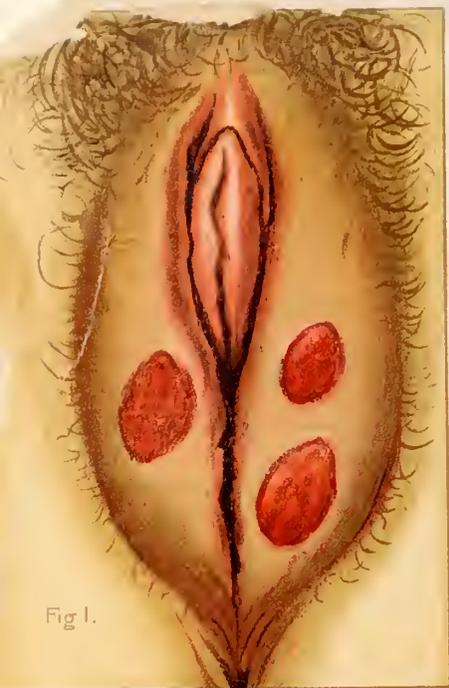


Fig. 1.

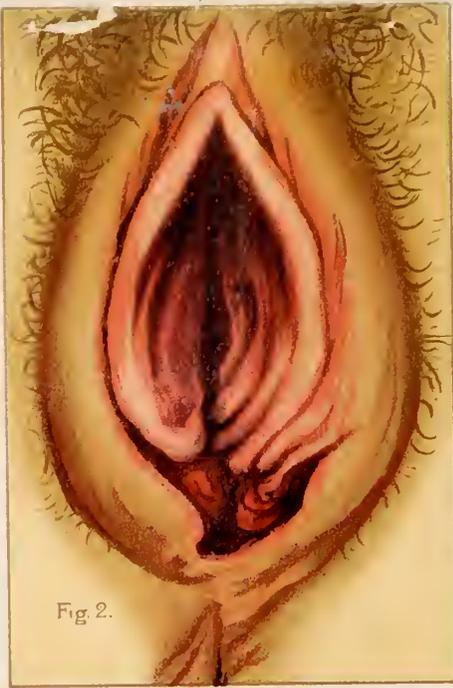


Fig. 2.



Fig. 3.

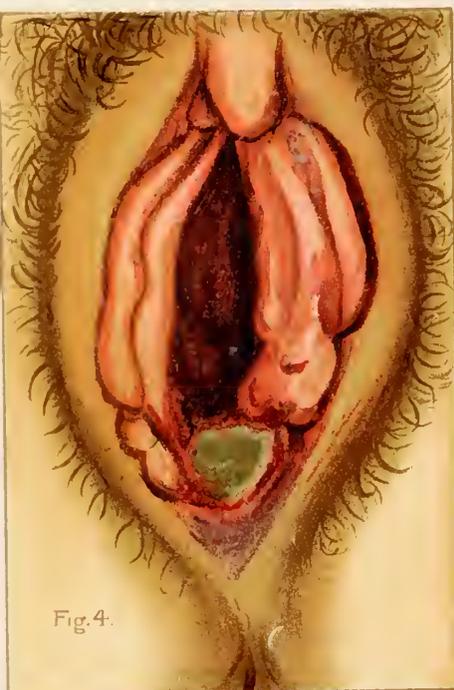


Fig. 4.

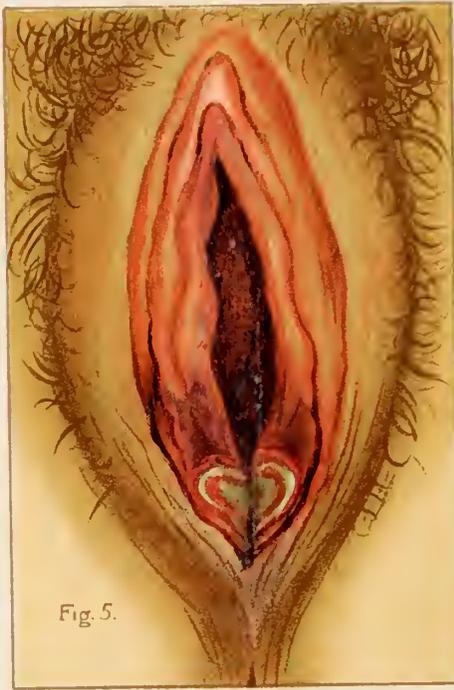


Fig. 5.



Fig. 6.

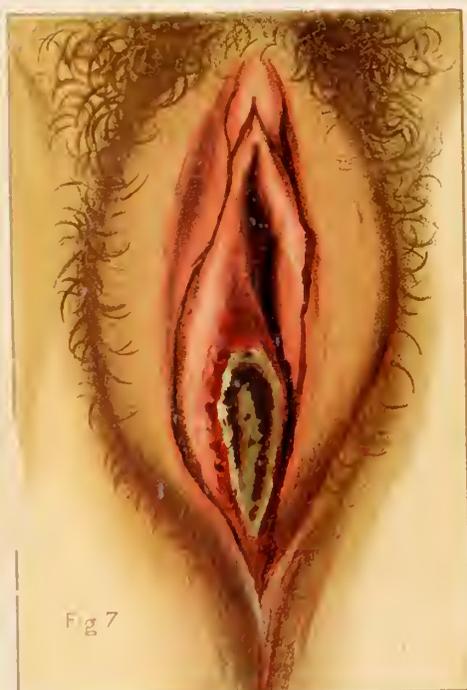


Fig. 7.

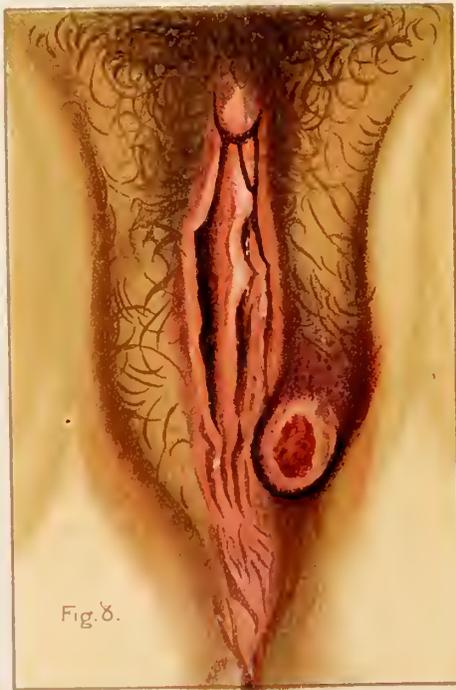


Fig. 8.

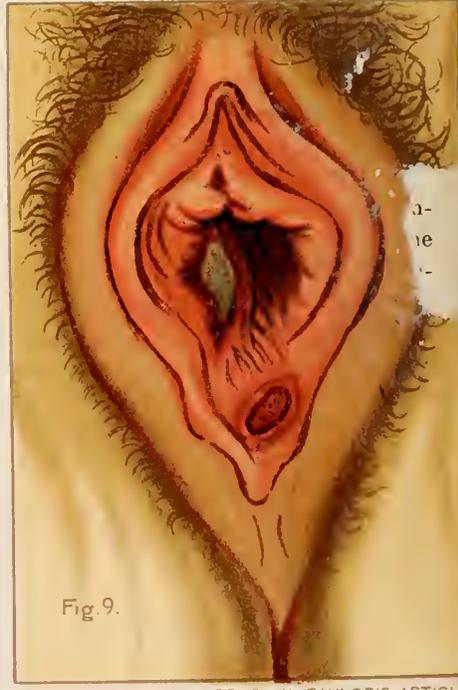


Fig. 9.

Original Communications.

GENITAL CHANCRES IN WOMEN.\*

By R. W. TAYLOR, M. D.,

CLINICAL PROFESSOR OF VENEREAL DISEASES  
AT THE COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.

CHANCRES of the genital organs are very common in men and in women, but in the latter extra-genital chancres occur much more frequently than they do in men.

Our knowledge of genital chancres in the female is far from complete, and this essay is offered with the hope of presenting a succinct and graphic description of these lesions, together with life-like pictures of them.

Chancres in women are far less regular in their course than they are in men. In many women the chancre is so small, benign, and ephemeral that it may never be seen, or, if seen, its nature is usually not suspected. In very many cases, even when the lesion is strikingly apparent, its nature remains for a long time in doubt, owing to inflammatory complications and to a want of striking individuality in the lesion itself. Then, again, simple inflammatory processes and chancroidal ulcers often become upon the female genitals so complicated and obscure in appearance that they may resemble specific lesions. In women, induration as a symptom is not so generally observed as it is in men. In some females it can scarcely be appreciated by careful examination, and it may be very transitory in its duration, whereas in others it attains large proportions, lasts for indefinite periods, and may lead to ultimate deformity. In men the chancre is readily examined. In women this lesion, owing to the nature and inaccessibility of the parts, is very difficult of examination except on protruding portions of the genitals.

The main reason why chancres in the female are so little understood, are so frequently unrecognized, and generally offer so much difficulty in diagnosis, is that there is very little chance for their study on a large scale, and faithful pictures of them are not obtainable.

As in men so in women, the chancre is simply a localized aggregation of a peculiar new specific cell growth. For certain purposes we may divide genital chancres in women into the following varieties:

1. The superficial or chancreous erosion.
2. The sealing papule or tubercle.
3. The elevated papule or tubercle (exulcerated), ulceratum.
4. The incrustated chancre.
5. The indurated nodule.
6. The diffuse exulcerated chancre.

*The Superficial Erosion, also called the Chancreous Erosion.*—The most constant early appearance of the syphilitic chancre in women is seen in the form of an erosion of the mucous membrane. In its very early days this lesion presents no well-marked characteristics and is very liable to be

mistaken for a ruptured herpetic vesicle, an abrasion, chafe, or scratch. Such is its seemingly benign, superficial, and aphlegmasic character and small size that its nature is frequently not determined at the first examination. Indeed, as Fournier says, "nine times out of ten the nascent chancre is not recognized as such."

The chancreous erosion is always found on the surface of the mucous membrane. It begins as a red spot, somewhat deeper in color than the mucous surface on which it is seated. It is very rarely, if ever, seen in women in the first few days of its existence, for the reason that its presence is usually unknown to its bearer, or, if it is seen by her, it appears so simple, mild, and harmless that its nature is scarcely ever suspected. Thus it is that when first seen by the physician the red spot has become, by desquamation of its epithelium, an erosion. When seated on smooth surfaces, such as presented by the internal surfaces of the labia majora and the greater part of the labia minora, this lesion, when somewhat advanced, presents certain well-defined features, but when it is developed upon the anfractuous surfaces of the fourchette, the introitus vaginae, the vestibule, and around the urethra, its appearance is not striking, and, indeed, is often misleading to the eye, while its exploration is difficult and unsatisfactory to the fingers. In very many cases a catarrhal or blennorrhagic condition of the parts conduces to further obscurity of the diagnosis.

When the erosion is quite well developed it presents the appearance of a very superficially excoriated lesion, of a more or less deep-red color, resembling quite closely muscular tissue. This color, however, varies in different cases between certain extremes. In very cleanly and anæmic women the redness may be scarcely deeper than normal, while in uncleanly persons, in those suffering from simple or blennorrhagic inflammation of the genital tract, in those in whom the coaptation of the parts is close and tight, and in pregnant women, the chancre may be of an extremely deep dull-red tint.

Upon smooth, tolerably flat surfaces the chancreous erosion is usually round or oval in shape, though either of these outlines may become irregular. On anfractuous surfaces the chancre presents corresponding irregularities. The surface of the chancre is smooth, sometimes even glistening and shining, and shows that the lesion is formed of tolerably compact tissue. It usually presents a solidity of structure which is striking. When seated upon parts in which the chancre is subjected to movement, or in clefts, the smoothness of surface may be more or less lost.

The secretion of the chancre is usually serous in character, but it may also contain some leucocytes. It varies in quantity considerably; from some chancres we see very little serous oozing, while from others it is quite copious. When seated on an inflamed surface, or when the chancre is irritated, it may secrete true pus. In some cases these chancres become contaminated with chancroidal pus, and they are then converted into ulcers whose nature it is very difficult to determine.

The true chancreous erosion scarcely presents an appreciable elevation, and the lesion may run its course and

\* Read before the American Association of Genito-urinary Surgeons, September 22, 1891.

disappear without ever becoming salient above the normal plane.

While in general there is not a well-defined margination of the chancreous erosion, the eye can plainly see where the lesion ends and where sound tissue begins. In some cases, however, the circumferential margin becomes hyperplastic and the chancre is converted into a saucer-shaped lesion. The size of this chancre varies considerably; some reach maturity, and have a diameter of a third or half an inch, and it is not common to see one larger than an inch in diameter.

In many cases, even when a satisfactory examination is possible, no evidence of induration can be made out, and at best soft, œdematous hyperplasia may be felt. In other cases, however, induration of a superficial, flat character—parelment induration—can be felt. This form of chancre is well depicted in Fig. 1.

As already stated, in many instances the chancreous erosion runs its whole course as a non-salient lesion, but in others the erosion lesion gradually develops into a papule or tubercle, the description of which will soon follow.

While in general the chancreous erosion is with difficulty diagnosed in its early days, if it is protected from irritation and dirt and carefully watched, its nature may be determined in the course of ten days or two weeks, if not sooner. Herpetic discs, chafes, and excoriations usually show a tendency to become rapidly cicatrized by the simple interposition of lint or of a mild astringent wash, and from the first they show signs of healing. On the other hand, despite judicious aseptic measures, the chancreous erosion keeps on its course without any early signs of healing. With this lesion the implication of the ganglia can usually be well made out in about two weeks, and this sign, with the typical appearance of the lesion, will usually make the diagnosis of syphilis clear.

Chancreous erosions, when seated upon the surfaces of the labia, large and small, are very commonly multiple, varying in number from two to four.

The chancreous erosion upon uneven and anfractuous surfaces is even more difficult of recognition than the lesions just considered. Upon the carunculæ myrtiformes, about the urethra, at the fourchette, and around the vaginal orifice the lesion rarely has a definite shape and outline. As Clerc says, the syphilitic neoplasm molds itself to the parts it is seated upon, and when these parts are uneven, nodular, fringed, and anfractuous, its shape, outline, and general configuration are vague and indeterminate. The diagnosis at best being very difficult, it is often rendered more obscure and even impossible by underlying chronic and acute inflammatory conditions of the vagina and vulva. I have many times seen this form of chancre thus located pass wholly unrecognized by careful and skilled men in the cases of women suffering from simple and blennorrhagic inflammation of the genitals. In practice the best course to pursue when one is consulted for or sees a deep-red, superficially eroded patch, or even papule of irregular outline on the parts just mentioned, is to keep them free from all irritation and apply a bland lotion on cotton. If the lesion is simple in character, it will soon become

pale and heal, but if it is composed of syphilitic cell-growth it will keep on and become further developed. Time, watchfulness, and the condition of the ganglia will within three weeks certainly make the diagnosis clear. It follows, therefore, that the physician should speak guardedly of these lesions, and that he should never pass them over as insignificant or pronounce them off-hand as being of no moment.

A frequent and striking peculiarity of the chancreous erosion is its short period of existence. It frequently comes and goes without the knowledge of its bearer. Physicians, young and old, are often much surprised that on female subjects presenting early secondary lesions they can find no trace of the chancre. Not only does this lesion frequently undergo rapid involution, but it may also leave after it no trace after the lapse of a few days. Fournier watched a chancreous erosion run its course in fourteen days and leave after it no trace. I recall the case of a woman who had a pea-sized erosion in the cleft formed by the labium majus and the labium minus which I watched carefully and in which the chancreous lesion lasted eighteen days and disappeared without the slightest trace.

Sometimes on the involution of the chancre a reddened, very slightly hyperplastic spot is left, and one can tell that the affected tissue is slightly denser than normal. Then, again, the only trace left is a circumscribed redness, at first rather deep. This gradually pales and the mucous membrane is left apparently healthy. While in many cases the chancre is very ephemeral and leaves a trace which rapidly disappears, in other cases the red spot is very persistent and it may be seen for several months.

The chancreous erosion leaves no evidence of a cicatrix; the reason of this is that the syphilitic new growth composing it is not copious and condensed, consequently it does not destroy or impair the tissue which it infiltrates, and is absorbed without carrying away with it any normal cells. This lesion, however, is sometimes accompanied with an œdematous condition of the tissues under and around it. This complicating condition consists in a slow, aphlegmasic thickening of the tissues. It may be limited to a moderately wide area around the sore, or it may be extensive and involve much tissue. It is not at all uncommon to see the whole of a labium minus or majus the seat of this indurating œdema. Tissues thus affected present a dense and somewhat elastic structure, but the induration in its early periods is not as hard as that of a typical sclerosis.

It not infrequently happens, particularly when the chancreous erosion is seated near the integument or upon the fourchette or prepuce of the clitoris, that well-defined induration takes place under it and it becomes developed into a typical indurated chancre. This condition is sometimes strikingly well marked at the fourchette, and is well shown in Fig. 2. This presents a V-shaped chancreous erosion, with deep induration of the tissues of the parts. This chancre, when seen here, frequently presents a raw-beef appearance, which is very characteristic.

*The Scaling Papule or Tubercle.*—This lesion is found upon the outer surface of the labia majora; upon the labia

minora when they are long and their structure resembles that of the integument; upon the prepuce of the clitoris when it is long and protrudes from the vulva; upon the internal surface of the thighs, the inguinal folds, and the hypogastrium. It begins in a very insignificant manner as a small, dull-red colored papule, which may or may not be scaly. This lesion increases circumferentially, but usually does not become much elevated. As it grows it develops into a flat, brownish-red and sometimes purplish-brown, perhaps scaly, elevation of the skin, with a sharply defined margin. It may be of the size of a silver five-cent piece, or as large as a silver quarter or half dollar. Its shape is round or oval, and sometimes, owing to the conformation of the parts, it is of irregular outline. It may present well-marked induration, or this symptom may be scarcely recognized. In general this lesion is unique, and exceptionally two are found. Though it is cold and aphlegmasic in appearance, it presents to the eye a compactness of structure giving one the impression that it has come to stay. It runs an indolent course, and may last several weeks or even months. In most cases it leaves after it a deep-brown, even a purplish, stain, and not uncommonly atrophy of the skin is produced by it. When irritated, this lesion loses its epidermal covering and becomes raw and exuding. It then is developed into what is called the ecchymatous chancre (a bad term), and may be better classed as an incrustated chancre. This form of chancre is far from uncommon in women.

In rare cases the scaling papule becomes very large in area and very much elevated, so as to form what we may call an elephantine chancre. I have seen one on the buttocks of a woman the diameter of which was two inches and a half, and another on the upper portion of the thigh which had an area of an inch and a half and a height of three quarters of an inch.

In rare cases the scaling papular chancre develops around a hair, and forms a conical lesion of the color just described. When this occurs it is not uncommon to see two or three or even more of these chancres. They may run an uncomplicated course, or they may become attacked with ulceration, in which event the diagnosis is much obscured, and a lapse of time is required before their nature is rendered clear and positive. The resulting ulcers have well-defined, elevated margins and a saucer-shaped surface. They vary in size from a certain to half an inch. All chancres of this variety are irreparable in disappearing.

*Elevated Papule or Tubercle (Ulcus Elevatum).*—This chancre presents the appearance of a well-circumscribed, flat or elevated lesion, whose surface is similar to that of the chancrous erosion. Indeed, it may be defined as a chancrous erosion in which the hyperplastic process has been very active and productive of much infiltration. Cases not infrequently present themselves in which we can watch the development of the *ulcus elevatum* from the chancrous erosion.

The *ulcus elevatum* is seen upon the mucous surface of the labia majora and minora in its most typical form. It is well shown in Fig. 3, in which the two elevated excoriations are seen, one seated on each internal surface of a labium majus. This form of chancre is round, oval, or slightly

irregular in outline, and varies in size from a third of an inch to an inch and even an inch and a half. Its surface is smooth and even velvety, and its color is of a deep red, like muscular tissue. In some cases the smoothness of surface is replaced by an uneven, slightly granular condition; but in uncomplicated cases nothing like a warty or strawberry surface is seen. In old and irritated cases of the *ulcus elevatum* a slightly warty appearance of the surface may be present. In other cases, as the lesion grows old, it assumes the appearances of *condylomata lata*. The surface may be flat, slightly convex, or even decidedly concave. As a rule, the margination of the *ulcus elevatum* is not sharp and steep, but in some cases this feature is observed. The secretion of this lesion is serous in character, and is mixed with a few leucocytes. In consequence of the irritation of catarrhal or blennorrhagic secretions, as a result of uncleanness and alcoholic and sexual excesses, and of prolonged walking and fatigue, the *ulcus elevatum* may become much hypertrophied, and around it may develop a greater or lesser amount of indurating œdema; or, from the same causes, it may become more or less ulcerated, in which event its nature is often rendered very obscure. A hyperæmic condition of the parts around, due to pregnancy or any other source of irritation, is very often a complication which obscures and delays the diagnosis.

Careful palpation rarely shows very marked induration in the *ulcus elevatum*. This symptom is usually difficult of detection, and when found it is generally of the parchment-like order, or it simply gives the impression of a rather greater condensation of tissue than is normally found. When this lesion is situated near the juncture of the mucous membrane and the integument it may present marked induration. As a rule, this form of chancre is chronic in its course, lasts weeks and months and slowly resolves, leaving a deep-red spot which may be very persistent and is often very useful in diagnosis.

*The Incrustated Chancre.*—This chancre, as we have seen, is not uncommonly found upon juxtapudendal cutaneous surfaces, and indeed upon any portion of the integument. It has been stated that incrustated chancres are not found within the area of the mucous membrane of the vulva, but that their habitat is the tegumentary structures. It is true that in most instances vulvar chancres are of the erosive or papulo-tubercular variety. This is largely due to the fact that the coaptation of the parts and their moisture, aided very often by pathological secretions, cause any surface covering of the chancre to melt away and to disappear. But it is not at all uncommon to find chancres at the fourchette in an incrustated state, and I have twice seen this condition in vaginal chancres. Further, in somewhat rare cases, I have seen incrustated chancres of the clitoris, and also of the labia minora, when these structures have been prominent in the vulva and have come to look like integument.

At the fourchette, besides the raw-beef chancre—the outcome of the chancrous erosion—we not uncommonly find incrustated chancres.

This incrustation in women, as in men, forms upon an eroded surface—namely, the chancrous erosion, the indurated nodule, or the diffuse indurated plaque. It begins as

a thin, white film, presenting a glistening appearance. This film, which is formed of necrotic tissue elements and serous secretion, increases in extent and thickness until a species of false membrane is formed which is wrongly called diphtheritic membrane. As this membrane increases it becomes of a grayish-cream color, which in some instances is tinged with a very light tint of green. In this state the membrane of syphilitic chancre may be said to present its typical appearance. It may thus remain more commonly in men than in women; in general, however, we find that the grayish color in some parts (if not the whole) of a chancre becomes brownish or even blackish, probably from blood admixture or from dirt contamination. This condition is well shown in Fig. 4, which portrays a chancre of the fourchette in a pregnant woman (the vulva has a bluish-red hue).

Then again in women, as in men, the surface of the chancre may be covered with a thin, brownish-red, necrotic-looking film, which consists of the usual membrane discolored with blood, which may be scattered in little masses over the surface of the chancre, giving it a spotted appearance. This necrotic chancre is well shown in Fig. 7.

Then again we find, though very rarely, the chancre called by Fournier *chancre multicolore*, or the *chancre en coquarde*, in which the surface of the chancre presents a series of concentrated zones of different colors which are thought to resemble a cockade. In Fig. 5 this chancre is beautifully delineated, the colors being red in the center, green, then red, and then gray. This play of color is due to some peculiar changes in the typical syphilitic membrane of the chancre.

The incrustated chancre may present a smooth surface or it may be more or less uneven and undulating, owing to the nature of the parts upon which it is seated.

In Fig. 6 an incrustated chancre of the mons Veneris is well shown. It is developed among the hair, and the infiltrating neoplasm has caused little elevations around the hair follicles; consequently the surface of the chancre is quite uneven. This is the usual condition of chancres when developed upon hairy parts.

In the incrustated state the chancre may remain indolent and aphlegmasic for a long time. As the lesion becomes old it is not uncommon to find that it is complicated with a greater or less amount of indurating œdema. In Fig. 6 this complication is shown very clearly in the great hypertrophy of the right labium majus. Under proper medication, the crust disappears and healing takes place in the chancre.

*The Indurated Nodule.*—This chancre, so common in men, is very rare in women. In men the syphilitic neoplasm or nodule, as a rule, circumscribes itself in compact form into a little mass; in women this new growth tends to diffuse itself more loosely into the soft mucous tissues. Thus it is that we rarely see the indurated nodule in the female sex, except on parts where the skin and mucous membrane fuse together.

The indurated nodule is seen as a sharply circumscribed mass of indurated tissue which may be rather broad and flat, or it may have a rather narrow base, sloping edges, and flat surface. The color of the lesion is dull red, and its

surface may be smooth and glossy, or it may present the grayish color of the incrustated chancre with all the variegations found upon that. In Fig. 8 an indurated nodule is admirably well shown at the lower part of the left labium majus. This nodule, like most of its class, presented a cartilaginous hardness, sharply limited to its margin. The course of this lesion is very chronic, and on its disappearance a pigmented spot may be left or atrophied skin may be evident.

*The Diffuse Exulcerated Chancre.*—This lesion is observed not infrequently in women of the lower order who are uncleanly in their habits and given to debauches. It presumably begins as the chancreous erosion develops into the *ulcus elevatum*, and from this stage it further increases. It is usually seen involving more or less of one lip, large or small. The morbid area is much thickened, of a deep-red color, and it is exulcerated over the greater part of its surface. In these very large chancres we find a raw, uneven surface, and very often small or large ulcerating spots. Their course being very chronic and indolent, their appearance varies. At some times they are raw, like beef, and at others they look like elephantine incrustated chancres. They are very often complicated with the development of hard œdema.

As a rule, all chancres of the female genitals are unaccompanied with pain. In some cases itching and burning are complained of, and in some chancres of the clitoris and fourchette severe pain is felt.

On the labia majora we find the incrustated chancre, the chancreous erosion, the *ulcus elevatum*, the diffuse exulcerated chancre, and the indurated nodule. In the tissues of these parts indurating œdema is very often observed as a complication involving large and small portions. This complication is also found as a result of secondary lesions—such as erosions and condylomata lata.

On the labia minora the chancreous erosion, the *ulcus elevatum*, and the diffuse exulcerated chancre are commonly found. All chancres on these parts may be accompanied by mild or dense induration, which may involve part or the whole of the structure.

Chancres of the fourchette are of the erosive, incrustated, or diffusely indurated type.

Chancres of the introitus vaginae, meatus, and myrtle form caruncles are commonly ill-defined masses of induration which frequently present no characteristic appearance and whose diagnosis is usually very difficult, and frequently only possible after considerable delay and observation. On these parts it is very difficult, often impossible, to determine the extent and density of the induration.

Chancres of the vagina are very rare. Clerc never saw one, and Fournier says he never saw one seated beyond the vaginal ring. Bockhart reports a case of chancre of the middle portion of the vagina which had developed upon an excoriation produced by a tickler in ultra-libidinous coitus.

In Fig. 9 I present a very graphic picture of a chancre of the vagina in the sulcus to the right of the neck of the bladder. (In the left sulcus was a corresponding lesion.) This chancre was of the incrustated variety, and it will be seen that the false membrane is of a deep-green color, such

as we sometimes see in this form of chancre. Near the fourchette a well-marked chancreous erosion may be seen.

In the treatment of chancres in women too much attention can not be paid to the matter of cleanliness and to the production of a dry state of the parts. In some mild cases of chancre simple lotions only are necessary. When the lesion is well developed it should be constantly covered with mercurial ointment.

## DISEASES OF THE URINARY APPARATUS.

BY JOHN W. S. GOULEY, M.D.,

SURGEON TO BELLEVUE HOSPITAL.

(Continued from vol. liv, page 711.)

PART I.—PHLEGMASIC AFFECTIONS.

SECTION II.—SPECIAL CONSIDERATIONS.

### VI.

#### CYSTITIS; ITS TREATMENT.

THE treatment of sufferers from cystitis should be constitutional and local. The general indications are to remove the original cause, to relieve pain, to shorten the period of resolution of the phlegmasia, and to prevent or to combat complications. The special indications vary in accordance with the exigencies of individual cases. The prime requisite to the rational management of a particular case of cystitis is the proper interpretation of its phenomena. This is possible only after the history of the patient is known and the cause of the phlegmasia ascertained, and a close analysis is made of its subjective and objective symptoms. An accurate diagnosis can have no other foundation.

**CONSTITUTIONAL TREATMENT.**—When a subacute cystitis is traced to supersecretion of urine of low specific gravity, the cause of the polyuria is first ascertained and, if possible, removed; then the cystitis is likely to cease. For instance, when polyuria is due to temporarily disturbed innervation, the re-establishment of the nervous equilibrium is sufficient to effect the cessation of polyuria and thus to remove the cause of the cystitis. This, however, is hopeless in some cases of grave disease or injury of nervous centers, as it is in certain serious lesions of the kidneys where the polyuria is irremediable. In some cases of cystitis due to persistent polyuria, opium in moderate doses has the double effect of relieving pain and of lessening the urinary secretion. In other cases it becomes necessary to add to the opium either ergot extract or gallic acid.

In cases of cystitis caused by diminished secretion, the urine being of high specific gravity and acrid, the treatment should be such as to cause an increase in the quantity of urine. By the judicious use of mild alkaline diuretics, such as the citrate of soda or potash, largely diluted, or infusion of uva ursi, decoction of triticum repens, etc., is accomplished the indication of rendering the urine bland, and of thus causing a rapid subsidence of the cystitis.

The cases of cystitis arising indirectly from disturbance in the cutaneous circulation ordinarily get well when this

circulation is re-established, and do not require other medication than such as may render the urine bland. When, however, the cystitis persists, and vesical contracture ensues in any of the varieties of the first group, a more active treatment is necessary, as will be presently stated.

Cystitis from persistent hyperlithuria is of much more frequent occurrence than any of the varieties of this first group, and its management demands close attention. This variety of cystitis is often mis-called irritability of the bladder, and this symptom is treated with opium, belladonna, etc., and the phlegmasia is allowed to progress until permanent contracture of the bladder is established. This cystitis is as amenable to treatment and to cure in its incipiency as it is refractory to either in its advanced stages, particularly after contracture of the bladder is confirmed.

If, when the bladder is said to be irritable, the urine is examined microscopically and found to contain an excess of uric acid, and treatment for hyperlithuria is at once instituted, normal urination is soon restored and all symptoms of beginning cystitis disappear. Patients affected with cystitis due to hyperlithuria are necessarily hyperlithæmic, and this is consequent upon dyspepsia and hepatic engorgement. In such cases there is habitual costiveness, and with this headaches, muscular pains, and other symptoms of ptomainal or leucomainal toxæmia. The treatment should therefore be directed to the restoration of the digestive function and to the remedy of the consequences of its impairment. For these ends the first desideratum is free catharsis; then daily aperient medicines and the so-called hepatics, such as small doses of podophyllin, leptandrin, irisin, colocynth, and nux vomica, combined. At the same time should be prescribed alkaline waters, such as those of Vichy, from the Célestins spring, six ounces four times daily, between meals, for two weeks or, at most, three weeks. When there is a very abundant precipitate of uric acid, causing greater distress than usual, nothing seems to act so quickly as ten grains of salicylate of sodium, largely diluted, four times daily for two or three days only; as such doses are not long tolerated by the stomachs of most patients, their continuance beyond that time is not wise. This should precede the administration of the Vichy water. Five-grain or even ten-grain doses of phenacetin sometimes promptly relieve the muscular pains which so often accompany hyperlithæmia.

During this treatment and for three or four weeks thereafter the patient should abstain from eating starches and sugars, or use them very sparingly, especially at the evening meal. Abstention from all articles of food tending to cause flatulency, and from malt liquors, cider, sweet wines, etc., is essential, as they are known to be so often hurtful to the process of digestion in the cases under consideration. Sufficient bodily exercise, promotion of the cutaneous functions by frequent ablutions and frictions, and clothing suited to the state of the weather, constitute the remainder of the hygienic management.

A medication and hygienic precautions such as have just been described are likely to nip in the bud a cystitis which would otherwise become very distressing and lead to transitory, and finally to permanent, contracture with steno-

sis of the bladder. But contracture of the bladder, even of many months' standing, is not necessarily hopeless and is often cured; but this requires the greatest patience on the part of the physician and of the sufferer.

THE LOCAL TREATMENT consists in the use of medicinal and mechanical means. When acute cystitis is accompanied with transitory contracture, which is a state of rigidity of the muscular coat of the bladder preceded by frequent and painful spasmodic contractions especially at the close of each act of urination, a brisk saline cathartic should first be administered, then half a dozen leeches should be applied to the perinæum and as many to the hypogastrium. As soon as the gorged leeches drop, hot fomentations should be applied to the hypogastrium and continued for two or three days. This local depletion is of much advantage in young robust subjects, but should be omitted in those whose health has already been impaired or those who are known to be intolerant of bloodletting in any form. Two or three liberal doses of opium may be necessary to relieve the pain incident to the acute phlegmasia, and diluent drinks should be given throughout the treatment. A hot hip bath, of five minutes, every night is often very advantageous. No instrument should be introduced into the bladder except in the case of retention of urine, which, however, is of extremely rare occurrence in these cases. After a few doses of belladonna extract, a quarter of a grain four times daily for two or three days, the sensitiveness of the bladder is lessened and it allows itself to be distended by the urine rendered bland by the diluent beverages. Resolution of the phlegmasia begins and the tonic spasms of the bladder cease, so that in the course of a few more days the patient is able to retain his urine several hours, and is soon well.

In chronic cystitis with contracture, if there are not very much thickening and induration of the bladder walls consequent upon interstitial cystitis, mechanical as well as constitutional treatment is required, the indications being to remedy the phlegmasia and to restore to the bladder its normal suppleness and capacity. The constitutional treatment must be used as an indispensable adjuvant to the mechanical treatment, which would otherwise be fruitless.

The inordinate irritability of the bladder and the accompanying distressing and unduly frequent urination incident to cystitis with contracture, react upon the nervous system to the extent of seriously disturbing sleep and of rendering the patient excessively fretful. He is constantly on the alert for the moment to arrive when it is time to urinate, and ever ready to clutch any object that may serve as a fulcrum for his straining efforts. His face then becomes livid and intense suffering is thereon depicted. At the close of the act of urination he throws himself upon his bed exhausted, but not always to sleep, and even then often dreams of his distress. This scene is renewed every hour, half-hour, or even every quarter of an hour. His skin is harsh and inactive, his digestion is soon impaired, his appetite vanishes, his intestinal dejecta are hard and scanty, and he is in no slight degree under the influence of leucomainal intoxication. Such is a true picture of the worst cases. It is therefore wise to endeavor to remedy these several

morbid states before they attain this high state of development.

The first prescription should be for a cathartic. The next, for a nightly dose of twenty or thirty grains of sodium bromide, with the object of procuring sleep and of prolonging the intervals of urination. Then thrice daily five minims of tincture of the chloride of iron with a grain of quinine. Other medicinal agents that may be indicated should be used with due regard to the state of the digestive function, and not given beyond the point of tolerance. For instance, diluents should not be continued more than four days, to be replaced by balsamics, which in some cases act so favorably as modifiers of the urine; the balsamics in their turn to be discontinued in favor of some diluent. Belladonna and opium, and, for a change, hyoscyamina, not more than one two-hundredth of a grain thrice daily, are not generally well tolerated longer than four days. Such are the agents required for the constitutional treatment, but they should be used with discretion and judgment, otherwise the desired effect is not likely to be obtained.

GRADUAL HYDRAULIC DILATATION OF THE CONTRACTURED BLADDER.—The mechanical treatment consists in slow, gradual, and progressive hydraulic dilatation of the bladder, and is effected in the manner presently to be described.

An eight-ounce, pear-shaped India-rubber bag with nozzle and stop-cock is filled with a warm solution of mercuric chloride (1 to 10,000), with the addition of thirty grains of boric acid, ten minims of spirit of gaultheria, and half an ounce of glycerin. A curved gum catheter, No. 9 English scale, is introduced into the bladder and all the contained urine is allowed to flow and is measured. Suppose the quantity of urine thus drawn to be one ounce; the nozzle of the India-rubber bag is thrust into the distal end of the catheter, and, by very gently compressing the bag, as much of the fluid is slowly thrown in as the bladder can tolerate without too much pain. The fluid is then allowed to escape through the catheter and is measured. In this manner the capacity of the bladder is determined. It may be of an ounce and a half or two ounces. A second injection at the same sitting determines the degree of distensibility of the bladder, for if, after a very slight increase—two or three drachms over the amount of the first injection—the fluid drawn is tinged with blood, the operator knows that the bladder has been distended beyond its abnormally restricted dimensions, that a slight violence has been inflicted upon its mucous coat, and that he should desist from further attempts at distending the bladder during the sitting, and throw in only one ounce of fluid at a time, simply to soothe and cleanse the bladder, until the eight ounces are exhausted. On the next day, the patient being under the influence of belladonna or of hyoscyamine, the process of injection and dilatation is repeated. It may be that no gain is made over the maximum distention of the previous day, or even that there is a loss, the bladder being less tolerant than before, so that not over one ounce of fluid can be injected. This often happens during the early part of the treatment, but should not discourage the operator, for on the third day's

sitting there may be a gain sufficient to more than make up for the loss. With the exception of such retrogressions and the occasional occurrence of slight hæmorrhages, the dilatation is progressive from day to day, though the increase on some days can be measured only by the drop, while on other days it is by the drachm, but later by the ounce, and in the course of five or six weeks the bladder sometimes tolerates eight, ten, or twelve ounces of fluid. When this stage is reached the injections are repeated every second day, twice a week, and finally only once a week, until the cystitis is cured.

A very important point to which the attention of the physician should be directed is the habit that some patients, affected with cystitis and contracture, form of urinating, so to speak, by the clock. Unless this habit be soon broken, the case may well be regarded as hopeless. The example to be given is a fair illustration of this point. A patient, for the relief of whose suffering cystotomy had been proposed, said that he had also been advised to urinate often so as to keep his bladder empty as long as possible. He therefore, for several months, employed most of his time in watching a clock, and whether or not he had any desire to urinate he did so regularly every fifteen minutes. It was very difficult to convince him that he was committing a grave error, but as he was daily getting worse he finally consented to pay no further attention to the minutes by the clock or watch, and in a few days retained his urine half an hour, three quarters, and one hour, and in the course of three weeks the mechanical dilatation of the bladder was carried from two ounces to ten ounces. He was then able to retain his urine four hours. This urine, from being purulent, bloody, and offensive, became clear and normal.

For vesical irrigation and dilatation in chronic cystitis with contracture, sundry other solutions beside that already mentioned may be employed, such as of phenol, permanganate of potassium, permanganate of zinc, acetate of lead, acidulated water, etc.

It may be interesting to note some of the many different substances that have been employed for vesical injections during the past hundred years. Chopart seems to have been among the first to resort to vesical irrigations for the cure of cystitis, although the early lithotomists, among them Franco, used warm vesical irrigations as part of the after-treatment of lithotomy to cure any lingering cystitis, and although in the beginning of the eighteenth century Pierre Desault, of Bordeaux, had used, in calculous cystitis, injections of the mineral water of Barèges. Chopart at first made use of simple warm water, then of barley water, and afterward of acetate of lead dissolved in water. Later, in England and France, others used flax-seed water, soot water, tar water, calomel suspended in an emulsion of acacia gum, wine, normal urine, etc. Still later, copaiba balsam in emulsion, carbonic-acid gas, solutions of hyposulphite of sodium, bromide of potassium, iodide of potassium, tincture of iodine, corrosive chloride of mercury, chloride of sodium, carbonate of sodium, nitrate of silver, sulphate of zinc, alum, tannin, strychnine, morphine, quinine, salicylic acid, resorcin, methylaniline, peroxide of

hydrogen, divers mineral waters, etc., with varying but mostly bad results, partly because no attempt had been made to gradually dilate the contracted bladder.

It is often advantageous to change, from time to time, the formulæ of the fluids to be injected, but the essential is to bear in mind the indications of curing the phlegmasia and of restoring to the bladder its normal suppleness and capacity.

This method of gradual hydraulic dilatation of the bladder, employed by Civiale and others of his time, appears to have been soon set aside by many who have been allured by the quicker and seemingly more promising method of sudden dilatation aided by artificially induced general anæsthesia. The quick method, which does serious violence to the bladder, is generally unsafe, often dangerous, and seldom if ever successful. The slight benefit it very exceptionally confers is of short duration, and the old symptoms soon return in a more aggravated form than before. The advocacy of sudden distention of the bladder with a solution of nitrate of silver, thirty grains to the ounce, is even more unwarrantable. This rash procedure has been adopted by many who have regretted it, for when the patients have survived the violence and cauterization, their bladders have become permanently and incurably contracted, stenosed, and thickened from the consequent interstitial phlegmasia.

**NITRATE OF SILVER IN CYSTITIS.**—In obstinate cystitis nitrate of silver is unquestionably a valuable therapeutic agent when used at the right time and in solutions of suitable strength, but very strong solutions not only fail to cure but do serious mischief. After the bladder has been gradually dilated to eight or ten ounces and the same amount of urine is retained without causing pain or hæmorrhage, if this urine is still purulent, a weak solution of nitrate of silver may, with much advantage, be employed for irrigation every four or five days. A grain of crystallized nitrate of silver is dissolved in eight ounces of distilled water, then, after having drawn off all the urine contained in the bladder and washed it twice with pure water, two injections of four ounces each are rapidly made with the nitrate-of-silver solution. In four or five days the process is repeated, but the quantity of nitrate of silver is doubled. After this the solution is gradually increased in strength to three, four, eight, and sixteen grains of nitrate of silver to the eight ounces of warm water, and it is very rarely necessary to increase the strength of the solution to thirty-two grains to the eight ounces, for, after eight or ten sittings, all the good that may be expected is accomplished. Guyon, of Paris, uses the nitrate-of-silver solution by way of instillations of ten, fifteen, twenty, or thirty drops of the strength of from five to sixty grains to the ounce, once and sometimes twice daily, principally in trachelocystitis.

As far back as the latter part of the last century strong solutions of nitrate of silver were used in the treatment of cystitis, from fifteen to sixty grains to the ounce of distilled water. In some instances, instead of the silver salt, corrosive chloride of mercury was used in the same strength and, it is said, with the same effect. Long afterward Trousseau began to use, for vesical injection, the mercuric chloride,

but only at the rate of about a quarter of a grain to the ounce. Bretonneau was a strong partisan of vesical injections, and finally employed nitrate of silver in cystitis, but his solutions did not exceed a quarter of a grain to the ounce. In 1842 Mercier revived the use of strong solutions of nitrate of silver, beginning with fifteen grains and gradually increasing to sixty grains to the ounce, and this treatment was adopted by Ricord and others, and is to this day employed.

The advocates of strong solutions declare the weak solutions to be worthless because, they say, the urine decomposes the nitrate of silver, converting it into an inert chloride, and they further say that thirty minims of urine suffice to decompose a grain of nitrate of silver. When the precaution is taken of carefully washing the bladder immediately before making the injection, surely enough urine does not enter by the ureters to decompose a grain or a quarter of a grain of nitrate of silver rapidly thrown in, and it should be remembered that two injections are made in quick succession within a minute or before the sixteen minims of urine which it receives per minute can possibly act upon the silver salt. Even in the event of polyuria, if the urine entering the bladder should be increased to thirty minims or to sixty minims a minute, which would be half a minim in the one case and one minim a second in the other case, it would not be sufficient to decompose the weakest of the proposed solutions, for to inject four ounces of fluid in the bladder requires not more than ten or twelve seconds of time, the increase in the saline not being necessarily proportionate with the watery element. Besides, as a proof that the weak solutions of nitrate of silver do act upon the mucous membrane of the bladder before the salt can be decomposed by the chlorides as well as by the acid phosphates, the injections are almost invariably followed by a burning pain, which lasts from twenty to thirty minutes, and by frequent and urgent desire to urinate for two or three hours. Without there being enough urine in the bladder to decompose the nitrate of silver, the ejected solution has a milky appearance, indicating its conversion into a chloride. The action of nitrate of silver is primarily upon the epithelium. A solution of moderate strength coagulates the albumin of the superficial epithelial layer, and in so doing is decomposed into an insoluble chloride. But a very strong solution is likely to act upon all the epithelial layers, and even to penetrate more deeply and coagulate the albumin and gelatin of the fibrous layer of the mucous membrane before it is decomposed, and the irritation it causes leads to interstitial cystitis. Here, then, lies the main objection to the use of strong solutions.

The repeated application of strong solutions of nitrate of silver to mucous membranes has been demonstrated to cause induration not only of the mucous membranes themselves but of their underlying connective tissue. These membranes soon lose their elasticity, being, as it were, tanned, and often spoken of as leathery. This condition of sclerosis has been observed on a large scale in the fauces among patients that had been treated during the great craze of thirty-five years ago for cantherizing the human fauces on the most trivial complaint of "sore throat," and was com-

monly termed the nitrate-of-silver throat, from which they never recovered. A similar condition has been observed during life in the urethra, from frequent applications of strong solutions of nitrate of silver and other irritants. The bladder may recover from the effects of a single injection of a strong solution of nitrate of silver, but when the strong injections are several times repeated in accordance with the directions given by those who advocate their employment, the delicate mucous membrane of this organ must suffer much more than other mucous membranes that are not the recipients of such an irritating excrement as the urine, and whose outlets are free and broad.

CYSTOTOMY, INFRAPUBIC AND SUPRAPUBIC, has been frequently performed during the past forty years for the cure of obstinate cystitis with contracture of the muscular coat of the bladder uncomplicated by the presence of a tumor, stone, or foreign body, or by prostatic obstruction. The alleged effect of this operation is that it affords complete drainage of and rest to the bladder, and therefore cures the cystitis and contracture.

The analysis of a considerable number of reported cystotomies for chronic cystitis uncomplicated with vesical tumors, stones, or foreign bodies, shows that the relief afforded by the drainage was only temporary, and that they had failed to cure the cystitis and contracture.

It is not desirable nor is it possible to keep open the neck of the bladder more than three or four weeks. Cicatrization takes place within that period, notwithstanding the use of dilating instruments, and the natural action of the vesical neck is restored and prevents the urine from escaping involuntarily. The insertion through the external wound and the long retention of a large tube does not prevent cicatrization of the urethro-vesical wound, and this tube acts injuriously as a foreign body. There is no curative power in rest and drainage of the bladder in the case of cystitis and contracture. The temporary drainage, in the most obstinate and distressing cases, may sometimes be of advantage as preparatory and adjuvant to the hydraulic dilatation of the bladder without which no permanent cure need be expected, and this dilatation should be employed a few days after the perineal cystotomy. The fluid for irrigation is heated from 105° to 110° F., and thrown in very slowly, one, two, or three ounces at a time, until a pint is used. This process is repeated once each day until eight, ten, or twelve ounces can be injected at once, but before this is accomplished the wound will have healed.

*In the case of suprapubic cystotomy* a fistula has been kept patent for months, and in some instances for years, but without curing the cystitis or the contracture.

The prescription of long rest to the bladder in these cases does not seem rational, since it is well known that the prolonged immobilization of any part so surely leads to its permanent contracture. The muscular walls of the bladder need to be exercised in cases of cystitis with contracture which has not become permanent, and this exercise is attainable by hydraulic expansion, which gradually restores to the bladder its normal suppleness and capacity.

THE TREATMENT OF ACUTE TRACHELOCYSTITIS, due to the extension of acute urethritis, consists in recumbency, a light regimen, the administration of diluent drinks to render the urine bland, the use of belladonna and opium by mouth or rectum, of hot fomentations to the hypogastric region, and of daily warm baths. For ordinary cases this treatment suffices to induce resolution in the course of a week or ten days. Balsamics are often prescribed, but only serve to disturb digestion. Other cases attended with great pain and dysuresis require local depletion, such as may be effected by leeching the perinæum, and the substitution of cold for warm applications, the cold being applied within the rectum by way of ice suppositories. No instruments should be introduced into the urethra except in the event of retention of urine. In these severer cases it is necessary to give free doses of alkalies, such as the bicarbonate of sodium, thirty or forty grains, largely diluted, four times daily for three or four days, and to increase the doses of belladonna and opium. Though the pain and urgent and frequent urination diminish under this treatment, resolution is frequently incomplete, and the affection becomes chronic. It is in these chronic cases that Guyon's method of instillations of nitrate-of-silver solution is of the greatest service; but this will be detailed in the discussion of chronic prostatitis.

The treatment of cystitis due to injuries of the bladder will be stated in connection with the subject of traumatic affections of the urinary organs.

TREATMENT OF CALCULOUS CYSTITIS.—When cystitis is caused by the presence of a calculus or of a foreign body, it is sometimes necessary to prepare the bladder for the removal of either irritant. The bladder may be spasmodically contracted around the calculus or the foreign body to such a degree as to gravely interfere with the play of the instruments introduced for the destruction or the removal of the intruder. In such a case the preparation begins with the administration of a few free doses of belladonna and opium for two or three days. During this time the bladder is daily irrigated with a warm, soothing antiseptic solution, dilating it gradually as much as necessary for the safe destruction of the calculus or the extraction of the foreign body; either operation being successfully performed, the after-treatment consists in daily irrigations tending to cure the phlegmasia and to restore the bladder to its normal state.

IN THE MANAGEMENT OF CYSTITIS DUE TO OBSTRUCTION BY LOCAL URETHRAL STENOSIS the physician is guided by the character and caliber of the stricture, by its complications, and by the general physical state of the patient. If the stricture, though very narrow, is free from complications and susceptible of expansion, its gradual dilatation is at once begun and practiced every third or fourth day. As soon as the urethral canal is thus sufficiently enlarged at the strictured point to render urination moderately free, the acts are less painful, less frequent, the bladder is soon emptied, and the cystitis begins to subside, to be well, as a general rule, when the urethra is dilated to its normal caliber. When, however, the stricture is not dilatible beyond three or four

millimetres, it should be cut longitudinally from within, and a catheter introduced to draw off the purulent urine and to permit the thorough cleansing and disinfection of the bladder. The catheter is afterward used for every act of urination, and the bladder washed once each day until there are no more signs of cystitis. If there happens to be vesical contracture, gradual hydraulic dilatation becomes necessary. When internal urethrotomy is contra-indicated by reason of the extreme narrowness of a stricture seated in the scrotal or perineal region, especially if there be a urinary fistula or an abscess, the operation of external perineal urethrotomy should be performed without delay, to give free vent to the urine; but this urine should be drawn off by means of a large catheter passed through the wound, and the bladder thoroughly cleansed once or twice daily. If there is no serious complication toward the upper urinary organs, the cystitis is likely to be cured, or nearly so, before the external wound is fairly healed.

THE CYSTITIS OF ELDERLY MEN affected with prostatic enlargement requires unremitting attention from the earliest period of its development, because of the grave consequences that arise from neglect to relieve the bladder of the stagnant urine which so surely undergoes fermentation with the conversion of its urea into carbonate of ammonium, and the extension of the consequent phlegmasia to the whole of the vesical mucous membrane and even to its underlying fibrous coat. This cystitis is generally of slow development. At first the urine contains very little pus, only the lower fundus of the bladder being affected. The amount of residual urine may not exceed an ounce, but this residuum gradually increases until the bladder is abnormally distended. The urine is then ammoniacal, slimy, and fœtid, and urination is unduly frequent and very painful. If before the cystitis reaches this state of development the catheter is used once or twice daily and the bladder is properly cleansed, further fermentation is prevented and the phlegmasia subsides. But if the cystitis has already extended to the whole vesical mucous membrane, proper measures should be taken to check the ammoniacal conversion of the urea of the urine and to counteract its ill effects. The amount of urea metamorphosed into ammonium carbonate is not less than two per cent., or nearly ten grains to the ounce of urine. This percentage of ammonium carbonate is quite sufficient to excite cystitis, to act upon the albumin of the pus-corpuseles, and to saponify the fats of the pus, the result of these changes being the slime, mis-called ropy mucus, which is sometimes so tenacious that it can not be extracted through an ordinary catheter. There are two ways of relieving a bladder gorged with tenacious slime. One is to convert the carbonate into an acetate of ammonium by throwing in largely diluted acetic acid, thus liberating the fats and liquefying the slime, which then assumes a milky appearance; the other is to remove the slime by aspiration through a large-sized catheter.

The bladder is then to be emptied by means of an ordinary catheter five or six times every twenty-four hours and thoroughly cleansed with an antiseptic solution once and sometimes twice daily, night and morning. About ten

ounces of fluid at a temperature of 105° to 110° F. may be employed for this purpose, one third to be injected and three successive injections to be made at each sitting. The substances dissolved may be varied from time to time—boric acid with the corrosive chloride of mercury, phenol, permanganate of potassium, etc.—and continued as long as the urine is alkaline. When the urine resumes its normal acidity the injections need not be used oftener than twice a week, but the use of the catheter should not be abandoned. When the urine contains phosphates in great abundance, two grains of acetate of lead to the ounce of warm water, with two minims of acetic acid, may be used with good effect, there being a double decomposition and the formation of a soluble acetate of the bases, and of an insoluble phosphate of lead. Water acidulated with nitric or hydrochloric acid, two or three minims to the ounce, may also be used with advantage. These two means constitute the prophylaxis of phosphatic stone.

One of the gravest of the consequences of the cystitis of elderly men suffering from prostatic obstruction is contracture with diminished capacity of the bladder; this, happily, is of comparatively rare occurrence, while contracture with increased vesical capacity is the rule. These patients are tormented by constantly painful and unduly frequent urination, and, if allowed, would introduce the catheter every half-hour, for they suffer all the pangs of acute retention of urine, and their bladders bear very little if any artificial hydraulic distention. Though they are the most hopeless of all cases, their suffering is often alleviated by free doses of belladonna and opium, and by one or two daily injections of warm water rendered denser by the addition of glycerin and some salt of sodium or potassium.

The physician is sometimes called upon to minister to the suffering caused by complete retention of urine, another grave complication of the cystitis arising from stagnation of urine due to prostatic obstruction. His duty in such a case is to ascertain the degree of enlargement of the prostate and the exciting cause of the occlusion of the urethro-vesical orifice. He may learn, by patient cross-examination, that the sufferer had been exposed to inclement weather, or had committed some excess, or that his rectum had not been relieved for several days, etc. He may also learn how long since the bladder had been emptied, whether the patient or any one else had used a catheter, and if so what kind of catheter; if catheterism had been unsuccessful, how many times it had been tried; whether hæmorrhage had followed the attempts made to enter the bladder, and whether he had had any chills after the catheterisms. Then he should make a general examination of the case to ascertain the condition of the patient and the degree of distention of the bladder. If he finds the patient suffering much constitutionally from his ailment he should not at once resort to catheterism, but first administer a broth, a stimulant, and an opiate, and finally an enema to empty the rectum. In an hour or two he may select a suitable catheter, introduce it and draw off only a pint of urine, two hours after this another pint, and so on every two or three hours until the bladder is empty. The dangerous procedure of precipitately evacuating the overdistended bladder of elderly men

has already been pointed out, but an example will be given later. The best instrument for ordinary use is a No. 9 English curved gum catheter. If on account of a longitudinal rent in the prostate the point of the catheter is arrested and by gentle manipulation can not be made to enter the bladder, the instrument should be withdrawn and armed with a properly curved metal stylet and reintroduced after the manner of William Hey, which consists in carrying the instrument to the point of obstruction and in then withdrawing the stylet, at the same time pushing in the catheter seized with the left thumb and index. The suddenly increased curve changes the direction of the vesical extremity of the instrument, and the bladder is thus entered. If no urine flows it is probably because the eye of the catheter is obstructed by a clot of blood which can be driven out by injecting quickly through the instrument an ounce or two of water. It sometimes happens that this method of catheterism fails. Then the invaginated catheter of Mercier may be substituted with the fairest prospect of success. This ingenious contrivance has many times obviated the necessity for puncture of the bladder, which is to be regarded as an evil and performed for temporary relief only, in case suitable catheters can not be procured for many hours. The invaginated catheter consists of two catheters—one metallic, the other non-metallic. The first or female part is a thin-walled No. 10 English silver catheter, eleven inches long, very slightly curved, and having in its concavity, about half an inch from the point, an oval eye five eighths of an inch in length and three sixteenths in breadth. From the vesical extremity of the eye is an inclined plane, which is lost in the floor of the opening at a distance of a quarter of an inch, serving to tilt up the point of the male part. This male part is a flexible but firm "gum" catheter, No. 7 English, eighteen inches long, fitting loosely in the lumen of the female part, and having a single eye an eighth of an inch from its point. The manner of using the invaginated catheter is to introduce the male into the female part as far as the eye of the female part, then to pass the instrument as far as the obstacle and engage the point of the metallic part in the false route, and finally to project the male part, which will override the false route thus blocked and enter the bladder. The female part can then be withdrawn and the male part left in as long as may be required; this is the reason for the increased length of the male part.

In case of multiple false routes in the prostatic region and of failure of all methods of catheterism, the patient is rendered insensible by ether, or, better, by nitrous-oxide gas, and is placed in the lithotomy position. A grooved steel staff is then introduced into the urethra as far as possible, a median incision is made in the perinæum, the membranous urethra is laid open longitudinally with a bistoury, the left index finger is passed as far as the bladder to serve as a guide for a broadly grooved director; the finger is then withdrawn, and, with the guidance of the director, a deep downward cut is made with a long-bladed beaked bistoury in the median line through the base of the prostate, including the neck of the bladder. Before withdrawing the director a soft India-rubber tube of not less than ten milli-

metres in diameter is introduced and retained in position for forty-eight hours. Meanwhile the bladder is irrigated twice or thrice daily. After the withdrawal of the tube, the same, or one slightly smaller, is used once or twice daily to cleanse the bladder, though the urine may be flowing involuntarily. In the course of three or four weeks the false routes and the external wound heal by granulation, and ordinary catheterism may be employed to empty the bladder.

**VESICAL HÆMORRHAGE.**—When the overdistended bladder has been precipitately emptied and an abundant hæmorrhage has ensued, this viscus should not again be allowed to become distended, and means should be promptly taken to arrest the hæmorrhage. In such a case may be administered twenty-minim doses of fluid extract of ergot every two or three hours, or ten grains of gallic acid dissolved in glycerin, or the same quantity of quinine dissolved in dilute sulphuric acid. Vesical injections of cold water, slightly acidulated with acetic acid, may be made after each evacuating catheterism. Then it is essential that the bladder be kept empty. So long as the urine is much in excess of the effused blood, this blood retains its fluidity; but when the blood is in excess, coagulation rapidly takes place and the bladder is soon distended with dense clots which can not be extracted until they are broken up and removed by aspiration through a large catheter.

A vigorous farmer, seventy years of age, was seen in consultation at his home on the last day of June, 1891, on account of profuse vesical hæmorrhage due to his having suddenly emptied his overdistended bladder five days before when he had ridden forty miles in a light carriage. The bladder was filled with clots and distended to the level of the umbilicus. Notwithstanding the existence of prostatic obstruction, catheterism was easy, but, after a little bloody urine had escaped, a clot occluded the gum catheter. A metallic catheter, ten millimetres in diameter, was substituted and moved in different directions to break up the clots, several ounces of which were aspirated by means of Bigelow's instrument. A lithotribe was then used to further break up the clots, and these were likewise aspirated. After this several injections of diluted vinegar were made and the patient allowed to rest and sleep for three hours, when catheterism was again employed, but with a smaller instrument, which was not this time obstructed, and a pint of bloody urine drawn. After several cold irrigations with ten per cent. of vinegar the ejected fluid contained very little blood and no more clots. The hæmorrhage gradually lessened and ceased on the third day. It had lasted eight days in all. Meanwhile evacuative catheterism had been practiced every five hours. In a week the family physician wrote that the patient was in good condition, though he had been troubled with polyuria, which necessitated the more frequent use of the catheter, and that the cystitis was under control, the bladder being daily irrigated. The patient is at this date in excellent condition.

**TREATMENT OF THE CYSTITIS DUE TO DISEASE OR INJURY OF THE GREAT NERVE CENTERS.**—The discussion of the

treatment of cystitis will now be closed with some hints respecting the management of the cystitis which arises from stagnation and fermentation of urine due to disease or injury of the great nerve centers. In patients who survive grave lesions of the brain or of the spinal cord for weeks or months it has long since been observed that frequently the immediate cause of death is traceable to consecutive lesions of the urinary organs, such as cystitis, ureteritis, pyelonephritis, calculous formation, etc., all arising from stagnation of urine in the bladder, whose sensibility is blunted or even destroyed, owing to the nerve-center lesion, and that when early attention is given to the impaired urinary organs while the primary disease or injury is undergoing treatment, the life of the patient is prolonged and his suffering lessened. The needed treatment is simple and effective, so far as the urinary organs are concerned. Very soon after a patient becomes paraplegic his bladder ceases to act and rapidly fills with urine; therefore it should be artificially emptied at once, if it is not overdistended. So long as the urine is clear and of acid reaction, simple evacuative catheterism, practiced at regular intervals, suffices to prevent stagnation and cystitis. But when the urine is already turbid and alkaline the bladder should be irrigated once or twice daily with suitable solutions. This plan of treatment has been current in Bellevue Hospital for the past twenty-six years, and it is believed that the lives of many patients have thus been prolonged for months and even for years. Experienced surgeons know so well how commonly, in depressed fractures of the skull, the bladder becomes distended with urine, that the first direction they give to their aids is to empty the patient's bladder, with the object of preventing overdistention and cystitis.

(To be continued.)

#### NOTES ON OPERATIONS UPON THE MASTOID PROCESS.\*

By E. GRUENING, M. D.

At the Aural Department of the Mt. Sinai Hospital forty-seven operations of opening the mastoid process have been performed since January, 1889. This number exceeds that of any previous triennial period, the increase being due to the prevalence of influenza. The cases operated upon may be classified as follows:

*First.*—Acute caries or empyema of the mastoid, with profuse purulent discharge through the middle ear—thirty-nine cases.

*Second.*—Caries of mastoid with cortex intact, without purulent discharge through the middle ear—two cases.

*Third.*—Chronic otitis media purulenta, with presence of cholesteatomatous masses in the antrum and tympanic cavity—three cases.

*Fourth.*—Chronic otitis media purulenta, with sclerosis of mastoid process, thrombosis of lateral sinus, and pyæmia—two cases.

\* Read before the American Otological Society at its twenty-fourth annual meeting.

*Fifth.*—Chronic otitis media purulenta, with sclerosis of mastoid and abscess of brain—one case.

Of these forty-seven cases, in all the acute cases, forty-one in number, the patients recovered completely and were discharged cured; of the chronic cases, in the three complicated with a formation of cholesteatomatous masses the patients were improved, but not cured; while the remaining three admitted to the hospital with thrombosis of the lateral sinus and abscess of the brain, respectively, died.

The method of operation which I had employed in the Mt. Sinai Hospital up to 1889 was strictly that of Schwartze. Küster and von Bergmann have criticised Schwartze's method severely because the cases require a lengthy after-treatment by frequent syringing. Küster has proposed another mode of procedure in which the opening of the mastoid is systematically combined with the removal of the posterior wall of the osseous portion of the external auditory canal, and the introduction of a drainage-tube through the mastoid opening and the canal. The strictures made by these gentlemen are justifiable from a surgical, but not from an otological, standpoint. My operations demonstrate that, by an extension of Schwartze's method, the prolonged after-treatment becomes unnecessary, and the function of the ear is respected. This was particularly noticeable in the forty-one acute cases mentioned in this series.

The modification of Schwartze's method as practiced by me during the past three years consists in the systematic removal of the whole external wall of the mastoid process. I begin my operation through the soft parts with an incision extending from a point situated two centimetres above the linea temporalis and carry it to a point below the apex of the mastoid. The periosteum is then lifted from the whole extent of the mastoid process, and the tendinous attachments of the sterno-cleido-mastoid muscle are severed. The outer surface of the bone is thus completely exposed, and, if found diseased and softened, opened with a sharp spoon at the point affected. If the bone is found firm and apparently healthy, the opening is made with chisel and mallet on a level with the spina supra meatum. Thus far I follow Schwartze's directions. The next step in my operation is the removal of the whole cortex by means of the bone forceps or rongeur. I use for this purpose an instrument specially constructed with a view to the dimensions of the field of operation. Removal of the cortex brings into view a number of cavities filled with granulation tissue, for the dislodgment of which the sharp spoon is used. These small cavities are thus generally converted into one large cavity, whose bony walls may be found softened in many spots. Again the sharp spoon is used to clear away the softened and diseased bone. Now the large cavity thus made can be fully explored, and the site of the lateral sinus and its relation to the antrum determined. The importance of this localization was shown in one of my cases, where the sinus covered the path to the antrum into which I intended to penetrate. In some cases the sinus was found behind this path; in others, below that level. It is evident, then, from my experience in this series of operations, that localization of the sinus is generally possible, and thereby the subsequent step of entering the antrum rendered absolutely

safe. After the operation the cavity is packed with iodoform gauze and a bandage applied.

Of the forty-one acute cases, forty remained aseptic during the entire process of healing, which, on an average, lasted four weeks. Throughout that time neither the wound nor the ear was syringed. The packing was removed every fourth day and replaced by fresh gauze. The profuse discharge from the middle ear ceased immediately after the operation in every case. It is obvious, then, that in these cases we have not to deal with a disease of the osseous walls nor ossicles of the middle ear, but that the pus formed in the mastoid is only discharged through that channel. Furthermore, I have learned from these operations that the large incision over the mastoid may be immediately closed after the operation. This I intend to do in the future.

The fact that very extensive disease may exist in the interior of the mastoid process without the presence of any of the outward signs demanded by our text-books is shown by the two cases of central caries without apparent disease of the middle ear. Tenderness of the mastoid was the only symptom present at the time of operation. In fact, this local tenderness is the only symptom common to all cases of mastoid disease. Redness and swelling of the soft parts, local pain, headache, and high temperature may or may not be present. Tenderness, however, is a constant factor in this variety of local possibilities, and if, in spite of the employment of the ordinary means to combat it, this symptom persists, it is an indication for operative interference.

## THE CLIMATE OF BERMUDA.

BY H. E. MATTHEWS, M. D.,  
ORANGE, N. J.

THE object of this paper is to present to the profession a short study of the climate of Bermuda from a physician's point of view. This is the season when people begin to flock to Bermuda for their health; many of these return benefited, but to many others it is the worst place they could have chosen, because they lacked knowledge of the place.

The Bermudas are a group of small islands situated in lat.  $32^{\circ} 14' 45''$  N., and long.  $64^{\circ} 49' 55''$  W. They are said to number about three hundred and sixty-five, but only a few are habitable, the remainder being mere points of rock unfit for habitation. Geographically, these islands form a lagoon, being surrounded by a barrier reef containing a central inclosure of water which is subdivided by the various islands into two fine harbors. To this formation they owe their importance as a military and naval stronghold. They are of coral formation, and consist of a basis of coral limestone, with a topsoil of fine coral sand and animal and vegetable detritus.

The largest of these numerous islands is Long Island, or Great Bermuda, which is twelve miles in length and about two miles in average breadth. The capital, Hamilton, is situated on this island.

The other principal islands are St. George, on which is the town of the same name; David's Island; Ireland Island, noted for its famous dockyard; and Somerset Island.

These islands are about seven hundred miles from New York, and are reached by the steamers of the Quebec Steamship Company, sailing from Pier 47 North River, every Thursday between January 1st and May 1st, and fortnightly during the remainder of the year. The steamers are well fitted, the table is good, and the officers and men are kind and courteous to all. The agents of the line are A. E. Outerbridge & Company, 39 Broadway, New York.

Mr. Stark, in his book on Bermuda, says:

It certainly was a striking change in the scene that our voyage of sixty-five hours brought to us. We left New York at 3 P. M. on Thursday. The ground was white with snow and a raw northeast wind blowing, and on Sunday morning at sunrise we were floating on a glassy tropic sea, close to the islands. . . . Tropic, indeed, in one sense, these islands are. No frost ever visits them. The palm, banana, orange, lemon, paw-paw, India-rubber tree, with a profusion of flowers and vines, only seen in our northern greenhouses, flourish here.

The population of these isles is about sixteen thousand souls.

In a consideration of the climate of Bermuda the first point to be noticed is the temperature. The Bermudas, from their situation in mid-ocean and from the proximity of the Gulf Stream, enjoy a very uniform temperature throughout the year—the annual average being between 60° and 70° F. This compares most favorably with New York, where we habitually meet with extremes of the temperature within a few hours. It is indeed rare in Bermuda to find the temperature below 50° F. The observations of the British army, made at Prospect, give the range of temperature as follows for 1889:

CHART A.—Bermuda Temperature Chart, 1889.

MONTH.	Mean maximum shade temperature.	Mean minimum shade temperature.	Actual maximum shade temperature.		Actual minimum shade temperature.	
			Date.	Date.	Date.	Date.
January	69·6°	55·4°	74·8°	10	48·0°	30, 31
February	68·0°	53·6°	74·2°	19	47·5°	27
March	71·4°	56·1°	76·0°	16	46·8°	1
April	77·0°	61·4°	84·0°	23	57·5°	13
May	80·2°	63·0°	84·4°	1	58·0°	11
June	84·1°	65·3°	89·0°	15	61·0°	8
July	85·7°	69·6°	89·2°	4	67·0°	2, 8, 23
August	88·3°	70·5°	93·5°	28	65·0°	9
September	86·6°	71·3°	91·2°	13	65·4°	27
October	81·7°	66·7°	87·0°	2	63·8°	11
November	78·7°	64·1°	83·5°	10	59·4°	26
December	74·2°	59·3°	80·2°	21	54·2°	29

The coldest month is February, with a mean shade temperature of 60·3° F. The warmest month is August, with

CHART B.—Comparative Table of Mean Winter Temperatures.

PLACE.	NOVEMBER.			DECEMBER.			JANUARY.			FEBRUARY.			MARCH.			APRIL.		
	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
Bermuda	74·2°	60·3°	67·7°	72·3°	57·0°	64·6°	69·5°	54·0°	66·7°	69·0°	51·0°	60·0°	69·2°	51·7°	60·4°	72·0°	57·0°	64·0°
San Diego	66·8°	48·7°	58·2°	64·5°	49·0°	55·6°	61·8°	44·5°	53·6°	61·6°	46·3°	54·3°	62·8°	49·4°	55·6°	65·3°	51·2°	57·7°
Jacksonville	70·4°	55·3°	61·7°	66·4°	49·4°	55·8°	64·9°	48·2°	55·8°	68·5°	52·1°	58·1°	73·6°	56·2°	62·7°	78·4°	61·5°	69·0°
Nice, France	68·0°	30·0°	49·5°	66·0°	26·3°	46·6°	65·6°	25·6°	45·6°	67·3°	25·7°	46·5°	75·0°	26·5°	50·7°	75·0°	35·6°	55·3°
New York	50·9°	37·3°	42·1°	41·7°	28·6°	32·9°	36·7°	23·1°	30·1°	40·1°	25·9°	31·3°	45·9°	31·3°	36·8°	56·3°	40·5°	46·9°
Chicago	47·2°	33·6°	38·5°	37·5°	24·7°	29·5°	32·6°	17·7°	25·8°	37·5°	23·3°	28·9°	44·3°	30·7°	34·7°	51·0°	39·7°	45·4°
Boston	49·2°	32·8°	38·2°	40·3°	23·8°	29·5°	35·3°	17·0°	26·4°	38·6°	20·1°	28·1°	43·2°	26·7°	34·2°	53·2°	36·1°	43·9°

a mean shade temperature of 79·4° F. The variations of the temperature are insignificant when compared with many of our health resorts, and to show this I have inserted tables containing the winter temperatures of several places for comparison with that of Bermuda. A glance will show the uniformity of the temperature of Bermuda.

The tables in this article are compiled from the records of the United States Signal Service and the British Army, and cover observations extending from seven to thirteen years.

CHART C.—Comparative Table of Absolute Winter Temperature—Winter meaning November, December, January, February, March, and April.

PLACE.	Yearly average.	Winter average.	ABSOLUTE MAXIMUM TEMPERATURE.		ABSOLUTE MINIMUM TEMPERATURE.		Possible winter range in degrees.
			Highest	Lowest.	Highest	Lowest.	
Bermuda	69·6°	63·9°	78·7°	73·1°	58·3°	52·2°	26·5
San Diego	60·4°	54·5°	85·6°	66·6°	47·0°	34·3°	51·3
Jacksonville	69·2°	56·5°	84·5°	76·8°	45·6°	28·8°	55·7
Nice, France	60·0°	50·8°	70·6°	.....	.....	35·5°	35·1
New York	51·2°	31·4°	71·0°	51·5°	25·0°	2·3°	68·7
Chicago	48·8°	28·0°	70·6°	50·3°	25·6°	—8·5°	79·1
Boston	48·2°	28·0°	71·9°	50·6°	18·6°	—5·0°	76·9

A careful examination of the tables will show that Bermuda enjoys a most equable temperature—even more so than San Diego. Bermuda, with its shade temperature rarely below 50° F. and never above 86° F., never hot or never cold, possesses, perhaps, a more uniform temperature than any other point on the globe.

*Humidity.*—Many authorities consider humidity of more importance than the temperature in the consideration of climate. It is certainly true that, in order to form a correct estimate of the effects of a climate upon our patients, the amount of moisture in the air must be taken into consideration, for it is well known that moist cold or moist heat is not so well borne as dry heat or dry cold. In

Table of Mean Humidity, Percentage.

PLACE.	Annual.	Nov.	Dec.	Jan.	Feb.	March.	April.
Bermuda	73·4	72·2	72·0	75·0	76·5	77·0	77·1
San Diego	72·9	66·4	67·2	71·2	74·3	75·5	72·4
Jacksonville	72·0	74·8	73·7	74·6	70·6	65·4	67·2
Nice	.....	62·4	63·0	65·9	59·9	55·7	60·4
New York	69·7	69·6	72·4	72·4	72·0	67·6	64·8
Chicago	70·8	70·8	73·9	76·0	72·5	71·5	66·5
Boston	69·6	70·5	72·7	71·8	69·6	69·4	64·8

common with most islands and sea-coast towns, the air of Bermuda contains a relatively high proportion of moisture. The situation of these islands in mid-ocean and their small

area are the causes of the high degree of humidity, for the vapors constantly rising from the encircling sea are driven over the islands by every wind that blows.

*Rainfall.*—The presence of such a high degree of moisture is considered by many to predispose to rainfall; but, perhaps, the chief cause of rain in Bermuda is the proximity of the Gulf Stream. The cold blasts rush down from the north and strike the moist humid air in the vicinity of the Gulf Stream, condensing its vapors and causing the precipitation of rain.

From the preceding remarks the inference will be that considerable rain falls in Bermuda; a glance at the accompanying table will show this to be the case:

Table of the Average Rainfall in Inches.

PLACE.	Nov.	Dec.	Jan.	Feb.	March.	April.	Annual.
Bermuda . . . . .	1.35	4.18	7.40	6.75	4.12	11.20	54.00
San Diego . . . . .	.70	2.12	1.85	2.07	.97	.68	9.49
Jacksonville . . . . .	2.95	2.89	3.28	3.45	3.13	3.55	54.68
New York . . . . .	3.34	2.97	3.50	3.23	4.07	3.25	42.52
Chicago . . . . .	2.96	2.07	2.04	2.28	2.79	3.69	37.58
Boston . . . . .	5.20	3.57	4.03	3.52	4.97	4.01	48.16

During the year 1889 there were 161 clear days, 57 overcast days, and 153 days on which rain fell. Although, as shown by the table, considerable rain falls in Bermuda, yet it is worthy of notice that a settled rain is the exception rather than the rule. The rain falls often, but in short showers or "squalls," between which will be intervals of sunshine. Moreover, from the porous nature of the soil, the rain does not lie long on the surface, but percolation and evaporation soon dispose of it. The large amount of rainfall is a factor of importance to Bermudians. There are no wells in the islands, and the inhabitants depend upon the rain-water for drinking purposes. The rain is collected in stone tanks, which are kept scrupulously clean—comparing most favorably with such contrivances in our own country.

*Wind.*—The prevailing direction of the wind is from the southwest; it also frequently blows from the northeast and southeast. The wind is usually of a gentle character and not squally, but the liability of sudden gales in southern latitudes must be borne in mind. In 1889 there were two gales.

I have made no study of the atmospheric pressure, as this, at sea-level, is of more interest to the meteorologist than to the physician.

Not among the least important points to be noticed in studying a health-resort are the accommodations, food, water, and society.

The accommodations are excellent. There are two fine, well-managed hotels—the Hamilton and the Princess—and also a number of smaller houses, where the visitor will be well housed and fed. Those who do not care for the bustle of hotel life will find many comfortable and home-like boarding-houses. The subject of water has been mentioned before.

The air is remarkable for its purity and wholesomeness. It is pure sea air, unadulterated by the dust and odors of our cities.

The roads are excellent and are unexcelled for driving

or bicycling; they wind about through nooks and crannies, every now and then running out along the seashore, and giving the traveler a glimpse of the azure-hued sea—the beauty of which defies description.

The Bermudians are a refined, hospitable, and cheerful people, and any visitor equipped with a few introductory letters may be sure of receiving every attention.

To sum up, then, the climate of Bermuda is one of very uniform and moderately warm temperature, of high humidity, and frequent rainfall. From careful inquiry and personal study, I have made the following conclusions concerning the effect of a visit to Bermuda upon patients suffering from various illnesses.

*Phthisis.*—The death-rate (total) of Bermuda is from 18 to 21 per 1,000. The death-rate from phthisis and allied tubercular complaints is about 2.5 per 1,000, and these diseases occur for the most part in the colored population. The greater proportion of deaths are due to diseases incidental to old age, these being mentioned in the government reports as "old age," "senile debility," "general debility," and other indefinite diagnoses. The general opinion concerning the climatic treatment of phthisis appears to be that these patients do not do well in low, moist climates. It is so in Bermuda; phthisis, as a rule, does not do well there; but some patients with incipient phthisis—with slight consolidation of the apex, with little or no expectoration, and with a tendency to hemorrhage—are often greatly benefited by a residence in Bermuda. But all patients with phthisis which has progressed to any extent, and more particularly those in whom the lung tissue has begun to break down, will receive more harm than benefit from a visit to Bermuda.

*Bronchitis and Asthma.*—On the other hand, cases of bronchitis and asthma, with or without cardiac complications and emphysema, do well in Bermuda, particularly if the expectoration is scanty.

Patients with pleurisy in which the effusion remains unabsorbed are very much benefited, and go on to complete recovery in Bermuda.

*Rheumatism, Gout, and Neuralgias.*—These complaints will not, as a rule, be benefited by a visit to Bermuda. These patients will do better in a climate not so humid as that of Bermuda.

*Cystitis and Nephritis.*—Patients suffering with cystitis, stone, and the various forms of nephritis, may receive considerable benefit as regards their general health. They gain flesh and strength, sleep well, and very often receive permanent relief.

Patients troubled with stomach disorders do well, as a rule; but those with intestinal disorders will do better in a colder climate.

But it is in Bermuda especially that convalescents, hypochondriacs, overworked business men, and victims of neurasthenia and mental depression, will find a haven for rest and health. They are shut off from the rest of the world, and have nothing to do but to eat, sleep, and partake of the various outdoor sports. These people, relieved of their cares, soon become cured, and to them, above all, Bermuda proves a true Bimini—a veritable fountain of health.

## FATAL HÆMORRHAGE IN AN INFANT AFTER SCARIFICATION OF THE CONJUNCTIVA.

By I. A. SHIRLEY, M. D.,  
WINCHESTER, KY.

ALICE B., mulatto, primipara, aged eighteen, was delivered September 9, 1890, of a well-developed girl baby, weighing eight pounds. Labor normal in every respect, save an occipito-posterior position of vertex presentation which naturally prolonged it. Puerperal convalescence was uneventful. Within a few days of birth the babe exhibited characteristic "snuffles," which it came by honestly, as both parents were known to be syphilitic. When about two weeks old I prescribed a weak zinc and morphine collyrium for what I supposed, from description given me, was acute conjunctivitis. After being reported better I heard nothing more of it until called a month later to prescribe for its bad sore throat, which, however, did not exist. The eyelids were closed, and I was informed were seldom opened at all, and then to a degree scarcely perceptible. The exterior of the upper lids was puffed up, resembling very much the condition frequently seen and occasionally experienced by some of us country chaps when approximating too closely our optics to the abode of the bumble-bee. On separating the lids, quite a quantity of pus was discharged and the mucous membranes were enormously swollen. Palpebral conjunctivæ were freely scarified, and sulphate of copper in substance applied. The flow of blood at this time was pretty free, but not too much, and it was directed to be let alone for a while, as a tolerably thorough evacuation was desired. This was about 9 A. M. At 12.30 P. M. the mother informed me that she believed her babe would bleed to death; I accompanied her to her home at once, and found her fears well grounded. Blood was flowing freely, terrifically from the conjunctival incisions; blood in clots, fluid blood came in a free, continuous, steady stream. The lids were thoroughly everted, and sponges, wrung out of water as hot as could be borne, forcibly applied to the bleeding surfaces; this availing nothing, ice was similarly tried, with a like result. Persulphate of iron, in powder and solution, were each in turn given a thorough trial, only to prove disappointing. The bleeding could be

plainly seen issuing from transverse incisions near the superior palpebral fold. The everted mucous membranes were approximated in such a way that a needle, curved at the point and armed with a stout silk thread, could be passed well beneath the bleeding areas, and the upper and lower conjunctivæ were firmly united by four inter-

rupted sutures in either eye. There was but little hæmorrhage from the lower lids, but it was considered best to stop every possible leak, however insignificant, and as a means to an end, and to expedite matters, the needle was made to traverse both lids and unite them. As the needle transixed, as it were, not more than a quarter of an inch of each conjunctiva, the lids remained everted after sutures were tied. Hæmorrhage was now effectually and permanently stopped. My friend Dr. McKinley, who at this time kindly saw the case with me, and I thought, from the fair condition of the heart's action, that the little one would recover, barring a recurrence of the hæmorrhage. It was given a small dose of ergot

and a stimulant, with an opiate to quiet it, and a light water dressing applied to rather hideous-looking eyes. The stimulant and ergot were to be repeated at regular intervals. I was requested, two hours later, to remove the stitches from the dead babe's eyes, who at this time showed the blanched, pale color characteristic of great loss of blood.

The query with me is, Was it of the family of bleeders? Could not the lids in persons of the non-hæmophilic type be entirely removed without fatal or even severe loss of blood? Hæmorrhage after scarification for purulent or granular conjunctivitis is not mentioned by any authority to whom I have access or been referred. Noyes, Wells, McNamara, DeWecker, Swanzy, and George Berry, while mentioning the procedure, say nothing of hæmorrhage. Dr. G. E. De Schweinitz, of Philadelphia, in a recent number of the *Medical Record*, reported a case of dangerous and alarming hæmorrhage from the application of nitrate of silver to purulent conjunctivæ in an infant of six weeks. Darnier, in the *St. Louis Medical Review*, advises deep incisions and scraping with sharp spoon in granular conjunctivitis, but says not a word about hæmorrhage. Dr. Robert Sattler, of Cincinnati, has observed persistent hæmorrhage after entropium and trichiasis operations, but not after simple scarification. Therefore, from what I have been able to glean, I believe the case to be unique, and shall henceforth keep a watchful and suspicious eye, for some hours at least, on every conjunctiva that I scarify.

## A CASE OF PTYALISM BY COLCHICUM.

By JOHN SHAND, M. D.,  
EDINBURGH, SCOTLAND.

"Colchicum occasionally acts as a diuretic and expectorant, and a case is on record of violent salivation supposed to have resulted from its use."—  
United States Dispensatory, 1887, page 886.

The following case bears out the confirmation of the conjecture expressed in the above-given quotation. This conjecture has been extremely interesting to me, as it is the only instance, in the human subject, of such a probability that I can find recorded in our large library of the College of Physicians. I say in the human subject advisedly, for there is a record in the last century of two dogs being profusely salivated by colchicum. This, as I consider it, valuable suggestion appears never to have been acted upon.

My case occurred over twenty years ago, while engaged in a very large general practice in the south of Scotland.

I was called to see a lady a little past middle life who was a patient sufferer from an acute pain in the left hypochondrium, with œdema of the ankles. The œdema soon became general dropsy and the pain continued. So acute was this pain that its increase on movement of any sort terrified her into refusing to go to bed, as she preferred resting her body on one easy chair and her feet on another. This had been the case for over two months before I saw her.

Careful examination revealed no organic lesion or affection, and, as the dropsy had become alarming, I prescribed all the usual diuretics with but partial and passing effect. I felt a crisis threatened soon, and spent a little time in industriously listening to an account of all the ailments of her past life, and I could



not but remark that there was a thread or trace of rheumatism or gouty rheumatism indicated in all. An anxious consideration and reflection decided me to treat this recognizable thread alone for a little, and I selected colchicum as my remedial agent, and resolved to use it with every care and justice alike to patient and medicine, which I have learned as an apprentice to my father to regard with a degree of veneration in cases of that character, if wisely prescribed. In addition, from my long experience of Fleming's strong tincture of aconite, I considered it best to use the tincture of colchicum seed in a similar way.

I began with one minim every eight hours, guarded by a triple multiple of aromatic spirit of ammonia (with respect to cardiac action). This went on with regularity and precision till the twelfth day, when a wonderful improvement was apparent in the dropsy, and the patient invited my attention to the contemporaneous profuse salivation.

On the sixteenth day dropsy and pain had alike totally disappeared.

I should mention that by the eighth day the pain was so relieved that she voluntarily took to bed at night, reserving her chairs for day.

In conclusion, she survived eight or nine years without any return of her old ailment, and her death seemed occasioned by a gradual decline of strength after a slight chill. She knew me three hours before her death, when I happened accidentally to be in the South and passing that way.

Since those days I have had many cases in which, though not so urgent as this, I have prescribed colchicum in the same way—beginning with one minim and going on till some physiological effect was produced, whether pain in the epigastrium, nausea, a diarrhoea, or, best of all, total alleviation of pain.

It is important to annotate that I tested the ptyalism more than once by diminishing the dose of colchicum, or increasing it, and I each time found a corresponding response.

The above-given case appears to me a good text for further treatment by colchicum in rheumatic gout, especially if accompanied with dropsy, though it need not be withheld till dropsy is ushered in.

## REPORT OF A CASE OF DIABETES MELLITUS, AND TREATMENT.

By J. PAGE BURWELL, M. D.,

WASHINGTON, D. C.

Mrs. L., widow, aged fifty-five, was in March, 1890, confined to bed, complaining of severe pains in all of her limbs and in her back. Her tongue was red and glazed, and micturition was frequent. Upon examining the urine, I found the specific gravity 1.048, and the reaction acid. A test with Fehling's solution showed a large quantity of sugar.

I prescribed three grains of gallic acid and one grain of aqueous extract of opium in capsules three times a day; also two grains of ergotine night and morning. The diet consisted of milk, beef-tea, and gluten bread. Under this treatment the sugar gradually disappeared until September, 1890, when the specific gravity was found normal, and there has not been a trace of sugar since, although I have made frequent tests. All treatment has been discontinued since November, 1890, and she has not been restricted in diet since January, 1891. She sleeps well, is free from pain, and has a very healthy appearance.

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### UNSUSPECTED GALL-STONES.

DR. JOSEPH M. PRICE, of Philadelphia, presented at a recent meeting of the Philadelphia County Medical Society several cases of abdominal section. His paper, with the discussion, has been published in the *Medical and Surgical Reporter* for December 12th. His most striking case was one of obstinate obstruction of the bowels the true cause of which was a large biliary calculus which was not suspected until the operation was well under way. The patient was a woman of forty-five years, having pain and some extension of the normal area of dullness over the hepatic region. There was no jaundice, fever, vomiting, or tympanites, but there was slight weakening of the heart's action. Large and frequent doses of cathartics had been given without avail. The patient's general condition was good, but a very anxious facial expression began to assert itself. The patient desired that something radical be undertaken for her relief. An abdominal section was done in the hepatic region. The incision, two inches long, almost immediately disclosed a greatly distended gall-bladder. This was tapped, and the contents proved to be a clear gelatinous fluid, without any of the characteristics of bile. The gall-bladder was examined and two large stones and one small one were removed. The direct cause of the intestinal obstruction was the pressure of this enlarged bladder, with its gall-stones, over and upon the transverse colon, the anterior abdominal wall yielding but slightly and causing all or nearly all of the effects of overdistention, as the gall-bladder gradually enlarged, to be expended on the colon, thus creating as complete an obstruction as had ever been met with by Dr. Price.

Dr. Price speculates regarding the possible outcome of the case if the operation had not been resorted to and if the patient had survived long enough for protective adhesion to take place between the gall-bladder and the bowel. The transverse colon was in contact with the gall-bladder, and was therefore favorably located for that form of "Nature's cure" which is obtained through inflammatory adhesion, ulceration, and discharge of the calculus into the adjacent or underlying intestine. In not a few such cases the adhesion does not take place at the "point of election," so to call it, and a leakage of bile into the peritoneal cavity may cause disastrous results. Or the ulcerative process may be excessive, and a defective coaptation of the organs in question may permit of an escape of the stone or stones into the peritoneal cavity. Or, again, both the adhesive and the ulcerative processes may be conducted safely and the stone be lodged in the intestine—the ileum, for example—and there cause complete obstruction and a fatal result. Two cases of this last-named accident have been observed by Dr.

James Collins, of Philadelphia, within the last ten years, and he believes that deaths from similar conditions are not infrequent.

These are the instructive points to be gleaned from the paper and discussion given in the *Reporter*. One other point, bearing upon the remedial influence of operative interference, is the proposition of Riedel, in the *Centralblatt für Chirurgie*, No. 21. He refers to those attacks of pain and digestive disturbances that depend upon old adhesions, bands, etc., on and about the gall-bladder. In thirty-six abdominal sections for diseases of the gall-bladder and gall-ducts he has found no fewer than fifteen cases of adhesion, of which nine existed between these organs and the omentum, four with the bowel, and two with the abdominal wall. These adhesions are not of necessity connected with severe inflammatory processes—far less with suppurative changes—but may have been produced by a catarrh of the gall-bladder, with or without the existence of calculi. Riedel advocates a more frequent employment of laparotomy in cases of obscure abdominal diseases, in the belief that many of them are due to bands thus surreptitiously formed, and thinks that a degree of relief out of all proportion to the apparent structural disturbances can be accomplished by discovering and breaking up these adhesions.

#### SO-CALLED "HYDRARGYRUM LACTATUM."

A CASUALTY from the misuse of drugs is reported from Bay City, Michigan. Somebody blundered, and somebody else lost his life; so says the *Western Druggist*. A physician of that town fell into the habit of prescribing "hydrargyrum lactatum," meaning thereby a preparation furnished by a Chicago dealer in drugs which is said to contain one part each of calomel and of bismuth subnitrate and eight parts of milk sugar. This did no harm so long as the prescriptions were taken to the shops where the Chicago specialty was known. But the day came when a change in pharmacists was made by the patient. The new pharmacist, ordered through his wholesale dealer a bottle of "hydrargyrum lactatum," and received a supply of Merck's "lactate of mercury." Merck's catalogue contains that item, with the price marked at \$1.00 an ounce. Chemistry recognizes "hydrargyri lactas," or mercurous lactate, and, although it is not often heard of in medicine, Watts's *Dictionary of Chemistry* describes its composition and properties. This preparation was dispensed three times before any injurious effects were noticed, but the fourth dispensing of it was followed by the death of the patient. An analysis of the drug is said to have shown the presence of mercuric lactate as well as of the mercurous salt, and it is suggested that a reduction had been going on in the bottle after it left the wholesaler's hands. If this is the fact, and can be proved, it will tend to lighten the condemnation launched by the *Western Druggist* against the conductors of the Chicago drug house for its "criminally reckless terminology," in that they adopted a harmful name to cover a comparatively mild "specialty." It will also tend to lighten the feeling of responsibility for this particular "accident" in the mind of the physician, against whom the *Druggist* alleges

that his conduct was "little less than criminal," because he prescribed a substance about which he really knew nothing. There seems to be a fatality about nearly all these "specialties, or combinations made by some known-to-us-alone process"; sooner or later, they become the occasion of loss of life, or they get everybody into trouble who has anything to do with them. The remedy of known composition is not always safe, but it comports more thoroughly with the dignity of the profession to employ it, so that even if perchance a casualty should follow its legitimate use, it will not be necessary to resort to that most idiotic of excuses, "I did not know it was loaded"—the plea of those who point pistols at their best friends and kill them!

#### MINOR PARAGRAPHS.

##### INFLUENZA AND THE BIRTH-RATE.

THE year 1890 did but little to arrest the impending depopulation of France. Four months of it were signalized in Paris by a lower birth-rate than at any period during the five preceding years. There are, on an average, a thousand children born in Paris every week, and sometimes eleven or twelve hundred. The forty-first week of 1890 told a different story. There were only seven hundred and eighty-seven births. One author considers this due in great measure to losses of men in the Franco-Prussian war, affirming that, about twenty-five years after war, pestilence, and famine, there is always a deficiency in the birth-rate, owing to the absence of children of the fallen, who would in one generation themselves become fathers. To this Dr. Roeser fails to agree, and in the *Revue générale de clinique et de thérapeutique* for December 9, 1891, gives an interesting diagram illustrating the falling off in the birth-rate, which he ascribes to the influenza that reigned in Paris from the 26th of November, 1889, to the early days of February, 1890. His observations form an interesting contribution to the statistics of epidemics and natality.

##### PILOCARPINE AS A REMEDY FOR RABIES.

IN the November number of the *Indian Medical Gazette* Assistant Surgeon Troylucko Nath Ghose gives an account of a case of supposed rabies in which recovery followed the use of eleven subcutaneous injections of pilocarpine hydrochloride, of a fifth of a grain each, in the course of seven days. The author remarks that in the course of his twenty-five years' practice he has seen probably not fewer than twenty cases of rabies, but has never before succeeded in curing one, and he adds that he has never known of a recovery from the disease in India. He was led to use the drug in this case by seeing it mentioned in Martindale's *Extra Pharmacopœia* as having effected a cure in two cases out of four. Before resorting to it, and before the spasms had come on, he excised the cicatrix that had formed as the result of the bite, and kept the sore open for two weeks, with the effect of stopping a shooting pain that had been felt in the scar.

##### THE NEW JERSEY STATE BOARD OF MEDICAL EXAMINERS.

THIS board has just reported to the Governor on the operation of the medical-practice law of 1890. It is stated that over a hundred physicians have been allowed to register in the old way, because the county clerks were unable or unwilling to discriminate between fraudulent and legal diplomas, though such registration does not entitle the person registered to practice

medicine. Of the 2,500 legalized physicians in the State, ten per cent. are registered on bogus or fraudulent diplomas. The board examined 101 candidates, issued 82 licenses to practice medicine in the State, and 3 licenses in the preliminary branches, and rejected 16 candidates. It is to be hoped that public sentiment will support the board in its efforts to protect the community from quacks and incompetent men.

#### THE MEDICAL CORPS OF THE NAVY.

The *Report of the Chief of the Bureau of Medicine and Surgery* for the year 1890, dated October 7, 1891, is a pamphlet of rather more than a hundred pages. It contains the usual tabular matter, an account of the health of the force, and interesting reports from the medical officers in charge of various stations and individual vessels. It seems that during the year 1,422 persons were on the sick list with influenza, among whom there was only one death. On the average, the men were off duty on account of this disease between five and six days, making a total of 7,719 days lost to the service.

#### MERITORIOUS SERVICES BY ARMY MEDICAL OFFICERS.

In a recent list issued by the Major-General commanding the Army, giving the names of officers and enlisted men who distinguished themselves by specially meritorious acts or conduct in service in 1890 and in the more recent Indian campaign in South Dakota, are mentioned the names of Lieutenant-Colonel Dallas Bache and Major J. Van R. Hoff, surgeons, and Captain H. P. Birmingham and Captain W. L. Kneedler, assistant surgeons.

#### ITEMS, ETC.

**The Sloane Maternity Hospital.**—It is announced that five summer courses, each lasting four weeks, will be open to physicians and advanced students. Each class is positively limited to six. The five courses will be the same, so the only choice is in regard to the time. The courses begin on May 2, June 1, July 1, August 1, and September 1, 1892. Each course offers the following advantages: I. *Twenty lessons in operative obstetrics* (five each week). Each student in turn will practice upon the phantom all the common and most of the rarer obstetric operations. Special endeavor will be made to render these exercises of the greatest practical value. II. *Attendance at all births in the hospital* (about fifty may be expected in four weeks). Clinical instruction and every facility for observation of births, normal and abnormal, will be given. III. Instruction in the treatment of puerperæ and infants. Students in turn will make rounds daily with the house staff. IV. Instruction in abdominal palpation and auscultation and vaginal touch. Examination of gravidæ will be practiced daily by each student in turn. For further information application may be made in person or by letter to Dr. E. A. Tucker, at the hospital.

**The Metropolitan Medical Society.**—This society, which meets fortnightly, is limited to a membership of eighty. Officers for the ensuing year were recently elected as follows: Dr. F. A. McGuire, president; Dr. William Cowen, vice-president; Dr. F. F. Marshall, recording secretary; Dr. Henry S. Stark, corresponding secretary; and Dr. H. N. Vineberg, treasurer.

**The Alumni Association of Mt. Sinai Hospital** held its first annual dinner at the Arena on December 7th. About thirty gentlemen were present. Dr. Alfred Meyer presided.

**The Obstetrical Society of Leipsic.**—At the four hundredth meeting of the society, held on October 19, 1891, Dr. Paul F. Mundé, of New York, was elected a corresponding fellow.

**The Death of Dr. Robert A. Kinloch, of Charleston,** took place on December 23d. He was in the sixty-sixth year of his age. He had

been the professor of surgery at the South Carolina Medical College and surgeon-in-chief of the Roper Hospital so long that he occupied without dispute the leading surgical position in his State. He was at one time president of the State Medical Society. During the late war he was medical director of the South Atlantic Division in the Confederate service.

**The Death of Dr. Simon T. Clark, of Lockport, N. Y.,** took place on Thursday, December 24, 1891. He was fifty-five years old, was born in Canton, Mass., and was graduated from the Berkshire Medical College in 1861.

**The Death of Dr. Buckminster Brown, of Boston,** occurred at Auburndale, Mass., on Thursday, December 24, 1891. He was seventy-two years old, was born in Boston, and was graduated from the Harvard Medical School in 1844.

**The Death of Sir James Risdon Bennett, M. D., F. R. S.,** is announced in the *British Medical Journal* as having taken place recently. The deceased, who was an ex-president of the Royal College of Physicians, was eighty-two years old.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from December 13 to December 26, 1891:*

By direction of the Acting Secretary of War, a Board of Medical Officers is constituted, to consist of—

IRWIN, BERNARD J. D., Colonel and Surgeon; ALDEN, CHARLES L., Lieutenant-Colonel and Surgeon; GIRARD, ALFRED C., Major and Surgeon; and BRADLEY, ALFRED E., First Lieutenant and Assistant Surgeon—to meet at Headquarters Department of the Missouri, Chicago, Ill., on February 1, 1892, for the examination of candidates for admission to the Medical Corps of the Army, and for such other business as the Surgeon-General may desire to bring before it. MEARNS, EDGAR A., Captain and Assistant Surgeon. By direction of the Acting Secretary of War, so much of Par. 1, S. O. 265, A. G. O., November 13, 1891, as directs him to report to the commanding officer, Fort Mackinac, Mich., is revoked; he will proceed to El Paso, Texas, and on arrival there report for duty to Lieutenant-Colonel John W. Barlow, Corps of Engineers, member of the commission appointed for the location and marking of the boundary between Mexico and the United States.

WALES, PHILIP G., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month, with permission to apply for an extension of one month.

GARDNER, EDWIN F., Captain and Assistant Surgeon, is, by direction of the Secretary of War, relieved from further duty at Fort Porter, N. Y., and also from temporary duty at Fort Columbus, N. Y., to take effect upon the arrival at that post of FISHER, WALTER W. R., Captain and Assistant Surgeon, and will then proceed to Fort Mackinac, Mich., for duty.

ROBINSON, SAMUEL A., Captain and Assistant Surgeon, is granted leave of absence for twenty days, to take effect on or about January 2, 1892.

#### Society Meetings for the Coming Week:

MONDAY, *January 4th:* German Medical Society of the City of New York; New York Academy of Sciences (Section in Biology); Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica, N. Y., Medical Library Association; Corning, N. Y., Academy of Medicine; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, *January 5th:* New York Obstetrical Society (private); New York Neurological Society; Elmira, N. Y., Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburg, N. Y., Medical Association; Medical Societies of the Counties of Broome (quarterly) and Niagara (semi-annual—Lockport), N. Y.; Hudson (Jersey City) and Union (quarterly), N. J., County Medical Societies (Chittenden, Vt., County Medical Society; Androscoggin, Me., County Medical Association; Baltimore Academy of Medicine.

WEDNESDAY, *January 6th*: Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Bridgeport, Conn., Medical Association; Penobscot, Me., County Medical Society (Bangor).

THURSDAY, *January 7th*: New York Academy of Medicine; Society of Physicians of the Village of Canandaigua, N. Y.; Brooklyn Surgical Society; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington); Washington, Vt., County Medical Society (annual—Montpelier).

FRIDAY, *January 8th*: New York Academy of Medicine (Section in Neurology); Yorkville Medical Association (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.

SATURDAY, *January 9th*: Obstetrical Society of Boston (private); Worcester, Mass., North District Medical Society.

## Proceedings of Societies.

### SOUTHERN SURGICAL AND GYNÆCOLOGICAL ASSOCIATION.

*Fourth Annual Meeting, held in Richmond, Va., November 10, 11, and 12, 1891.*

The President, Dr. L. S. McMurtry, of Louisville, Ky., in the Chair.

(Concluded from vol. liv, page 723.)

**The Pedicle in Hysterectomy.**—Dr. I. S. Stone, of Washington, D. C., read a paper on this subject, in which the three principal methods were described and illustrated by colored drawings, showing the arrangement of the pedicle in the abdominal wound. The author alleged a revival of interest in the operation and said that there was need for its frequent performance. The statistics were far better now than those of ovariectomy after it had become an operation of election and was firmly planted in public favor. Particular attention was given by the author to tying off the broad ligaments and the use of the elastic ligature. Sewing the parietal peritonæum to that of the pedicle in the extraperitoneal cases was also dwelt upon. The method by ventrofixation had given good results in the author's hands and served to accomplish two important purposes—viz., a speedy convalescence and avoidance of the disagreeable sloughing which followed the use of the wire clamp. It might also be used in some cases of short pedicle where the wire might not easily be applied. The methods were compared and statistics furnished, showing that the extraperitoneal method with wire and pin gave better results than either of the others, and that ventrofixation came next and the intraperitoneal method last, with a large mortality. A method of closing the capsule over the stump was described, which the author stated would answer for either *dropping* it or sewing it into the wound—ventrofixation. In the latter case the suspensory sutures were placed and the pedicle was sewed in, and under the lower end of the abdominal incision. Great care was required in closing the capsule over the raw surface of the stump so that separation might not occur. Owing to the peculiar contractile nature of the capsule, care must be taken to leave sufficient length for approximation of the peritoneal surfaces.

The uterine arteries were to be tied in any case when hemorrhage was likely to occur and drainage might be required. Besides reference to methods, the author described the process

through which the wound passed after supravaginal hysterectomy. All myomatous tissue should be removed, which could only be effected in some cases by a process of reduction of the pedicle. This was very important, as in the operations where a large amount of myoma was left more time was required for atrophy and absorption to reduce the pedicle to its proper size. Great danger to the patient was apt to follow where a broad base of the tumor was left in either method of treatment, because this mass must be disposed of before the patient could entirely recover. The author had observed a sufficient number of cases to declare that permanent fixation of the stump to the abdominal wall was the rule where the extra-abdominal methods were used, and especially when the broad ligaments were cut away to prevent traction.

**A Plea for Progressive Surgery** was the subject of the President's address. Dr. McMurtry said that within fifteen years the entire practice of surgery had been revolutionized. New methods had been introduced and new regions invaded; comparatively recent teachings had become obsolete in practice and modern treatises had been recast. The science and art of gynecology, which a few years since had been limited to a small and narrow field, had grown into a great branch of medical science and practice. Formerly divided between midwifery and surgery, as a minor branch of one or both, gynecology had become an independent and essential department of the healing art.

When Marion Sims announced through the columns of the *British Medical Journal* that he believed the proper course of treatment in every case of gunshot wound of the abdomen was to open the stomach, search for the bleeding points and secure them, and suture intestinal perforations, he had been pronounced by many eminent surgeons to be a dreamer. The suggestion of Sims had been most timely, and shortly afterward Bull had successfully executed the operation. For years the treatment by opium in full doses had been pursued, with death in waiting. Now there was scarcely a State in the Union in which one or more patients had not been rescued from certain death by prompt resort to operative treatment. He mentioned these circumstances to illustrate and emphasize the point that surgery was advanced more by the aggressiveness of the surgeon than by timidity. In the face of desperate conditions of disease and injury, where there could be no safety whatever in delay and palliation, the only treatment worthy of consideration was the aggressive course which promised success. Under such conditions the most heroic surgery was conservative and any other course was not conservative.

**The Growth of Fibroid Tumors of the Uterus after the Menopause.**—Dr. Joseph Taber Johnson, of Washington, D. C., followed with a paper on this subject, in which he said that the object of the paper was to put on record cases and opinions in opposition to this view of this important subject and to aid in recasting our views and in modifying our practice. He had within the past five years seen at least a dozen women with large growing and troublesome fibroid tumors of the uterus who were over fifty years of age, some of them over sixty. These women had been assured by their physicians that if they could get along somehow until after the change of life their tumors would not only stop growing, but that they would lessen in size, and probably go away altogether, at least the troublesome and dangerous symptoms would disappear. They had been advised against any radical operation, and encouraged to believe that as they grew older they would get entirely well. In perhaps the majority of cases this might prove to be very good advice, but the point which the author wished to make was that, as we were now better acquainted with the history and behavior of these tumors, this was no longer safe advice to

give. We could assure any woman that her tumor might not prove to be one of the exceptional cases, and that it might not grow more rapidly even after the menopause than it had before, or that it might not pre-ent complications equally distressing or disastrous. When from forty to fifty per cent. of women subjected to supravaginal hysterectomy died from the effects of the operation this was very safe and conservative counsel to follow. The possible dangers of the tumor were not equal to the probable dangers of the operation.

The author drew the following conclusions:

1. That the "rule" stated in the text-books, that uterine fibromata ceased to grow after the menopause, had many more exceptions than was generally supposed.

2. That when they continued to grow after the menopause they pursued a more disastrous course than before.

3. They more frequently became cystic, calcareous, or had abscesses develop in them.

4. These conditions requiring operation according to well-known rules of surgery, the patients were in a less favorable condition for recovery than before the menopause.

5. If the above-given conclusions were admitted to be true, it must follow that they furnished additional indications for more frequent and earlier resort to the radical operation.

In the hands of the best operators in cases where a pedicle could be secured the mortality of supravaginal hysterectomy was rapidly approaching that of ovariectomy.

**The Surgical Treatment of Anterior Displacements of the Uterus.**—Dr. C. A. L. REED, of Cincinnati, read a paper on this subject. He said anterior displacements of the uterus, when they existed to the pathological degree, were the opprobria of gynecology. It was indeed true that many wombs leaned far forward without inducing symptoms, but it was likewise true that many of them that were thus malposed did entail symptoms, objective and subjective, that frequently baffled our resources. It was a misfortune, too, that of all the displacements to which the womb was liable, those in which the organ deviated anteriorly to the normal axis were vastly the more prevalent. Thus, in an aggregate of four hundred and ninety-four cases by Nonat, Meadows, Scanzoni, Valleix, and Hewitt, quoted by Thomas and Mundé, there were two hundred and ninety-four antelexions and one hundred and eighty retroflexions, while Mundé himself reported two hundred and ninety-four antelexions, thirty-three retroflexions, and ten lateroflexions in a total of three hundred and thirty-seven cases. As the latter authority was disposed to look upon antelexions in minor stages as a physiological (even congenital) condition, it was legitimate to infer that his statistics had been based upon observations of displacements in the pathological degree. The conclusion was forced upon us, then, that of all the displacements of the uterus, those of the anterior variety were the more frequent; while the records of practice would force us likewise to the conclusion that of all the womb displacements those of the anterior variety were less amenable to treatment than any of the others.

In the treatment the term surgical was employed in contradistinction to any method of treatment by pessaries, tamponade, or electricity. It might be premised that all surgical methods devised for the relief of these conditions should be directed, first, to the removal, when practicable, of the causes of the diseased conditions proper, and, finally, to the readjustment of the diseased organs to the normal physical forces of the pelvis.

In conclusion, the author desired the association to consider—

1. The etiological relationship of contracture of the utero-sacral ligaments to antelexion.

2. The possibility of overcoming this condition by such conservative measures as rest, pelvic depletion, and appropriate manipulations.

3. The feasibility of removing the obstructive dysmenorrhœa and the sterility usually incident to these cases by the plastic operation which he had described.

4. The inexpediency of forcible dilatation for the relief of these cases and its inability to effect a permanent cure.

**The Part the Shoulders play in producing Laceration of the Perinæum, with Suggestions for its Prevention.**—

This was the title of a paper read by Dr. W. D. HAGGARD, of Nashville, Tenn., in which he made the following suggestions:

1. The patient should occupy the left lateral decubitus, at least during the second stage of labor.

2. Overcome rigidity of the vulvar outlet by the judicious use of chloroform.

3. The presenting part of the child should be supported, and not the perinæum, during the passage of the head and shoulders.

4. Support the head by pressing it well up under the symphysis pubis by placing the right thumb in the rectum and fingers of right hand expanded over the occiput.

5. To retard the exit of the shoulders, pressure should be applied to the trunk and shoulder by placing the index and middle fingers of the left hand in the rectum with the thumb in the vagina to restrain its exit.

6. Support the head and neck by pressure well over the symphysis pubis.

**Abdominal Section in a Case of Cyst of the Mesentery.**

—Dr. JAMES A. GOGGANS, of Alexander City, Ala., read a paper with this title, in which he stated that he had been induced to write a paper on the case by the fact that cysts of the mesentery were extremely rare, and that operations for their removal were most generally fatal. He said that he had been able to find the record of one case of cyst of the mesentery removed by enucleation by Guyon. The patient had died on the seventh day after the operation. One patient had been operated upon by Sir Spencer Wells; the operator in that case had incised and drained the cyst, but the patient had died within a few weeks. Three patients had been operated upon by Péan, only one of whom had recovered. One patient had been operated upon by Watts, but he did not know the result in the case. One had been operated upon by Cortes, who had incised and drained the cyst, but the patient had died from septicæmia and hæmorrhage. One had been operated upon by Bantock, who had removed the cyst by enucleation, and the patient had recovered. The conclusion arrived at as to the origin of the cyst in that case, both by Dr. Bantock and by the pathologist who had examined the specimen, had been that it originated from some fetal structure, possibly some of the rudiments of the permanent kidney. Dr. Greig Smith had said that he knew of two cases of mesenteric cyst removed by operation by a friend, but that he could not relate them to him, as they had not yet been published. The patient upon whom the author had operated for a cyst of the mesentery was a young woman, twenty-one years of age, daughter of a physician of Columbus, Ga. She had not been well for two years, but did not know that her abdomen was becoming larger until three months before the operation. During those three months she had been treated for abdominal dropsy, and had suffered much uneasiness and pain in the abdomen, and at the time of the operation her pulse had been 120 and her temperature 100° F. The cyst had been quite large, had occupied mostly the left side of the abdomen, had extended from under the ribs into the left lumbar region, had dipped downward into the pelvis, and had extended three or four inches beyond the median line of the abdomen into the right side. He said that he had first removed about a quart of

the fluid by aspiration on February 7, 1891. The fluid had been thin and of a dark color, and had contained albumin, phosphates, and chlorides. The patient had not been benefited by the operation, and the abdominal section for the removal of the cyst had been made on February 24, 1891.

The cyst had been covered with omentum and mesentery, and loops of small intestine had been imbedded in its walls. An attempt had been made to enucleate it, but hæmorrhage had been so free that the idea of enucleation had soon been abandoned. A point as remote as possible from blood-vessels and intestines had been selected, and the cyst incised and drained. More than a gallon of a thin, dark-colored fluid had been evacuated, the sac irrigated with hot water, the lips of the incised sac stitched to the upper angle of the abdominal incision, and a glass drainage-tube introduced to the bottom of the cyst. The abdominal incision had then been closed with silkworm-gut sutures. The author was confident that the cyst had been retro-peritoneal. The time consumed in the operation had been twenty-five minutes. The sac had been irrigated three or four times in the twenty-four hours and the drainage-tube gradually withdrawn. The patient had suffered much from nausea and vomiting, which he had attributed to the close connection between the walls of the sac and the loops of small intestine. The patient had made a good recovery within thirty days. He presented a picture of the patient which was taken on November 1, 1891, which showed her to be in perfect health.

**Thinness of the Uterine Walls simulating Extra-uterine Pregnancy** was the title of a paper by Dr. GEORGE J. ENGELMANN, of St. Louis. The author said there were many difficulties in the way of a positive diagnosis of early pregnancy, even in cases surrounded by conditions less unusual, but they assumed alarming proportions when aggravated by the curious complications which might arise in individual cases, and, above all, when conditions were simulated in which delay was dangerous and operative interference seemed called for, when a decision was urgently demanded—a decision upon which a life, and perhaps two, might depend. While the auditor might criticise at his leisure and readily distinguish the conditions depicted, it was only he who was to pronounce and to act who could realize the difficulties of this entangling and so knotty a problem.

**CASE.**—A patient, thirty-two years of age, had borne three children in the six years and a half of her married life, the youngest twenty months ago, which she was still nursing, and the menstrual flow had not as yet reappeared since the birth of this child. The patient had come to his clinic for relief from a variety of discomforts from which she had been suffering more or less for the past three months. She had complained of sick headache, vomiting spells, fullness of the stomach, belching after meals, an intermittent swelling of the abdomen, a pain in the groin, appearing before such swelling, and a small tumor above the right groin, which she had first noticed three weeks ago, and, as she had stated, had then suddenly made its appearance. An examination had revealed large varicose veins over the lower limbs; a solid, round, movable tumor above the symphysis and right groin, the cervix low and large, the uterine body thickened, lying low in the pelvis, with a certain mobility independent of the superimposed tumor, an applicator entering three inches and a half slightly forward. Notwithstanding the wine-color of the pronounced cystocele and the cervix, pregnancy had seemed out of the question, and the tumor had been diagnosed as most probably a dermoid of the right ovary, hardly one connected with the uterine wall. In the course of an examination two weeks later a very different condition of affairs had been revealed. The tumor had disappeared, and a fœtus had been found in the utero-vesical space, freely movable, apparently floating about, the small parts being distinctly

felt as if underneath a wet towel both through the vagina and abdominal walls. So distinct had the small parts appeared to the examining finger that it had seemed impossible to realize that even as much as a thickness of the vaginal tissues should intervene, and the abdominal walls must certainly have been very much attenuated to disclose the fetal parts with such distinctness. The probe had shown the uterine cavity free, six inches and a half in length, still running slightly forward, but never curving forward in the direction of the previous tumor. The treatment for the supposed subinvolution had been discontinued, the patient had been warned to keep quiet and to notify the reader upon the occurrence of any abnormal symptoms. He believed the case to be one of ectopic gestation either within the broad ligament or in the abdominal cavity after tubal rupture marked by the sudden appearance of the tumor five weeks ago, yet he was not sufficiently positive to warrant the immediate resort to the knife, and it was well that he did not do so, as per-sistent treatment and repeated examinations had resulted in labor pains and the birth of a five-months fœtus in the most correct and natural manner.

**The Removal of Necrotic and Carious Bone with Hydrochloric Acid and Pepsin.**—Dr. ROBERT T. MORRIS, of New York, contributed a paper on this subject (to be published).

**The Present Status of Cerebral Surgery.**—Dr. LANDON CARTER GRAY, of New York, in a paper thus entitled, touched upon the modern aspect of intracranial surgery. The author first passed in review our present knowledge of localization of functions of the brain, stating that we were well acquainted with the functions of the motor area, of the third frontal convolution, the frontal lobe, the island of Reil, the two upper temporal convolutions, the cuneus, certain portions of the basal ganglia, the base of the brain, and the cerebellum, and that we knew nothing, or had still under discussion, the question of the localization of the centers for the sensations of touch, pain, muscular sense, temperature sense, most of the parietal lobe, and most of the temporo-sphenoidal lobe with the exception of the olfactory lobe. He stated that operations for fracture of the skull with or without hæmorrhage, for abscess, and for tumors that were removable and localizable were usually successful; those for so-called idiopathic epilepsy were utterly valueless, as were also those for epilepsy supposed to be due to genital or ovarian irritations, while those done for epilepsy due to removable and localizable lesions of the intracranial contents were usually successful so far as the lesion was concerned, although it was a grave question as to whether the epileptic habit was ever cured; the latest operation for idiocy supposed to be due to premature ossification of the fontanelles was still under discussion and consideration, the cases being too few and too recent to permit of any conclusion, while the operations for hydrocephalus and for epilepsy due to such early infantile and fœtal lesions as porencephalia, hæmorrhage, and meningitis were indefensible. He further impressed upon surgeons the great difficulty that there often was in finding a subcortical lesion of the centrum ovale that was deep-seated or small, and the fact should be borne in mind that there might be no decussation of the motor fibers from the hemispheres, so that a lesion would be found upon the same side as the paralysis.

**A Case of Induced Abortion for Relief of Nausea and Vomiting, with Remarks.**—Dr. CHRISTOPHER TOMPKINS, of Richmond Va., followed with a paper thus entitled, in which he said that on August 1, 1885, he had been called to see Mrs. J., aged twenty-four, and, as nearly as could be ascertained, three months and a half pregnant with her first child. The patient had been born in the mountainous part of Virginia; she had had an active outdoor life and had grown up to be a woman of good height and of round, full figure. On January 14, 1884,

she had been married. While in the city of New Orleans, in stepping from the platform of a car, she had sprained her ankle. This, although treated immediately by a physician of that place and subsequently in this city, had caused her great suffering. Finally, as the usual treatment proved ineffectual the part had been put in a plaster cast; she had gone about on crutches, and after many months had recovered. In the mean time she had become pregnant, and from the first had been attacked with nausea and vomiting. Mild in the beginning, it had gradually increased in gravity, until she had sent for him on August 1, 1885.

Her husband had stated that she had had fever for two weeks. The author had found her in bed and had learned that she had been there for days; her figure was not robust and her face thin and attenuated. What little she had eaten in the past ten days or two weeks had been apparently rejected, her temperature was a degree above normal, her tongue was foul, there were sordes on the teeth, and the breath was of a sour and bilious odor. The pulse was fairly good considering her condition. Even the mention of food was distressing to her, and the sound of the dinner bell, though far off from her, caused such distress that its ringing had been discontinued by the family. The bowels had throughout her pregnancy been constipated, only moving once in two or three days. Although she was continuously retching, very little or no blood had been seen in the material vomited, except on two occasions, and then not a great deal, and such as there had been was of a florid, scarlet color. No medicine had been given and no treatment taken, except the occasional use of lime water, which she had said "did no good."

The patient had not improved up to August 7th, when the author, thinking the case one of the greatest gravity and that the question of abortion could no longer be deferred, had invited Dr. J. B. McCaw and Dr. Aaron Jeffrey to meet him in the afternoon in consultation. All had agreed that abortion must be produced in order to give the patient a last chance for her life, and it had been done.

The case was reported principally because it was an unsuccessful one and because he wished to disabuse the minds of those who were not experienced in such operations of the notion, commonly entertained and often expressed, that the induction of abortion for the nausea and vomiting of pregnancy was in skillful hands an undertaking devoid of danger and necessarily attended by success. In this case he was of the opinion that death had been the result of the protracted debility and enfeebled constitution, due to her long confinement and suffering—first, from the injury to her ankle, from which she had not recovered when she had become pregnant and had been attacked by nausea and vomiting, this last continuing till her death. Under such circumstances the outlook had indeed been very unfavorable, for to the shock of the operation and to the depression incident to the use of chloroform there had been added fever and protracted prostration, both from injury to the ankle and from want of nutrition, the result of the long-existing nausea and vomiting. He had before and since operated on women for the nausea and vomiting of pregnancy, and with success, in those whose apparent condition was much worse than that described in this case, but without the history of a previous injury or disease.

The prognosis, always unfavorable, ought, when the case was so complicated, to be of the most guarded kind. The practitioner should not, however, hold his hands on this account, for the operation afforded the poor sufferer the only opportunity of relief. The author used metal dilators instead of tents and completed the operation at one sitting. He was likewise convinced that the least possible chloroform used, the better the result.

**Officers for the Ensuing Year.**—The following officers were elected: President, Dr. McFadden Gaston, of Atlanta, Ga.; first vice-president, Dr. Cornelius Kollock, of Cheraw, S. C.; second vice-president, Dr. George Ben Johnston, of Richmond, Va.; secretary, Dr. W. E. B. Davis, of Birmingham, Ala. Place of next meeting, Louisville, Ky., beginning on the second Tuesday in November, 1892. Chairman of Committee of Arrangements, Dr. L. S. McMurtry, of Louisville.

## Book Notices.

*Artificial Anæsthesia and Anæsthetics.* By DE FOREST WILLARD, M. D., Ph. D., etc. Detroit: George S. Davis, 1891. Pp. 144.

IN this little book will be found all the more essential points connected with the administration of general and local anæsthetics. Unlike many similar publications, the book before us is thoroughly practical in spirit and devoid of purely speculative discussion; so that little time need be wasted in arriving at essential facts. The chapter on local anæsthesia is particularly good, the author having had extensive opportunities of employing Dr. J. Leonard Corning's system of anæsthetization.

Several judicious recommendations on the preparation of the patient for the administration of the anæsthetic are contained in one of the earlier chapters. This is notably true of the advice concerning the preliminary use of morphine, which the author maintains should always be given with atropine, with a view to stimulating the heart and respiratory centers.

*The Neuroses of Development,* being the Morrison Lectures for 1890. By T. S. CLOUSTON, M. D., F. R. C. P. E., Physician-Superintendent, Royal Edinburgh Asylum for the Insane; Lecturer on Mental Diseases, Edinburgh University. With Illustrations. Edinburgh: Oliver and Boyd, 1891. Pp. viii-138.

DURING the period of brain growth and development there is a liability to certain failures in nervous action which result in defects and diseases that are termed by the author neuroses of development. He attempts to treat of such conditions from the developmental and relational point of view. As a study of the relationship of disease the work is unique and of great interest. It presents numerous pathological conditions of childhood and adolescence in an entirely new light, rendering the possibility of prevention greater and the treatment more rational and scientific. The book is crowded with facts, with the comments of an unusually acute observer and original thinker, and is replete, also, with that peculiar form of suggestion that is certain to inspire thought in the reader. It is a book well worthy not only of reading but of careful study.

*A Compend of Human Physiology,* arranged in the Form of Questions and Answers. Prepared and especially adapted for the Use of Medical Students. By W. J. WATKINS, M. D., Graduate of Kentucky Medical College, Louisville, Ky. Louisville: W. J. Watkins, 1891. Pp. 10-11 to 244.

THIS is one of the latest of the class of objectionable books concerning which we had a word to say in the issue of the *Journal* for March 7, 1891, in an editorial entitled Short Cuts to Knowledge. We said that the objection to such books was that they simply presented a multitude of disconnected facts to be memorized. They ignored the relationship of these facts to each

other and paid no regard to the interdependence and relationship of diseases. The book under consideration is no exception to the rule; in fact, it seems to us that in the answers less regard than usual is given to the meaning of the questions. Isolate the answers and they convey absolutely no meaning. The author, in his preface, acknowledges his obligations to his "old friend and teacher, Dr. Sam. Cochran," but he does not say that the questions contained in the book, and the arrangement of subjects, are practically those adopted by Dr. Cochran in a pamphlet containing questions only, got up by the latter for the use of his classes. As a matter of fact, the questions in the book bear so striking a similarity to those in the pamphlet that plagiarism is unavoidably suggested. This statement is made after a comparison of the book with the pamphlet. The book may "fill a want," but it is the want of those who prefer the short cut to the "strait and narrow road."

#### BOOKS, ETC., RECEIVED.

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The Physician as a Business Man; or, how to obtain the Best Practical Results in the Practice of Medicine. By J. J. Taylor, M. D. Philadelphia: The Medical World, 1891. Pp. 4-5 to 143.

Transactions of the Ophthalmological Section of the American Medical Association, at the Forty-second Meeting, held at Washington, D. C., May 5-8, 1891.

Proceedings of the New York Pathological Society for the Year 1891.

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The Voice and its Treatment. By Arthur G. Hobbs, M. D. [Reprinted from the *Journal of Laryngology and Rhinology*.]

Intubation of the Larynx. By Carl H. von Klein, M. D. [Reprinted from the *Cleveland Medical Gazette*.]

The Arrangement of the Supracerebral Veins in Man, as bearing on Hill's Theory of a Developmental Rotation of the Brain. By William Browning, M. D., Brooklyn, N. Y. [Reprinted from the *Journal of Nervous and Mental Disease*.]

The Bilateral Pareses and Pseudoplegias of Childhood, with Special Reference to a Type of Malarial Origin. By William Browning, M. D. [Reprinted from the *American Journal of the Medical Sciences*.]

Is a Child Viable at Six and a Half Months? By Llewellyn Eliot, M. D., Washington, D. C. [Reprinted from the *Virginia Medical Monthly*.]

A Combined Laparotomy and Gynæcological Operating Table. By George M. Edebohrs, M. D., New York. [Reprinted from the *Medical Record*.]

Pathological Conditions of the Ethmoid Bone resulting from Dental Lesion. By I. P. Wilson, D. D. S., Burlington, Iowa. (Read before the Iowa State Dental Society.)

Trop de mutilations inutiles, pas assez de gynécologie conservatrice. Par le Docteur A. Doléris. [Extrait des *Nouvelles archives d'obstétrique et de gynécologie*.]

A B C of the Swedish System of Educational Gymnastics. A Practical Hand-book for School Teachers and the Home. By Hartvig Nissen, Instructor of Physical Training in the Public Schools of Boston, Mass. With Seventy-seven Illustrations. Philadelphia and London: F. A. Davis, 1891. Pp. vii-107.

Massage and the Original Swedish Movements: their Application to Various Diseases of the Body. Lectures before the Training School for Nurses connected with the Hospital of the University of Pennsylvania, German Hospital, Woman's Hospital, Philadelphia Lying-in-

Charity Hospital, and the Kensington Hospital for Women, Philadelphia. By Kurre W. Ostrom, from the Royal University of Upsala, Sweden. Second Edition, enlarged. With Eighty-seven Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1891. Pp. viii-9 to 143.

Age of the Domestic Animals: being a Complete Treatise on the Dentition of the Horse, Ox, Sheep, Hog, and Dog, and on the Various other Means of determining the Age of these Animals. By Rush Shippen Huidekoper, M. D., Veterinary (Alfort, France); Professor of Sanitary Science and Veterinary Jurisprudence, American Veterinary College, New York, etc. Illustrated with Two Hundred Engravings. Philadelphia and London: F. A. Davis, 1891. Pp. viii-217.

Lessons in the Diagnosis and Treatment of Eye Diseases. By Casey A. Wood, C. M., M. D., formerly Clinical Assistant, Royal London Ophthalmic Hospital (Moorfields), etc. With numerous Woodcuts. Detroit: George S. Davis, 1891. [The Physicians' Library.]

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Studies from the Pathological Laboratory of the College of Physicians and Surgeons, Columbia College, New York. For the Collegiate Year 1890-'91.

The Twenty-seventh Annual Report of the S. R. Smith Infirmary, for the Year ending May 31, 1891.

Étude sur l'exalgine d'après des observations prises à l'hôpital Lariboisière. Par M. le Dr. Émile Désiré.

## Reports on the Progress of Medicine.

### GENERAL MEDICINE.

By JOHN WINTERS BRANNAN, M. D.

**The Significance of Cheyne-Stokes Respiration as a Symptom in Cardiac Disease.**—Dr. M. A. Boyd contributes an interesting study of the phenomena of Cheyne-Stokes respiration to the *Dublin Journal of Medical Science* for July. Hayden has said, in his work on *Diseases of the Heart and Aorta*, that there is no change in the pulse or cardiac rhythm during the ascending, descending, and apnoeal periods of the respiratory act. Boyd believes this statement to be an error, and cites illustrative cases to support his opinion. The phases of the respiratory phenomenon, as he has observed them, are as follows:

1. An apnoeal period characterized by deep sleep, lividity of face, quick pulse, feeble contractions of the heart, and perfect rest from all agitation, mental and bodily.
2. An inspiratory period, with rousing of all the patient's faculties, extreme restlessness, slowing and strengthening of the pulse, apparently stronger contractions of the heart, less lividity of the face, and then a final deep inspiration.
3. An expiratory period, with inspirations gradually getting shorter and expirations longer, pulse getting quicker and heart feebleness in its contractions till expirations cease, the chest is empty, and restlessness gives place to sleep, which continues through the apnoea following.

The cardiac conditions necessary for the production of this form of breathing are, according to his experience, not alone dilatation of the aorta, but also dilatation of the right ventricle, with beginning degeneration or weakness of its walls, also hypertrophy of the left ventricle with or without dilatation, but with degeneration of its muscle or its dynamic contractile power enfeebled from any cause whereby it is unable to empty its contents into a dilated and inelastic aorta. He admits that this condition of the heart is often met with in many cases of valvular disease accompanied by atheroma of the arteries, and only produces dyspnoea. But the difference, he holds, is only one of degree. Any attack of cardiac dyspnoea produced by such alterations in the heart and aorta may become Cheyne-Stokes dyspnoea when any additional strain is put on it, so as to still further enfeeble its action and cause interference with the supply of arterialized blood to the respira-

tory center. The affection is, in fact, cardiac dyspnoea plus poisoning, or starvation of the respiratory center. Poisoning of this center or interference with its blood supply may, of course, occur without cardiac disease, and give rise to Cheyne-Stokes respiration. Apoplexy, meningitis, and uræmic coma may be mentioned as conditions in which the phenomenon has been observed. Its occurrence, however, is undoubtedly favored by the changes in the heart substance described above by the author.

**The Etiology of Diabetes.**—The Etiology of Diabetes is the title of an article by Dr. Schmitz in the *Berliner klinische Wochenschrift* for July 6th. He has had the unusual opportunity of observing 2,500 cases of the disease during his long residence at the German resort, Neuenahr.

He makes a distinction between idiopathic diabetes and mellituria or mellitæmia occurring as a complication of other affections. Of his cases, 2,115 were instances of true diabetes.

It is his opinion that the development of idiopathic diabetes is always dependent upon the presence of a diabetic predisposition.

Men are oftener affected than women; of his patients, 1,206 were male and 909 female. Idiopathic diabetes occurs very rarely in childhood, seldom in youth, but after the age of twenty increases steadily with each decade.

It is rare among the inhabitants of certain regions—as, for instance, Westphalia, the Rhine provinces, and Bavaria. On the other hand, according to Cantani, it is as common among the people of Malta and South Italy as tuberculosis is in Germany. It is frequently observed in Sweden, and a strikingly large number of cases is found among the Jews. Cantani attributes the frequency of the disease in Malta and Italy to the excessive consumption of sugar by the inhabitants of those countries. In opposition to this view, Schmitz refers to the fact that diabetes is not often met with in the populations of East Germany and of the United States in spite of their free use of sugar.

This diabetic tendency, which must be assumed to exist in certain nations and races, is usually congenital, often, also, directly inherited. In 998 cases, or almost one half of his patients, Schmitz was able to establish that near relatives had suffered from diabetes. In one family twelve cases had occurred. In 428 cases hereditary psychological disturbances were noted. Insanity, especially melancholia, was observed in the families of 263 patients.

Diabetes occurs also quite often in individuals affected with the gouty or tubercular diathesis.

Schmitz admits that an excessive consumption of sugar undoubtedly is injurious to diabetics, and that the amount of sugar in the urine varies directly with the amount eaten. In 641 of his cases the occurrence of the diabetes was preceded by a free use of sugar extending over a considerable period of time. But he insists that in each case the diabetic tendency must have been present, otherwise the disease would not have developed. He lived for several years in the United States and was struck by the very large amount of sweets eaten by the inhabitants of this country. And yet diabetes is not often observed here, though dyspepsia is a common ailment. Schmitz concludes from this fact that the Americans must be free from any tendency to the disease.

Grief, violent emotions, and nervous shocks are usually accepted as important factors in the causation of diabetes. The experience of the author leads him to oppose this view. He believes that in many of the cases in which the origin of the disease is attributed to such causes the diabetes has existed long before the shock to the nervous system has taken place.

On the other hand, he does not doubt that diabetes can be communicated from one individual to another. In seven different instances he has observed the disease in man and wife. He gives also the names of several other German physicians who have written him of similar observations on their part.

The ætiology of diabetes bears, in his opinion, a considerable resemblance to that of tuberculosis. In both affections a predisposition, usually congenital and inherited, is a necessary condition for the development of the disease. Carrying the comparison further, he suggests that perhaps diabetes, like tuberculosis, may be due to micro-organisms.

Schmitz, as we have said, distinguishes between idiopathic diabetes and mellitæmia or symptomatic diabetes. This distinction applies, however, only to the pathogenesis of the two affections. The latter disease, when of long standing, exerts the same injurious effect upon the body and calls forth the same symptoms as idiopathic diabetes. Of his cases of mellitæmia 155 occurred as a complication of the uric-acid diathesis. This form of gouty mellitæmia has usually a good prognosis. Many cases recover after a sojourn at Calsbad, Neuenahr, or Vichy, the cure being due to the influence of the alkaline waters upon the primary affection. In 128 other cases there was pronounced polysarcia.

Mellitæmia was also observed in the course of the following diseases: Cancer, general tuberculosis, valvular disease of the heart, cerebral syphilis, morphinomaniac, disease of the spinal cord, cirrhosis of the liver, amyloid disease of the liver, and Addison's disease. It also occurred six times after a fall on the head, four times after a blow upon it, once after a violent cerebral concussion in a railroad accident, and three times during convalescence from typhus fever.

Schmitz is convinced that disease of the pancreas is a cause of mellitæmia, but he has never been able to diagnose this condition with certainty.

**Intestinal Perforation in Typhoid Fever.**—Intestinal perforation in typhoid fever was the subject of a lecture recently delivered by Professor Potain and published in the *Gazette des hôpitaux* for June 9th. This accident, he says, is one of the most serious complications of typhoid fever. The possibility of its occurrence should make us always very reserved in our prognosis in this disease, as it may happen in cases which are apparently of the mildest character. He refers, in illustration, to a case which had just been under observation in the wards of the Charity Hospital. It was that of a young woman, twenty-five years of age, of strong frame and robust appearance. She had never had any illness with the exception of a recent attack of scarlet fever. She was in the third week of her convalescence from this disease when she was suddenly taken with a violent chill, with severe headache, and pain in the left side. The headache persisted, and four days later she had several attacks of epistaxis. On the following day she entered the hospital. The diagnosis remained in doubt for several days, because of the absence of positive signs. The temperature was 100.9° F., the facies was normal without lethargy, the abdomen was relaxed, with no tenderness, and there was no diarrhoea. She coughed slightly, but there was no expectoration. The only pulmonary sign was a slight diminution of resonance and vesicular murmur at the left apex. Five days after her entrance into the hospital she complained of pain and tenderness in the right iliac fossa. Her temperature began to rise, and the next day rose-spots were observed on the abdomen. The slight pulmonary signs disappeared in the mean time. The diagnosis of typhoid fever was scarcely made when all the symptoms suddenly grew much more marked. This was on the thirteenth day of the disease. The patient had a severe chill, and the pain in the right iliac fossa became intense. There was repeated vomiting and the temperature curve became very irregular and some blood was observed in the stools. Six days later the patient died in collapse.

At the autopsy, in addition to the signs of a purulent peritonitis, a large mass of fecal matter was found in the right iliac fossa. On examining the bowel, a linear perforation, two inches long, was found about two inches above the ileo-cæcal valve. Only six Peyer's patches were affected, but the ulceration was very deep. The whole thickness of the intestine was destroyed down to the serous coat. The bottom of the ulcers was smooth, composed simply of the peritoneum, in place of being ragged and uneven, as is usual in ulcerations of slow development. The gangrenous process had taken place *en bloc*, instead of gradually, involving one follicle after another. The other organs do not call for special mention.

In seeking the cause of the profound alterations of Peyer's patches and the early occurrence of the perforation in this apparently mild case of typhoid fever, Potain is inclined to attribute it to the preceding scarlet fever. He refers to the injurious influence exerted on the vitality of the tissues by scarlet fever, and the frequency with which it is followed by suppuration. It is rare to see scarlet fever thus followed

by typhoid fever, but one other case was reported by Rilliet and Barthez, in which very deep ulceration was also observed on the eighth day of the enteric disease.

Potain believes that in both cases the scarlet fever had favored the destructive process.

Intestinal perforation is observed in about two per cent. of all cases of typhoid fever, the proportion varying from one per cent. in women to three per cent. in men.

The seat of the perforation is usually at the lower end of the ileum, but it may be found in the large intestine and even in the rectum. The form may be rounded or linear; it is rarely larger than the head of a pin.

There may be certain premonitory symptoms. Profuse diarrhoea, intestinal hæmorrhage, or excessive tenderness in the iliac fossa should all put us on our guard against it.

Sometimes sudden constipation, following diarrhoea, is the first indication of the lesion of the peritonæum.

The most usual time for its occurrence is from the third to the fifth week. It is more apt to be delayed than to occur early. It has even taken place when the patient was apparently convalescent. Deep pressure in the iliac region has occasionally caused the accident. An error in diet is a more frequent cause.

The symptoms of the perforation itself are usually very abrupt. Pain, chill, vomiting, coldness of the extremities, announce only too surely peritonitis. Sometimes, however, it is of insidious development; in such cases marked variations of temperature are of diagnostic value.

Death is unfortunately the usual termination, occurring sometimes in a few hours, more frequently at the end of two or three days. A few cases of recovery have been observed. In these favorable cases inflammatory adhesions form, limiting the fecal effusion and preventing its escape into the peritonæum.

As to treatment, opium is of most service. Wet cups are useful in relieving the pain. Surgical intervention gives but little hope in this form of peritonitis. The perforation would be difficult to find and more difficult to suture, because of the lesions of the adjacent tissues. Resection of the intestine would be no less difficult, as Peyer's patches are often affected over a very extensive area.

**The Use of Drugs in the Treatment of Early Phthisis.**—Dr. J. C. Thorowgood read a paper with this title at the last annual meeting of the British Medical Association. It is published in full in the *British Medical Journal* for October 17th.

Dr. Thorowgood says that the discovery of the tubercle bacillus and the way in which it appears to be associated with the progress of the more serious forms of tuberculous disease has tended to cast drug treatment rather into the background. But in hospital practice, especially among out-patients, one is forced to do the most one can with drugs. The patients are poor and hard-worked, and can not obtain the advantages of change of air and rest. Among them phthisis is often brought about in the first instance by some neglected inflammatory mischief, such as bronchitis, pleurisy, and sometimes pneumonia. In such cases drug treatment appears to advantage. That peculiar catarrhal state of the apex which has been described as pulmonary cachexia and which is close on the borders of tubercle, and is due to a degenerated condition of the epithelium from constant respiration of bad air, improves rapidly when the patient is removed to a pure air. Where, however, we can not give the patient the advantage of removal, we have to do our best with drugs. The author lays special stress upon the good results that may be obtained in such cases from the use of the hypophosphites. Hospital out-patients who come with cough and expectoration, perhaps blood-stained at times, and who present râles at the lung apex, improve in a surprising way on taking five grains of hypophosphite of soda three times a day. The remedy may be given in plain water or infusion of calumba. In cases of persistent consolidation of lung after pneumonia, the effused products are rapidly absorbed under this treatment; and this, too, in cases in which ordinary treatment has been followed to no purpose for some time. In cases of pleurisy with effusion, the hypophosphites seem to have no effect whatever. But, when the pleura appears to have been roughened by deposits so that friction sounds of loud and coarse character

are very audible, the author has seen all these sounds vanish and the patient do well under the hypophosphite of sodium.

Dr. Thorowgood believes that a process of fatty change and liquefaction of effused product is set up and absorption follows. Sometimes the process seems to be for a time attended with some increase in temperature, and when this is the case it is well to reduce the dose of the drug or give it at longer intervals. In recurring hæmoptysis, too, the hypophosphite must be used with care. The most active in liquefacient power is the hypophosphite of potassium. The calcium hypophosphite often acts remarkably well in cases in which secretion is profuse. It checks excessive sweating and also diarrhoea.

Occasionally, but very rarely, when the hypophosphite fails to remove an apex catarrh or inflammatory deposit, something may be gained by changing to such medicines as tartrate of antimony in very small doses, or iodide of potassium, or some form of mercury.

Dr. Thorowgood passes rapidly over such drugs as the mineral acids, creasote, and guaiacol, though he has found them useful as tonics in some cases. He has much to say in favor of the inhaling respirator. He recommends its use with iodoform in ether, alcohol, or eucalyptus oil. This is soothing and excites no cough. Next to this comes the best German creasote, with or without ethylic alcohol. Thymol, carbolic acid, and iodine are all inferior to these. The patient should, after clearing his lungs as much as possible in the morning by cough, wear the perforated zinc respirator and keep it on for an hour; again in the middle of the day, and a short time at night.

Next to these inhalations Dr. Thorowgood places persistent and even severe counter-irritation. He has seen a remarkable arrest by croton liniment of phthisis of an active kind in a young woman. He thinks that linimentum terebinthinæ is also deserving of a high place, especially in chronic disease of the base of the lung.

**Acute General Miliary Tuberculosis without Fever.**—Dr. J. Joseph, of Professor Fürbringer's clinic, discusses this subject in the *Deutsche medicinsche Wochenschrift* for July 9th. It is universally agreed, he says, that the diagnosis of acute general miliary tuberculosis is often extremely difficult, and even impossible in some cases. The widespread belief that the disease never occurs without fever is responsible for many errors in diagnosis. He therefore considers it of interest to report three cases of undoubted acute general miliary tuberculosis, which ran their course entirely without fever. Two of the cases were under observation for the period of seventeen days, so that the absence of fever was evidently not simply a temporary condition.

The diagnosis in all three cases was somewhat uncertain because of the apyrexia, but the autopsy showed in each case numerous gray miliary tubercles in the lungs, liver, spleen, and kidneys.

The brain and meninges were unaffected.

Dr. Joseph adds that these cases furnish fresh testimony to the fact that acute general miliary tuberculosis may occur without any elevation of temperature whatever. The absence of fever, therefore, is no ground for rejecting the diagnosis in doubtful cases when the other symptoms point to this disease.

Dr. O. Leichtenstern, commenting upon Dr. Joseph's paper, writes in the same journal for August 6th that he has often observed cases of afebrile and even subfebrile acute general miliary tuberculosis. He thinks that it is generally recognized that there is an afebrile form of the disease. He finds it especially frequent in old people. The symptoms often resemble those of cardiac degeneration with general dropsy, or in other cases they suggest marasmus or diffuse capillary bronchitis or pulmonary œdema. He also relates the histories of two children who died with progressive general emaciation, and in whose cases the diagnosis wavered between pædiatrophy, rachitis, and enteritis. The disease ran its course in both cases entirely without fever, and to his surprise he found post mortem an acute general miliary tuberculosis, with cheesy degeneration of the lymph glands.

He has also occasionally seen the disease begin with all the typical symptoms of croupous pneumonia, such as sudden onset with chill, acute lobar infiltration, pneumonic sputum, etc. Such cases are to be explained by assuming a simultaneous development of pneumonia and the acute tubercular process.

**The Ætiology of Nephritis.**—In our report of May 2d we referred to the researches of Dr. Agnes Blum on this subject, based on the

study of two hundred and seventy cases of Bright's disease. Dr. Bluhm denied the importance of cold as a factor in the causation of nephritis, and showed that the disease of the kidney was due in almost every case to some form of infectious disease.

Dr. Viguerot (*Arch. gén. de méd.*, October, 1891) has investigated the same question, and agrees entirely with the views given above. He believes that cold acting upon a kidney already diseased may give a new impulse to the pre-existing affection and render acute symptoms which up to that time had remained latent, just as it may excite an acute pulmonary process in an individual suffering from tuberculosis.

Those persons who live in unwholesome and damp lodgings and whose skin is defective in its action, and those whose occupation exposes them to abrupt changes from a warm to a cold atmosphere, are probably predisposed to renal affections, but unless there is previous structural alteration of the kidney, even prolonged cold can not cause the lesions of chronic nephritis.

It is often very difficult to ascertain the past history of a patient. He may have had an infectious disease at some time, but he is not likely to remember the symptoms, still less to know the condition of his urine. He may since have enjoyed a long period of apparent health, his symptoms not being such as to attract his attention or to interrupt his work. When he afterward enters the hospital with the signs of acute nephritis, the renal affection is called primary, or nephritis *a frigore*.

Dr. Viguerot's conclusions are based upon his own extensive pathological and clinical observations and also upon the opinions expressed by other writers. He has seen the alterations caused in the renal tissue by the micro-organisms pass away without leaving any trace, but he has also seen them pass into the chronic state in consequence of the fatty degeneration of the epithelial elements and of the proliferation of the connective tissue.

Among the infectious diseases in question, scarlet fever holds the first place. Then follow variola and measles, also typhoid fever and diphtheria. Pneumonia, erysipelas, rheumatism, infectious amygdalitis, cholera, and septicæmia have all been mentioned by various writers as giving rise to persistent albuminuria. The author has seen chronic nephritis follow mumps in one case. Tuberculosis, syphilis, and malarial fever have also been added to the list of maladies capable of causing permanent lesions in the kidneys. In some cases the change into a chronic affection is progressive and continuous; in others it occurs after an alternation of improvement and relapse, so that one might easily be deceived and diagnosticate a primary nephritis, when in reality the process was secondary to a series of intermittent exacerbations.

Sometimes cold is not alone the exciting cause, but there is some intercurrent malady which stimulates the renal affection and helps to render it chronic. As an illustration of this, Dr. Viguerot cites a case of diphtheria with intense and prolonged albuminuria which subsequently came under treatment for typhoid fever with marked renal symptoms. It is evident in this case that the lesions in the kidneys caused by the diphtheria and which were still in process of evolution were accentuated under the influence of the typhoid fever and favored in their tendency to become chronic.

**The Local Treatment of Chronic Rheumatic Arthritis.**—Dr. A. Symons Eccles describes in the *Practitioner* for August the measures which he has found most useful in the local treatment of chronic rheumatic arthritis. He employs the term rheumatic arthritis in its widest sense to include all affections of the joints which present the clinical features of pain, swelling, and impairment of function, unaccompanied by redness and increased temperature, and in which no signs of suppuration or advanced destruction of tissue can be discovered.

Most cases of chronic arthritis afford evidence of inflammatory deposits in the fibrous and muscular tissues in connection with the joint, so that after one attack of rheumatism the fibro-serous tissues are peculiarly liable to a recurrence of inflammation should they be exposed to a repetition of the predisposing and exciting causes. Given a case of chronic rheumatism, the indications are to relieve pain, to hasten the removal of inflammatory products in and about the joint, and thus to restore it to use, while at the same time muscular atrophy is to be arrested or cured. Meanwhile constitutional remedies, dietetic and medicinal, must be employed.

Dr. Eccles's local treatment consists of a combination of massage, galvanism, and active and passive exercises. In severe cases, in which there is much pain and thickening in and around the joint, with atrophy of muscles, massage is best employed for a few minutes several times daily; centripetal friction gradually increasing in firmness, and subsequently combined with kneading of the proximal muscles connected with the joint, being applied at first as far from the forms of mischief as possible, the lightest friction of the whole limb alone being permissible at the beginning of treatment. Cautiously the firmness and near approach of manipulation to the joint may be increased, till the joint itself is, in the course of a few days, submitted to thorough manipulation, having for its object the dispersion and mechanical moving onward of the accumulated waste products, the improvement of circulation, and the stimulation of lymphatic resorption.

At the same time a stable galvanic current is applied to the joint itself, two electrodes of known dimensions being placed on opposite sides of the articulation. A current of from ten to fifteen milliampères is used for ten to twenty minutes daily by voltaic alternation.

Dr. Eccles believes that the efficacy of the treatment by the stable constant current depends upon the density of the current, and he has found the present form of electrodes in use to be the best for the different joints affected.

In the case of the finger joints he applies the current in a different manner, placing one electrode over the joint and the other in the palm of the hand, the same density being employed as in the larger articulations. Massage of the parts over which the electrodes are to be placed, when practiced directly before the employment of galvanism, reduces very considerably the resistance to the passage of the current. This is evidently the result of increasing the volume of fluid in the skin and subjacent structures. A striking proof of the therapeutic value of the treatment is the gradually diminishing resistance opposed by the diseased joint to the passage of the current from time to time as the absorption and removal of waste and inflammatory products proceed.

In the earlier days of treatment, while as yet the patient can not bear vigorous manipulation, the labile application of the ascending current to the muscles of the limb is attended by diminution of pain and stiffness.

The passive exercise of the joint is gently practiced as early as possible, care being taken not to produce too much suffering. One or two movements at each visit, gradually increasing the range of attempted motion, till finally the patient is told to aid and independently to perform the exercises most suitable to the particular condition of the joint, will slowly but surely overcome the tendency to muscular spasm, which is almost always produced by the initial movements; and, finally, after a period varying with the severity of the case, there will follow the return of power to use the limb and move the joint without pain.

**The Elimination of Toxic Products in Typhoid Fever according to the Different Methods of Treatment.**—Dr. Roque and Dr. Weill publish in the September number of the *Revue de médecine* an interesting experimental study of the above subject. They show that in typhoid fever abandoned to itself the toxins produced in the body are eliminated in part during the continuance of the disease. The urotoxic coefficient is double that of the normal; but this elimination is incomplete, so that it continues during convalescence, during which the hypertoxic quality of the urine exists for four or five weeks after the cessation of the fever.

In typhoid fever treated by cold baths the elimination of toxic products is enormous during the illness. The urotoxic coefficient becomes five or six times greater than in the normal condition. This hypertoxicity diminishes as the general symptoms decline and the temperature falls, so that with the establishment of convalescence the elimination of the toxins is ended and the coefficient descends to normal.

The cold bath is therefore an eliminative treatment; it has no specific action, inasmuch as it does not at all prevent the formation of the toxins, but it assures their expulsion as fast as they are produced.

On the other hand, when the fever is treated by antipyrine the elimination of the toxic products ceases entirely during the malady so long as the remedy is used—the coefficient descends sometimes even

below the normal. But during convalescence the discharge of the toxins takes place *en masse* for the space of five or six days. Antipyrine is therefore not an antiseptic. It does not prevent the formation of the toxic substances, but does prevent their elimination in the urine.

The authors add that since the completion of their experiments Professor Teissier has reported some observations on the effect of naphthol in the treatment of typhoid fever. His conclusions are that naphthol is a real antiseptic in this disease, inasmuch as it prevents the formation of toxic matters both during the course of the fever and during convalescence.

**The Therapeutics of the Senile Heart.**—Dr. George W. Balfour contributes an interesting and instructive paper on this subject to the June number of the *Edinburgh Medical Journal*. Senile diseases are always degenerative and tend to precipitate the natural termination of life. In them the object of treatment is not quite the same as it is in the diseases of earlier life; we no longer hope for complete restoration, but we expect to be able to remove suffering and to check decadency, and, so far as the heart is concerned, we are often successful in attaining both of these objects.

Simple irritability, says Balfour, is the earliest indication of what he calls advancing senility in the heart. The patient complains of uneasiness in the cardiac region, sometimes amounting to actual pain. Along with this there may be fits of palpitation, in the form of rapid but not usually forcible action, which come on after exertion—such as running up stairs, upon any excitement or sudden emotion, or during the night from reflex causes, mostly of gastric origin; or there may be fits of *tremor cordis* coming on suddenly, without warning and apparently without cause. The pulse is occasionally irregular in force and frequency, or it may simply intermit at regular or irregular intervals. These phenomena are always indicative of cardiac debility, which, left to itself, sooner or later leads to dilatation of the heart as well as to the other serious symptoms which we find associated with senile degeneration of that organ. These symptoms depend upon structural alterations in the heart itself, in its vascular and nervous connections, as well as in the nutritive fluid, the blood. There is no regular sequence of events in any case. Not infrequently it may terminate in a fatal attack of angina of the ordinary form, or occasionally in that form of cardiac failure which may be called *angina sine dolore*. Other patients may suffer for years from irregularity or intermission of the pulse or fluttering—*tremor cordis*—without any apparent detriment. But, in Dr. Balfour's experience, such cases, unless remedied by treatment, always ultimately develop serious cardiac symptoms, though this may be delayed even to extreme old age.

The senile heart is a term which comprehends many symptoms and a variety of signs, but which is at bottom a cardiac failure based upon malnutrition. It is therefore most important to determine the cause of this failure and to ascertain the source of the malnutrition upon which it depends. In examining such a case with a view to treatment, the pulse is one of those factors which require careful consideration. When the blood-pressure is low we must inquire into any drains upon the system and see that these are remedied; we must inquire into the amount and nature of the work done, and the exercise usually taken. Exercise is a useful tonic for a muscle, including the heart, yet with all muscles rest is often the best recuperative, and with a failing heart this is often markedly the case. The need for exercise and the capacity for taking it safely and with advantage is often a point to be carefully considered before a decision is arrived at.

The question of diet is even more important than that of exercise. In patients with weak hearts and feeble circulations the digestion is slow and the intervals between meals should not be less than five hours. As little fluid as possible should be taken with the meals, and no solid food of any kind between them. The most important meal should be in the middle of the day. The quantity of food should be restricted, but the patient may choose pretty freely as to the kind and the method of preparation.

Dr. Balfour never advises alcohol in any form for such cases. Tobacco also must be used in great moderation or given up altogether.

The drugs useful in the senile heart are few in number, but of extreme value. Digitalis is the chief and the most thoroughly reliable

cardiac tonic. It acts by improving the elasticity of the heart muscle and restoring its tone. If the dose of digitalis is moderate, this increase of tone, accompanied by an improvement in nutrition, may be kept up and continued indefinitely for months or years without fear of its action going farther. Ten minims of the tincture once or twice a day is sufficient.

Strychnine is a very valuable remedy. In many cases its continuous use is sufficient of itself to promote a cure. Arsenic is extremely useful at times, especially in cases of angina.

Next to strengthening the heart and improving the blood, lowering the blood-pressure is the most important object of our treatment. All the nitrites are available for relieving spasm and lowering blood-pressure, but nitroglycerin seems to act most rapidly and effectively. When the high intra-arterial blood-pressure is more persistent and more distinctly gouty in its character, the iodide of potassium is to be preferred, as its action, though less rapid, is more permanent. Two or three grains may be given every eight or twelve hours, and its use continued for some time. A mild course of anti-arthritis treatment is often of much service, and for this purpose there is no better drug than colchicum. The bowels should be kept moving regularly. In case of flatulence the compound galbanum pill often gives relief.

**Salicylate of Sodium in the Treatment of Pleurisy with Effusion.**—Dr. Charles Talamon calls attention (*La Médecine moderne*, June 18th) to the prompt and efficient action of salicylate of sodium in the treatment of pleurisy with serous effusion. He gives the histories of five cases, in all of which the administration of the drug was followed by the rapid absorption of the fluid. In three of the cases thoracentesis had already been twice performed, but the liquid had accumulated as abundantly as before. Salicylate of sodium was then given, and at the end of a week the effusion had entirely disappeared. A marked diminution of the fluid was appreciable as early as the second or third day of the treatment.

In discussing the mode of action of the salicylate, Talamon is not inclined to agree with Stiller, who believes that it acts simply as a diuretic. It is true that in two of his cases the amount of urine was increased rapidly from two to four and six pints a day. But, as he observes, diuresis can be provoked by other drugs, and yet the pleural effusion remains unaffected. Besides, in the three other cases the absorption of the fluid was affected just as rapidly, though there was no polyuria.

The author thinks that the experiments of Rosenbach and Pohl have a very important bearing on this question. They have proved that the salicylates, when introduced into the digestive tract, are to be found later in all the serous cavities of the body, those that are normal as well as those in a morbid condition. Hence they even advise the direct injection of the drug into the pleural cavity after the evacuation of the liquid by aspiration. The salicylate would then have a direct action upon the inflamed pleura and the remaining exudation.

Whatever its mode of action, Talamon holds that the therapeutic value of salicylate of sodium in these cases is undoubted. It should be given for a week, the dose being fifteen grains four to six times a day. The more recent the pleurisy, the more prompt the action of the drug. But it is of service at any time during the course of the disease and is especially indicated after thoracentesis, to complete the absorption of the fluid and prevent its re-accumulation.

## Miscellany.

**The Action of Tuberculin upon the Experimental Eye Tuberculosis of the Rabbit.**—The following abstract of a report from the Institute for Infectious Diseases, in Berlin, by Professor W. Doenitz, is from the *Deutsche medicinische Wochenschrift* for November 19th: Contrary to the negative results of Baumgarten, the author said, in his report before the Society of Charité Physicians, that he was now in a position to demonstrate healed tubercular processes accomplished with tuberculin, which had before been considered impossible. The author

then demonstrated in the eyes of a number of rabbits tubercular processes established by inoculation, both with pure cultures and with tubercular tissues in various stages from that of the first irritative reaction occurring about the middle of the third week after inoculation to that of the complete cure, the latter resulting in from three to four months, *the eye retaining its function as a visual organ.*

In the early part of the treatment with tuberculin the tubercular process was hastened, cloudiness of the cornea and pannus developing rapidly, whereas in the eye in the test animal the process was slower, with, however, early necrotic processes at the seat of puncture and perforation, this necrosis not occurring when tuberculin in gradually increasing doses was administered. It was immaterial whether the treatment was begun immediately after inoculation or at a time when true tubercle had been formed. The administration of the product obtained from Koel's tuberculin by Klebs was attended with only temporary improvement; the eyes were eventually lost. The same dose of the unmodified tuberculin, continued without increase, failed to produce good results. The conclusions were:

1. Tuberculin is a sure curative agent for the experimental tuberculosis of the eye of the rabbit.
2. Tuberculin shows its curative effect only after true tubercle can be demonstrated.
3. The first effect of tuberculin is a transient but severe irritation of the eye.
4. Under the continuous action of tuberculin, all irritation in the eye subsides.
5. When, before the beginning of the treatment, deep-reaching destructive processes have not occurred, the cure results in retention of the visual functions of the eye; otherwise, atrophy results.
6. To a cure, it is necessary that the tuberculin be given in increasing doses, and the continued maintenance of a not too slight reaction is essential.

**The Ohio Medical Colleges.**—Pursuant to call issued by the Cincinnati College of Medicine and Surgery for a delegated convention of the medical colleges of the State of Ohio, to be held at Columbus on December 3, 1891, representatives of the following faculties were present, viz.: Starling Medical College, Toledo Medical College, Pulte Medical College, Columbus Medical College, Medical Department of the National Normal University, College of Physicians and Surgeons of Columbus, Woman's Medical College of Cincinnati, and Cincinnati College of Medicine and Surgery. On motion, Dr. Starling Loving was elected chairman and Dr. Charles A. L. Reed secretary. On motion of Dr. C. E. Walton, representatives of the Physio-Medical Society of Ohio were admitted to a vote in the convention.

Dr. Charles A. L. Reed presented the following:

*Resolved,* By the medical colleges of Ohio, in convention assembled, that the Legislature be and is hereby requested to enact a law which shall embody the following features, viz.:

1. The creation of a board or boards of medical examiners in the composition of which equitable and just representation shall be accorded to the various recognized denominations of medical practice.
2. The examination of all candidates for the practice of medicine holding diplomas hereafter issued by medical colleges which shall be deemed in good standing by the board.
3. Exemptions from examination to extend only to those who at the time of the enactment of this law shall be recognized as legal practitioners within the meaning of existing statutes; but all legal practitioners shall be required to register.
4. A penal clause which shall secure the enforcement of the foregoing provisions.

Dr. C. E. Walton, on behalf of the Legislative Committee of Cincinnati, presented the registration law approved and promulgated by that committee. On motion by Dr. Shockey, the resolutions presented by Dr. Reed were approved. On motion by Dr. Kinsman, the secretary was directed to forward transcripts of these proceedings to each local medical society in Ohio, and to the medical press. On motion by Dr. Scoville a committee was appointed to confer with the Legislative Committee of Cincinnati for the purpose of securing such changes in the bill proposed by that committee as to make it conform to the resolutions

adopted by this convention. The chair appointed as such committee Dr. S. S. Scoville, Dr. T. C. Hoover, Dr. G. W. Mayhugh, and Dr. Charles A. L. Reed.

**An Army Medical Board** will be in session in Chicago, Ill., during February, 1892, for the examination of candidates for appointment in the Medical Corps of the United States Army, to fill existing vacancies. Persons desiring to present themselves for examination by the board will make application to the Secretary of War, before January 15, 1892, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from whence they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates, based on personal knowledge, from at least two physicians of repute, as to professional standing, character, and moral habits. The candidate must be between twenty-one and twenty-eight years of age, and a graduate from a regular medical college, evidence of which, his diploma, must be submitted to the board. Further information regarding the examinations may be obtained by addressing the Surgeon-General, United States Army, Washington, D. C.

**To Contributors and Correspondents.**—*The attention of all who purport favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

Original Communications.

THE NATURE AND CAUSE OF  
THE SCLEROSES OF THE SPINAL CORD.\*

By CHARLES L. DANA, M. D.,  
VISITING PHYSICIAN TO BELLEVUE HOSPITAL.

THE subject of the pathology of the chronic fibroid processes of the nervous system is so large a one that I propose to limit myself to a consideration of only certain points of it. I shall take up only the fibroid processes as they affect the spinal cord, and I shall furthermore discuss the question of pathology, dwelling only incidentally upon etiology or therapeutics. I shall further exclude chronic meningitis and arterial sclerosis, because, so far as the nervous system is concerned, there is nothing in these different from similar processes occurring elsewhere.

The chronic fibroid processes of the spinal-cord substance are known as scleroses, those of the nerves as degenerative (or parenchymatous) and interstitial neuritis.

The spinal scleroses are easily divided into four classes:

I. The *primary degenerations*, in which the sclerosis is preceded by a destruction and atrophy of the nerve fibers and cells.

II. The *secondary degenerations*, in which the sclerosis is preceded and due to a cutting off of certain nerve strands from their trophic centers.

III. The *inflammatory and reparative scleroses*, in which the process is the result of a destruction of nerve tissue by inflammation, injury, pressure, or obliteration of vessels.

IV. The *mixed forms*.

Of these three forms of sclerosis it is the first about which the most obscurity prevails, and it is about these forms that the greatest interest centers. These primary scleroses are:

1. Locomotor ataxia.
2. Lateral sclerosis (if it exists).
3. The combined scleroses.
4. Multiple sclerosis.
5. Progressive muscular atrophy and its modified type, anytrophic lateral sclerosis.†

*The Nature and Cause of the Primary Scleroses.*—Modern ideas regarding these scleroses have undergone considerable change. It has been and still is taught by some that the process is a parenchymatous inflammation with secondary growth of connective tissue. But such an idea is no longer held by the majority of neurologists and pathologists. The modern conception of inflammation, that it is a process dealing with connective tissue and blood-vessels only, renders the idea of an inflammation of parenchymatous tissue and specialized cells quite untenable. The term parenchymatous inflammation is likely to be dropped from our nomenclature therefore.

If not an inflammation, what is the process?

\* Read in the discussion on Chronic Fibroid Processes before the Congress of American Physicians and Surgeons, September 24, 1891.

† Ependymal and annular scleroses are mentioned by some authors, but they belong to class iii.

So far as the microscope shows us, it is gradual decay and death of the nerve fiber and cell. In some fibroid processes, like locomotor ataxia, this decay is accompanied with the development of irritating products, leucomaines, or toxalbumins, which may produce so active a change in the connective tissue as to lead to something resembling a secondary or reactive inflammation. This is never of high grade, however, and in some forms of tabes is very slight.

In progressive muscular atrophy the decay and death produce few irritating products, though enough perhaps to account for the fibrillary twitchings and occasional hypertonic condition of the muscles.

The ultimate cause of these degenerative processes is not known. This is just now the opprobrium of neuropathology and the problem that most needs working out. They are not due to any known "diathesis."

*The Toxine Theory.*—The progressive character of the diseases like locomotor ataxia and progressive muscular atrophy would lead one to think that there is a poison constantly present in the body and constantly acting on the diseased tissue. How otherwise can we explain why an inflammatory process in nervous tissue tends on the whole to repair, to limit itself, and to recover, while a degenerative process steadily and often speedily tends to progress?

So far all bacteriological examinations have failed to discover any microbe, but the fact that many degenerative processes follow infectious fevers or syphilis has led to the suggestion that pathogenic germs have poured into the system a poison, or have so modified the cellular nutrition that there is a poison constantly thrown out which irritates and destroys certain areas of nerve tissue.

*The Senility Theory.*—Another view which may be held is that, by the presence of the poisons of certain infectious organisms, the nerve cell is stunned and its growth stunted. Its nutritional equilibrium is destroyed, and premature senility and death are brought about. Just as a man in the full tide of life is made prematurely old by a severe illness or shock, and begins to go down hill at the age of forty instead of at a later age, so the nerve cell and fiber are made unequal to their task and slowly die.

This explanation is undoubtedly the true one for the hereditary scleroses like Friedreich's ataxia. In this disease certain strands in the spinal cord were never endowed with vitality enough to carry on their functions for more than a decade or two.

The theory of a steadily secreted poison, which may be called the toxine theory, is the more hopeful one.

It is interesting in connection therewith to note that degenerative diseases do not follow those infections which do not confer long immunity—such as diphtheria, sepsis, erysipelas, tuberculosis; while diseases that do confer long immunity—like typhoid fever, measles, scarlatina, small-pox, syphilis, etc.—are most likely to set up degenerative changes. Now, as immunity is secured through the modification of cell nutrition and through the continued presence of some antitoxine in the liquor sanguinis,\* it seems not

\* J. Burdon Sanderson, Croonian Lectures on the Progress of Discoveries in Relation to Infectious Diseases. *Brit. Med. Jour.*, 1891.

unlikely that the very thing which protects against recurrence of infection may be the cause of some internal degenerative change.

The theory, however, of a premature and artificial senility is, I am rather sorry to believe, more plausible, for it is supported by the fact that in certain cases primary degenerations are started by poisons, like lead or ergot, and continue after the lead and ergot have been eliminated from the system. Also by the fact that an inflammatory process may set up a degenerative one, as when a chronic poliomyelitis develops into a progressive muscular atrophy.

Neuroglia, not fibroid tissue. These scleroses differ somewhat in the arrangement and relative amount of cells and fibrillæ. In true neoplasmic gliosis, or tumor formation, the cell predominates, but in the ordinary sclerosis a fibrillary network forms the most of the morbid structure.

Neuroglia sclerosis does not occur in the peripheral nerves, except the optic, since they possess no neuroglia matrix.

In April, 1890, Déjérine and Latulle announced (*Bull. de biol.*, March 8, 1890; *La méd. moderne*, April 17, 1890) that the sclerosis in Friedreich's ataxia was in reality a gliosis, and in this respect differed from the ordinary scleroses.

Finally, Chaslin reviews the subject again (*Arch. de méd. expér.*, 1891, No. 3) and reasserts his views as to the dominance of the neuroglia change in the primary scleroses and in certain degenerative diseases, like idiopathic epilepsy.

The validity of the revolutionary views thus put forward by French pathologists depends a good deal on the Malassez stain. I have carefully used this on cords from two cases of tabes and on several other cords with primary and secondary degenerations, and it does not give me satisfaction.

Nor, as I am informed, is Malassez himself satisfied with it. Nevertheless, the conclusions based on its use accord with probabilities, and even with the ordinary and older descriptions of general pathologists, that those chronic fibroid processes affecting the nervous system of primary origin, at least, are largely gliomatous. And we may yet have to speak of a posterior spinal fibrogliosis and multiple fibrogliosis rather than of sclerosis.

The views here suggested that the scleroses are really glioses may have some value in therapeutics. It is at least somewhat curious that arsenic and silver, which have a distinct value in the treatment of these conditions, have no value in fibroid processes elsewhere and are known to affect epiplastic tissue rather than mesoblastic.

II. *Regarding the secondary degenerations* and the chronic fibroid processes that are produced thereby, no facts of very great or general interest have been brought out in recent years. I refer more particularly to their pathology and aetiology.

Honnén has brought evidence to show that the process affects first the axis cylinder in its whole length; this swells and undergoes granular decomposition. The myeline sheath is affected later (*Contribut. expér. à la path. et à l'anat. path. de la moelle épinière*).

The view that secondary degenerations are due to a cutting off of the fiber from its trophic cell is no longer doubted.

III. *As to the inflammatory changes that lead to sclerosis*, I believe that much misconception still exists and that before a great many years there will be a reconstruction of the views concerning what is now often called chronic myelitis, transverse myelitis, compression myelitis, etc.

I take it that the neurologist can accept some such classification of inflammations as is given by the general pathologist—*e. g.*, that of Senn :



FIG. 1.

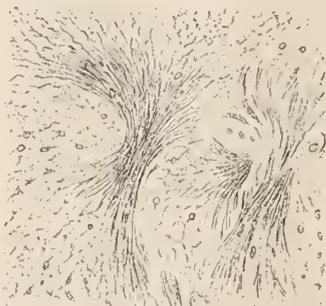


FIG. 2.

NEUROGLIA SCLEROSIS.—FIG. 1. Gray matter of the brain cortex in epilepsy. FIG. 2. The same, much magnified. (Chaslin.)

*Is So-called Sclerosis a Gliosis?*—A further point of great interest is the nature of the sclerosis in the primary degenerative processes. It has until lately been held that the sclerosis of locomotor ataxia, lateral sclerosis, etc., was composed of connective tissue. Some facts have been brought forward of late which threaten to revolutionize this view completely.

It must be remembered that, while the matrix and supporting structure of all other organs is connective tissue, the matrix of the nervous centers is partly connective tissue and partly neuroglia tissue. This neuroglia tissue, it is admitted now, is of epiplastic origin, and allied more to nervous than connective tissue. There is, to be sure, a connective-tissue membrane, the pia mater, surrounding the nervous mass, and sending sæpta into it and following the blood-vessels. But the neuroglia much more thoroughly and completely surrounds and imbeds the fibers and cells.

In 1889 Chaslin (*Journal des connaissances méd.*), studying the brains of five epileptics, found a microscopical increase in the neuroglial tissue. This, which would have been called before a diffuse sclerosis, he believes is rather a diffuse gliosis. He bases his view on a histo-chemical process suggested by Malassez. The sections are placed for ten minutes in a forty-per-cent. solution of caustic potash, then washed, stained in carmin, placed in crystallized acetic acid, washed, and mounted in acid glycerin. The connective tissue is softened and partly dissolved, and does not take up the carmine stain, while the glia tissue is not injured and is stained.

Achard and Guinon (*Arch. de méd. expér.*, 1889, p. 701), and Achard alone (*Bull. de la Sociét. anat.*, 1890, p. 200), found a similar neuroglia proliferation in multiple sclerosis, compression myelitis, tabes—in fine, in all the spinal scleroses, which they assert are in the main composed of neu-

I. The simple and plastic inflammations.

II. The infective inflammations.

Then, as the simple and plastic inflammations are mainly reparative processes, and not inflammations, we may be obliged, as Senn states, to admit some day that all true primary inflammations of the cord are due to an infective process.

This being the case, we should find few cases of either acute or chronic myelitis of primary origin, and, as a matter of fact, this is the case. Thus, in my opinion, *chronic myelitis*, so called, is really the result, as a rule, of some injury or focal softening, with resulting slow destruction of the cord. Following and accompanying this is a reparative process which may be called inflammatory, together with secondary degenerations. Hence *chronic myelitis* is ordinarily a combination of—

1. A necrotic and destructive process.
2. A reparative inflammatory process.
3. A secondary degenerative process.

In what is usually called compression myelitis the process is one not of inflammation at all, but almost exclusively of—

1. Destruction of tissue from pressure and œdema.
2. Secondary degeneration.

To resume, I wish to point out that the term *chronic myelitis* is used loosely and incorrectly for mixed processes that have little or no inflammatory element in them, but are a mixture of necrotic, degenerative, and reparative processes. I do not wish to deny, however, that true primary chronic myelitis does not occur.

I have only been able to show, gentlemen, that there are problems in neuropathology of enormous interest and practical importance. And I can only hope that my presentation of some of them here may give some further impetus to their study and to efforts which will end in their final and triumphant solution.

I append here a tabular view of the various scleroses of the spinal cord, assuming yet that the processes are fibroid and not general:

I. *Primary Degenerative Scleroses.*

1. Posterior spinal sclerosis, locomotor ataxia.
2. Lateral sclerosis? spastic paraplegia.
3. The combined scleroses, Friedreich's ataxia, ataxic paraplegia, irregular forms.
4. Multiple sclerosis.
5. Progressive muscular atrophy and amyotrophic lateral sclerosis.

II. *Secondary Degenerative Scleroses.*

Of cerebral origin, lateral descending.

Of spinal origin, ascending and descending.

Of posterior root origin, posterior ascending.

III. *Inflammatory Scleroses—so called.*

- |                               |                     |
|-------------------------------|---------------------|
| Acute primary myelitis,       | } very rare.        |
| Chronic primary myelitis,     |                     |
| Acute secondary myelitis,     | } the common forms. |
| Chronic secondary myelitis,   |                     |
| Chronic compression myelitis, |                     |

These are mixed processes of softening, inflammation, and degeneration.

## DISEASES OF THE URINARY APPARATUS.

By JOHN W. S. GOULEY, M. D.,

SURGEON TO BELLEVUE HOSPITAL.

(Continued from page 11.)

### PART I.—PHLEGMASIC AFFECTIONS.

#### SECTION II.—SPECIAL CONSIDERATIONS.

##### VII.

##### PROSTATITIS AND BULBO-URETHRAL ADENITIS.

PROSTATITIS—phlegmasia of the vesical prostatic body—may begin and end in the glandular part (parenchymatous prostatitis); it may thence extend to the interstitial connective and muscular framework of the prostate body (diffuse prostatitis), or it may occur in the peripheral connective tissue (periprostatitis). The phlegmasia may be superacute, acute, subacute, or chronic.

*Causes.*—Prostatitis may arise from urethritis, from venereal excesses, from the contact of some irritant with the mucous membrane of the prostatic region of the urethra, such as often repeated strongly astringent injections in the treatment of "gonorrhœa," from external injury, from violent catheterism, or from exposure to cold and dampness. The superacute and acute types are of very rare occurrence, and generally caused by the extension of acute or superacute urethritis into the prostatic ducts and follicles, whence the phlegmasia diffuses itself into the interstitial substance, and sometimes extends into the peripheral connective tissue. This is sometimes excited by the so-called abortive treatment of "gonorrhœa" by the injection of a strong solution of nitrate of silver. The subacute type affects at first the parenchyma only, but later invades the interstitial substance, and may gradually pass into the chronic type.

These several types of phlegmasia are apt to leave the prostate in a very seriously damaged state, such as follows: destruction of a considerable proportion of the glandular substance, induration, shriveling, etc.; still there are many cases that end in resolution without apparent injury to any part of the organ.

*The chief symptoms of the acute types of prostatitis are,* in the beginning, a sense of weight in the perineal region; increased frequency and difficulty of urination; pain referable to the urethro-vesical orifice; and a sense of fullness in the rectum, with tenesmus. When the affection is consecutive to urethritis the patient notices a cessation of the discharge, which is ordinarily the case in most of the consequences of urethritis. In the course of two or three days all these sensations are greatly intensified. The rectal tenesmus is much increased, and the urgent desire to empty the bowel is ungratifiable by reason of the prostatic swelling. The dysuresis and stranguria become very distressing; finally, ischuria supervenes, and there is much pain in the lumbar region and along the course of the sciatic and anterior crural nerves, from the fast-accumulating urine in the bladder. Any pressure in the perineum gives a sharp pain, which is acutely felt at the extremity of the urethra—such as that experienced when a calculus comes in contact with the urethro-vesical orifice.

Trachelocystitis is almost always associated with pros-

tatitis, and two other unwelcome guests—gonecystitis and orchitis—sometimes intrude themselves to further distress the sufferer.

The little urine passed spontaneously before the advent of ischuria is acrid, high-colored, purulent, and at times bloody.

Exploration with the finger introduced into the rectum reveals much swelling, tension, heat, and hardness of the prostate, which nearly fills the lower end of the rectum. The slightest pressure made with this finger causes great suffering to the patient, the pain extending to the glans penis.

The diagnosis of acute prostatitis is based upon the analysis of the symptoms detailed above and upon the rectal exploration.

*Progress.*—Acute prostatitis generally resolves in the course of three or four weeks, but sometimes suppurates. The supracute type almost always suppurates.

The subacute type is slow in resolving, and sometimes ends in an abscess or in multiple abscesses of very gradual development.

In the supracute and acute types the advent of suppuration may be predicted when the occurrence of rigors and febrile reaction is followed by throbbing pains in the rectum and perinaeum. The pus may find an outlet in the bladder, in the urethra, in the rectum, or may point forward toward the perinaeum or backward toward the peritoneal cavity. The relations of the prostate to the bladder render possible the discharge in this viscus of an abscess pointing superiorly and posteriorly. The directions most commonly taken by the pus are toward the urethra and toward the rectum. When the abscess opens on the floor of the urethra by several small orifices, and freely discharges its contents, no harm ensues, but when there happens to be a large opening, the dangers of destruction of the whole prostate by the urine, and of consequent pyosapramia, are great.

A case illustrating this point occurred in 1864 at Bellevue Hospital. The patient, a young man, was suffering from retention of urine consequent upon a prostatic abscess. For his relief a silver catheter was introduced, but met, in the prostatic region, with an obstruction, which was, however, overcome, the incidental pressure causing the instrument to suddenly advance about an inch, when two ounces of creamy pus flowed, but the bladder was not entered. From that time the bladder relieved itself spontaneously. Symptoms of pyosapramia supervened, and the patient died in two weeks. The necropsy revealed a ragged opening in the floor of the urethra leading to a large cavity, with sloughy walls, containing stale urine and pus. The whole prostate was disorganized.

When the abscess points toward the rectum, digital exploration reveals fluctuation in that situation; the prostate, hard and tender during the periods of increase and stasis of the phlegmasic process, is now soft and little sensitive to the touch, one lobe or both lobes being in this state of suppuration.

In peiprostatitis, which is caused most frequently by violent catheterism, the abscess often points forward toward the perinaeum. The abscess very rarely points backward.

The great danger in such cases lies in its breaking into the peritoneal cavity. When the bladder is empty the rectovesical fold of the peritonæum descends to about half an inch of the base of the prostate, but as the bladder fills, the peritonæum ascends with it so that the antero-posterior space uncovered by peritonæum is doubled in extent. In some instances, however, as shown by the specimens exhibited, the peritonæum reaches and even overlaps the base of the prostate. These facts are sufficient to account for the occasional occurrence of peritonitis in cases of acute prostatitis.

*In the treatment of the acute types of prostatitis*, local antiphlogistic measures should be promptly adopted, the main indications being to prevent suppuration and hasten resolution. Antiphlogistic treatment is, however, applicable only during the stages of increase and stasis. Later—that is to say, when there are already signs of softening and suppuration—this treatment is of no avail, and may even be harmful.

In any case of acute prostatitis the first inquiry of the physician should relate to the condition of the bladder. If he finds retention of urine, he should lose no time in relieving the distended bladder. Unless the bladder is kept empty, any mode of treatment tending to favor resolution of the phlegmasic process in the prostate must inevitably fail, for the distended bladder mechanically impedes the venous circulation in its vicinity. Catheterism in cases of swollen prostates is often very difficult and requires the utmost caution and gentleness. The use of metallic catheters is unjustifiable in the vast majority of cases of retention of urine from acute prostatitis. The safest and most efficient instruments for this purpose are the soft, curved, so-called gum catheters, not larger than No. 9 of the English scale. Such catheterism is ordinarily required every five or six hours for at least a week. Recumbency is, of course, enjoined.

After the intestinal tract has been emptied, the rectum should be thoroughly washed. Immediately after the cleansing process three or four leeches should be applied to that part of the rectum underlying the prostate. This can be conveniently accomplished with the aid of the leech-tube devised by Dr. James S. Hughes, of Dublin. This tube is much better than those of Bégin, Henderson, and Craig. The following is Dr. Hughes's description of his leech-tube:

"The instrument . . . consists of a curved gun-elastic or gutta-percha tube, of about six inches in length, open at one extremity, closed at the other, the latter being rounded off and inverted or bell-shaped, and perforated with two or more conical holes capable of enabling the leeches to do their duty but not to escape through. The lesser curve of the tube is grooved or concave externally. The following is the mode in which the instrument should be used: The patient having been placed in the kneeling posture, the surgeon should pass the forefinger of his left hand, previously well oiled, into the rectum with a gentle rotatory motion, until it has reached the inflamed prostate; he then should take with his right hand the leech-tube, previously oiled and furnished with from one to four leeches, as the case might be, and pass it along the curved dorsal aspect of the

left forefinger to the exact spot where the leeches ought to be applied, the left forefinger acting as a director to the leech-tube, and forming with it, as it were, one instrument, the concave surface of the tube traversing and adapting itself to the convex surface of the finger. By this simple contrivance leeches can be brought and kept in contact with the rectal surface of the prostate without danger of their escaping from the instrument into the intestine, on the one hand, or of the tube becoming blocked with feculent matter on the other." These leech-tubes of Dr. Hughes's have lately been made of glass.

There may be circumstances forbidding the application of leeches to the rectal mucous membrane. In such cases, ten or twelve leeches may be applied to the perineal and anal regions, the effect of either mode of leeching being to disgorge the præ-prostatic plexus of veins and thus relieve the blood stasis in the capillary vessels of the prostate.

When it is judged that a sufficient amount of blood has escaped after the dropping of the leeches, the rectum should be cleansed and then packed with ice, which should be renewed as fast as it melts, means, such as the introduction of a gum-elastic tube, being provided for the escape of the water if it does not flow freely during the insertion of new ice suppositories. This ice treatment should be continued two, three, or four days, according to the necessities of the case. The relief afforded by the cold is great, and enables the patient to obtain much refreshing sleep. During the day the ice is renewed every half-hour if need be, but once every two hours in the night generally suffices, the patient waking to ask for a renewal of the ice suppositories. Should it not be possible to continue the use of ice by the rectum, an India-rubber bag filled with ice could be applied to the perinæum, and the benefit of dry cold thus obtained.

During these three or four days catharsis should be kept up by drachm doses of sulphate of sodium, dissolved in three ounces of hot water, every four hours. Tartarized antimony was formerly given in doses of one eighth of a grain every four hours, but this can now be judiciously replaced by diaphoretics that cause less depression than the antimonial salt.

To insure diuresis, from forty to sixty grains of bicarbonate of sodium should be given in six ounces of water three and even four times daily. This alkali, in such cases, acts as an antiphlogistic and as a diluent counteracting the acidity of the urine. A full dose of morphine by the mouth or hypodermically serves the purposes of relieving pain and inducing sleep. The diet should be restricted to broths and bread and milk.

If resolution begins within a week from the onset of the phlegmasia, it may be promoted by hot enemata, hot fomentations to the hypogastric and perineal regions, and a hot hip bath of five minutes' duration every night. Internally, five grains of chloride of ammonium may be given four times daily, and mild saline aperients administered every morning. Under favorable circumstances, in the course of two or three weeks from the beginning of resolution the prostate nearly regains its normal condition. Re-constituents and a generous diet are then indicated.

When resolution fails and suppuration occurs, the sooner

the pus is allowed free outlet the better. If the pus is discharged into the urethra, the greatest care should be taken to prevent the urine from entering the abscess cavity. The patient should not be allowed to urinate spontaneously, but the catheter introduced, as before, every five or six hours, for two or three weeks after the first gush of pus, so as to give time for contraction of the cavity and healing by granulation from the bottom. If the pus points toward the rectum, a Sims speculum should be introduced and a sufficiently free incision made into the abscess, whose cavity should be well disinfected and loosely packed with antiseptic gauze. If the cavity is very small, it may be left to granulate without packing. When, as in periprostatitis, the abscess points toward the perinæum, if fluctuation is detected by perineal palpation, a central perineal incision answers the purpose of emptying it; but if the indications of suppuration are entirely by rectal exploration, a crescentic incision, followed by careful dissection between the urethra and rectum, is required to safely reach the purulent focus, after whose evacuation and cleansing with peroxide of hydrogen solution the same dressing may be made as in the other cases. As a general rule, the parts heal by granulation in the course of four or five weeks.

*Prostatitis from exposure to cold and dampness* is not an uncommon occurrence among elderly men whose urination may or may not have been impeded before such exposure. From the cases observed, three are selected to illustrate the ill effects of a phlegmasia which involves the mucous membrane of the prostatic region and of the urethro-vesical orifice, together with a very superficial layer of the prostatic parenchyma, causing an œdematous swelling of the mucons membrane that may be likened to œdema of the glottis from the suddenness of its invasion and rapidity of swelling. In two or three hours after the exposure there is frequent and difficult urination, and, within six or eight hours, retention of urine.

A patient, sixty-six years of age, who had never had any hindrance to urination, left the city in apparent good health to spend the night at his suburban residence on a cool mid-September evening. From the railway station to his house the distance is about a quarter of a mile. He walked briskly and was somewhat heated on his arrival. He remained for a time out of doors, and, desiring to urinate, exposed his pudendal region in the act of relieving his bladder. At that moment he experienced a distinct chilly sensation, and thought nothing of it until later in the night, when he was several times obliged to urinate. Before sunrise the frequency of urination had greatly increased, so that he was disturbed every ten minutes, suffering much burning pain at each act. He returned to the city early in the morning, when he was unable to pass a single drop of urine. The catheter was used, much to his relief, but he could not afterward urinate spontaneously. He died within six months from the date of the attack. The necropsy revealed a hard, thick, bar-like obstruction at the urethro-vesical orifice, but the prostate was very little enlarged. This urethro-vesical bar indicated that supramontanal enlargement had begun, but was not sufficient to interfere with urination until the advent of the acute phlegmasiac swelling.

It is evident that the continuance of the obstruction was owing to an abundant unresolved exudate.

A similar accident happened to a patient, fifty-eight years of age, who sat for several hours in the evening on the piazza of a watering-place hotel late in the autumn, the air being chilled and the fog dense. During the night he was unable to urinate, and from that time was compelled to rely upon the catheter for relief. He had never before had any impediment to micturition.

A patient, sixty-three years of age, who in the course of the previous ten years had several times suffered from retention of urine, imprudently sat during the evening on the stone steps of his house late in the month of August. At length, feeling chilly, he went to bed. In the morning he was unable to urinate, and from that moment required frequent catheterism for nearly two months, after which he was able to urinate spontaneously, but could not completely empty his bladder, the urethro-vesical obstruction having become permanent. At the time of the retention of urine the prostate was considerably swollen, but was afterward reduced to nearly its normal size, except, of course, in the supramontanal region.

The same phlegmasia occurs very commonly in young and middle-aged subjects from exposure to cold and dampness during the decline of acute urethritis or during a debauch. This has been improperly called acute inflammatory stricture. The bladder, suddenly distending, causes great suffering, and the patient is likely to apply for relief during the first day. Not many years ago these cases were subjected to vigorous antiphlogistic treatment, but of late years the first care has been to empty the bladder by the prompt introduction of a gum catheter. This is followed by the use of ice suppositories for a few hours, and then by free catharsis. Sometimes a single catheterism suffices, but it is ordinarily advisable to enjoin two or three days of recumbency and the free use of diluent beverages. Deliquescence, or at least very rapid resolution, generally occurs in these last-named cases.

THE CHRONIC TYPE OF PROSTATITIS—variously named catarrhal prostatitis, mucous prostatitis, follicular prostatitis, canalicular prostatitis, prostaticorrhœa, etc.—is of much more common occurrence than the acute types, and begins in the mucous membrane of the prostatic sinus, reaching finally the utriculus, the prostatic ducts, crypts, and interstitial tissues. Its development is so gradual that often it is not recognized for a long time. It is ordinarily one of the phases of chronic urethritis, whether this urethritis be the outcome of acute urethritis, of masturbation, or of venereal excesses, or whether it is excited by hyperlithuria, by the lodgment of urinary calculi in the prostatic sinus, by chronic cystitis, by a urethral stricture, by frequent catheterism, by the extension of phlegmasia from the seminal vesicles, by the irritation caused by hemorrhoids, or by the prolonged retention of catheters in the bladder. Chronic prostatitis may also be a sequel of acute prostatitis. Although chronic prostatitis ordinarily affects young and middle-aged men, it not infrequently occurs among elderly men suffering from prostatic enlarge-

ment. In these cases it is the outcome of the frequent catheterism rendered necessary by the urethro-vesical obstruction.

The chief symptoms of chronic prostatitis are sensations of fullness and weight in the perinæum and rectum, perineal tenderness experienced in the sitting posture, dull pains in the perineal and anal regions increased by active exercise and sexual contact, pains in the lumbo-sacral region and in the lower extremities, occasional painful seminal emissions, costiveness, frequent urination, painful urination particularly at the close of the act, a slight muco-purulent, yellowish urethral discharge, and, during defecation, a free urethral discharge of milky prostatic fluid rendered slightly viscous by the admixture of the secretion of the urethral mucous glands. The characteristic odor of the mucus of these glands is imparted to the prostatic fluid and semen, which, by themselves, are odorless. To this last symptom the name prostaticorrhœa owes its origin, and from this symptom arose the erroneous popular belief that the glairy fluid in question was semen. To some patients this discharge of prostatic fluid is a source of much anxiety. They imagine themselves affected with seminal incontinence and even impotency, and become the easy victims of designing charlatans. In certain cases the sexual act is attended with so much pain that it is at last abandoned and in time the desire is abolished. Such patients become sullen and lead a life of seclusion, their thoughts are centered upon their supposed infirmity, and their forebodings are of countless imaginary evils. This mental state is more likely to exist in men whose health is already impaired, but undoubtedly causes its further deterioration. Their sedentary life leads to loss of appetite, disturbance of digestion and consequent hyperlithuria, costiveness, leucomainal toxæmia, languid circulation, etc.

The physical characters of chronic prostatitis become known partly during life and partly after death. Beginning in the mucous membrane of the prostatic sinus, it gradually invades the ducts, the crypts, and the interstitial tissues. In some cases the prostate is soft, in other cases it is indurated. Either condition may be ascertained during life by digital rectal exploration.

In a large proportion of cases of chronic prostatitis the mucous membrane of the prostatic sinus is in a granular state, which can be seen with the aid of the urethroscop. In some cases small retention cysts from the occlusion of ducts, or degeneration cysts from isolated gradual degenerative processes, or abscesses from sudden local necrosis, are slowly developed in the substance of the prostate and are detected by rectal exploration with the finger, and by subsequent puncture with a small trocar. Very rarely it is found that the greater part of one lobe is destroyed by an abscess.

Dissection of the prostates of patients affected with chronic prostatitis, dying from some intercurrent disease, has revealed the granular condition to which reference has already been made, the granular mucous membrane being red from congestion up to the vesico-urethral orifice, a spongy, soft state of the prostate, which is somewhat larger than natural and may contain degeneration cysts or small

abscesses, or a hard state of the prostate, which is decreased in size and sometimes contains retention cysts, and the utriculus occasionally filled with pus.

When the prostatic crypts have become involved in the phlegmasic process, their microscopic sympexia are set free by the exudate and are then metamorphosed into calculi which, by the accretion of concentric phosphatic layers, attain in time very considerable dimensions. In one case a thousand such calculi, each about half a millimetre in mean diameter—except three, one of which weighed three grammes fifty centigrammes, and the other two weighed together twenty centigrammes—were removed, through a perineal incision, from the prostate of a man twenty-six years of age. In another case eighteen prostatic calculi were similarly removed from a man fifty-four years of age. These eighteen calculi averaged seven millimetres, the largest measured ten by fourteen millimetres, the smallest three millimetres; the whole weighed one hundred and forty grains—about nine grammes. Both patients were cured by the operation.

In perhaps five per cent. of the prostates dissected during the past twenty years, several small calcareous concretions have been found occluding the mouths of prostatic ducts or lying free in the prostatic sinus, and in a much greater percentage of these prostates, particularly those of elderly men, the calcareous transformation was verified by the inordinately gritty state of the substance of the organ. This it seems is evidence of chronic phlegmasic action sufficient to disturb or even to kill the sympexia, which then become foreign bodies. It is when these foreign bodies are not speedily cast away that they receive successive layers of calcium phosphate until they greatly dilate and finally destroy most of the prostatic crypts.

In chronic prostatitis arising from narrow urethral strictures, not only are the ducts dilated by the reflux urine, but the prostatic sinus also undergoes expansion. One of the specimens exhibited is from an extreme case of ectasia, the prostatic sinus being dilated to the extent of containing at least thirty grammes (one ounce) of fluid, the substance of the prostate being soft and spongy.

*The diagnosis of chronic prostatitis* is based upon close analysis of the symptoms, examination of the urine, physical exploration, the anatomical characters, and the history of the affection. The symptoms can be rightly interpreted only in connection with the examination of the urine and the physical exploration.

The urine of patients affected with chronic prostatitis is generally somewhat cloudy, owing to the presence of pus and epithelium from the prostatic region and sometimes also from the bladder. The many shreds and scrolls so commonly seen in this urine are shown on microscopical examination to consist of pus, epithelial cells, and some blood-cells held together by mucus. Among these shreds and scrolls are sometimes seen long cylindrical bodies which appear to be casts of the smaller prostatic ducts. Great quantities of octaedra of calcium oxalate are frequently found in the urine of these patients; at times lozenges of uric acid, at other times the urates in great abundance. Microscopic sympexia cast away from the prostatic crypts

are often found in this urine, particularly in the case of elderly men.

A convenient method of obtaining pus from the prostatic sinus for microscopical examination is to introduce into the sinus of the urethral bulb a hollow, soft, No. 12 English bougie, with an acorn-shaped vesical extremity, with three or four perforations at the base of the acorn, and to syringe in four or five ounces of warm water for the purpose of washing away, by the retrograde current, the pus that may have accumulated in the spongy urethra. This accomplished, the bougie is carried onward as far as the urethro-vesical region and then withdrawn. The pus found coating the base of the acorn is then placed upon a glass slide, properly covered, and subjected to microscopic inspection. Mixed with this pus are many epithelial cells, perhaps some casts of the smaller prostatic ducts, and possibly a few sympexia, but no spermatozooids.

The first step in physical exploration is digital rectal examination. By this it is ascertained if the prostate be tender or insensible to the touch, hard or soft, decreased or increased in size, smooth or nodular; if nodular, whether the nodules be firm from organized plasma, doughy from purulent accumulation, tense from cystic formation, or of stony hardness from the presence of calculi.

The next step in this exploration is an examination of the urethra for the purpose of excluding urethral stricture, trachelocystitis, or vesical stone. Chronic prostatitis being sometimes the indirect outcome of urethral stricture, the urethra should be explored with a bulbous bougie to make sure of the existence or of the non-existence of stricture. The granular condition already referred to can be ascertained with the aid of the urethroscope.

The sharp pain at the urethro-vesical orifice during urination or at the moment of entrance into the bladder of a bougie or catheter indicates the complication trachelocystitis, which is so frequent that the coexistence of these affections has given rise to the term chronic prostatocystitis. The persistent vesical pains simulate so much some of the symptoms of stone as to warrant an exploration of the bladder with a rectangular staff to clear any doubt in this respect. When the pain caused by the exploration is slight and confined to the prostatic region, the case may be regarded as uncomplicated chronic prostatitis.

*The treatment of chronic prostatitis* is varied in accordance with its different phases, complications, and consequences.

Uncomplicated chronic prostatitis attended with a flow of from a few drops to nearly a drachm of prostatic fluid during defecation, so common among continent men, and still more so among those addicted to masturbation, requires moral as well as local and constitutional treatment.

*The moral treatment* is the most difficult of the self-imposed tasks of the physician, who must employ much circumspection before he can pass judgment upon the needs of particular cases. In examining and advising any individual, he may exercise the greatest firmness, tempered, however, with patience, forbearance, and kindness. Thus he enlists the confidence of the sufferer, endeavoring to lead him to understand, first, that his local ailment is cura-

ble; second, that he is not suffering from seminal incontinence; third, that he is not impotent; and fourth, that he can not be cured unless he gives up the bad habits he may have acquired, and occupies his mind with subjects other than his ailments. When the patient is responsive to the moral treatment, more than half of the cure may be considered accomplished.

*The local treatment* of uncomplicated chronic prostatitis consists in irrigating the prostatic sinus once daily, with the object of washing away the mucus and pus which may have accumulated in the sinus and in the larger prostatic ducts. The fluid for irrigation should at first be a one-per-cent. watery solution of boric acid, using not less than four ounces of this solution for each irrigation. This often suffices in certain cases, but may be used with advantage as a preparatory step to more active measures when such are necessary. The manner of making this irrigation is to introduce a No. 8 or No. 9, English, uniocular, curved gum catheter into the membranous region of the urethra, and to slowly inject the fluid, which, passing through the prostatic urethra, dislodges and carries into the bladder the mucopurulent contents of the prostatic sinus. If any of the fluid flows out of the urethra beside the catheter, it is an index that the catheter has not reached the membranous region. In that case the instrument should be made to advance a little farther; then the injection surely enters the prostatic region and bladder. When the four ounces have been thrown in, the catheter is pushed into the bladder, whose contents are allowed to escape into a glass vessel to be examined for flocculi of muco-pus and epithelium, and to make sure that the cleansing process has been successful.

These irrigations are very effective also in the chronic prostatitis of elderly men. In many cases the prostatic sinus is filled by a plug of tenacious slime, which for hours is a source of irritation and of frequent prostatic spasms, until it is suddenly forced out by a stream of urine. The daily use of irrigations with the boric-acid solution almost invariably has the effect of breaking up this tenacious slime, or of preventing its accumulation. In case of granular urethritis of the spongy portion, it is wise to irrigate the whole canal. When these simple irrigations are insufficient to relieve the local distress, the use of steel sounds of increasing size has the double effect of dilating the canal and, by compression, of causing the granulations to disappear. The sound should not be passed oftener than twice each week. In conjunction with this process of dilatation, every third or fourth day the prostatic region of the urethra should be irrigated with a solution of nitrate of silver, one grain to the ounce, increasing its strength at subsequent sittings to two, three, and even five grains to the ounce of distilled water, and using only one ounce of the solution. The bladder should contain a few ounces of urine, so that the nitrate of silver may be decomposed and rendered harmless to its mucous membrane. The method of Guyon, by the instillation of five, ten, or twenty minims of nitrate-of-silver solution, from five to thirty grains to the ounce, is also employed in chronic prostatitis, but the use of a larger quantity of a weaker solution, such as one ounce, is preferable, as the fluid has a better chance of entering the prostatic

ducts, and it is not desirable that the strength of the solution exceed five grains to the ounce. Before making the injection the prostatic urethra should be well cleansed with pure water. The immediate effects of the injection are a severe burning pain in the prostatic region and frequent and almost irrepressible urination, lasting an hour or two hours. There may even be a slight hæmorrhage, which, however, soon ceases. Afterward the mucopurulent discharge is much increased, but lessens and nearly disappears in two or three days. It sometimes happens that after the first or second injection of nitrate-of-silver solution there are no longer any manifestations of chronic prostatitis, but, as a general rule, several injections are necessary to effect a cure.

Other substances have been used in solution for irrigation in chronic prostatitis, such as mercuric or zinc chloride, copper or zinc sulphate (five grains to the ounce), resorcin, otherwise known as metadioxybenzol (ten grains to the ounce), but they are not equal to nitrate of silver in solution of moderate strength, the great advantage of nitrate of silver being that it is decomposed and becomes innocuous as soon as it has caused coagulation of the albumin of the superficial layer of epithelial cells.

In some cases of chronic prostatitis, owing perhaps to a slight imprudence or error in diet, the urethral discharge greatly increases, becomes creamy, simulating acute virulent urethritis. There are inordinate frequency and pain in urination, and a train of symptoms which are very apt to mislead the inexperienced. Such patients should not at first be subjected to local treatment, as it would be likely to aggravate the phlegmasia and cause some serious complication. Three or four days of rest and the free use of diluent drinks generally suffice to cause the cessation of all these phenomena. Then the local treatment may with safety be applied.

It is scarcely necessary to say that no success in treatment can be attained in complicated cases unless the complication is treated at the same time. If chronic cystitis exists, it demands special local treatment; if a urethral stricture should be detected, dilatation, division, or urethrotomy might be required. If painful hæmorrhoids or anal fissures are the complication and perhaps also the cause, they should be appropriately treated. When prostatic calculi have already formed, they should, if possible, be removed without delay.

In those cases attended with constant dull pain in the perineal region and tenderness of the prostate it is proper to use counter-irritants for five or six weeks. Painting the perineum with strong tincture of iodine, first on one side of the rhaps, then on the opposite side, every two or three days, often answers the purpose; otherwise vesicating colodion may be similarly applied, avoiding the scrotum and anus, and covering the vesicated part with a thick layer of absorbent cotton. Suppositories of opium and belladonna may be occasionally used to relieve pain.

Small cysts or abscesses of the prostate may be tapped, by way of the rectum, with a small trocar and irrigated with peroxide-of-hydrogen solution.

*Constitutional medication* is necessitated by the generally

impaired health of most sufferers from chronic prostatitis, and this medication is subject to such variations as may be indicated by the characters of the constitutional manifestations. The use of bitter tonics in conjunction with an improved diet is likely to sharpen the appetite and facilitate digestion. Active treatment for hyperlithuria may be necessary. Iron and quinine are of value as reconstituents. Laxatives soon have the effect of preventing fecal accumulation, and afterward equal parts of tincture of chloride of iron, tincture of cantharides, and fluid extract of ergot, given in doses of ten minims twice daily, complete the internal medication. Then frequent general bathing followed by frictions, and increasing exercise, comprise the hygienic measures.

**BULBO-URETHRAL ADENITIS.**—Before examining the phlegmasic processes to which the bulbo-urethral glands are subject, some points in their history, special anatomy, and physiology may with profit be studied. These glands, the analogues of the vulvo-vaginal glands, were discovered by Méry, and a very brief description of them was inserted in the *Journal des savants*, June, 1684. Fifteen years after this, in 1699, Cowper published, in the *Philosophical Transactions*, a note on these glands, and in 1702 gave of them a detailed description, and they have since borne his name. Several other anatomists laid claim to their discovery and each gave them a new name, such as little prostates, accessory prostates, inferior prostates, antiprostates, etc. In 1849 Gubler published, as his inaugural thesis, an exhaustive study of the anatomy and the phlegmasia of these glands, and adopted for them the name of bulbo-urethral glands on account of their site. They consist of a pair of compound racemose glands encapsulated by fibrous tissue, situated behind the urethral bulb, between the two layers of the triangular ligament, in the substance of the ischio-urethral muscle, and beneath the membranous portion of the urethra. They are generally about one millimetre on each side of the median line, but sometimes in contact. They are globular, discoid, or ovoid in form, and from five to eight millimetres in mean diameter. In the fœtus they are proportionately much larger than in the adult. In some of the lower animals, as the *Rodentia*, they are very large. In color they are pinkish yellow, in consistence firm and elastic.

In structure they are similar to the racemose glands and consist of roundish cellules, ranging from the one six-hundredth to the one three-hundredth of an inch in diameter, grouped around small ducts after the manner of bunches of grapes, the whole being bound by connective tissue and capillary blood-vessels. The cellules and ducts are lined by a cubical epithelium. The ducts of several primary lobules unite and form larger ducts which end in a common excretory duct.

Each gland has a single common excretory duct which emerges from the anterior extremity of the gland. This excretory duct varies in length from three to six centimetres, and in diameter from a quarter of a millimetre to one millimetre. As it emerges from the gland, this duct enters the substance of the urethral bulb and traverses it obliquely from behind forward for the space of one centimetre, where

are found the accessory lobules which led Cowper to believe in the existence of a third gland. The duct then takes a nearly longitudinal course underneath the urethral mucous membrane for a distance varying from two to five centimetres and ends in a very narrow orifice beside the median line a little in advance of its fellow, the two very rarely having a common orifice. This orifice is sometimes so small as scarcely to admit a hair. It is generally very difficult and often impossible to find this orifice even in carefully dissected fresh specimens. The mucous membrane of the ducts is surmounted by a cubical epithelium resting upon a thin membrane surrounded by longitudinal and circular bands of smooth muscle tissue to be found also among the divisions of the duct in the substance of the gland.

The secretion of the gland in the natural state is colorless and viscid, and in pathic states becomes opaline or even markedly turbid, without, however, losing its viscidly. This secretion, whether in health or in disease, is much more consistent than that of any of the uro-genital glands, and it is this consistence which distinguishes it so well from the others. This viscidly of the mucoid fluid is such that it is easy to draw it into threads from ten to fifteen centimetres in length. It is of alkaline reaction, and when rubbed has the property of frothing like soap-suds.

These glands are annexes of the genital as well as of the urinary apparatus. As genital organs, their secretion, profuse at the beginning of the act, serves to lubricate the glans penis to facilitate intromission, and, continuing during the act, serves to dilute the semen. As urinary organs, their secretion is among those designed to lubricate, and so protect the urethral mucous membrane.

*Bulbo-urethral adenitis*—phlegmasia of a bulbo-urethral gland—is ordinarily the outcome of urethritis, but may also arise in consequence of a blow upon the perinæum or of an injury of the gland's duct by the accidental penetration of a capillary bougie. The left seems to be more commonly attacked than the right, and very exceptionally are both glands affected. The phlegmasia may be acute or chronic. In the great majority of cases the acute type resolves in a short time, suppuration being a rare termination. The chronic type is more frequent than it is generally supposed to be, and often constitutes one of the varieties of chronic urethral discharge. Observation of this chronic discharge, with induration and enlargement of the glands, led Cowper and several of his contemporaries to believe that "gonorrhœa" was often caused by phlegmasia of the bulbo-urethral glands, whereas this phlegmasia is in reality one of the occasional consequences of "gonorrhœa."

Acute bulbo-urethral adenitis consequent upon acute urethritis is often overlooked, because the perineal pain and tension which so frequently occur on the second, third, or fourth week of urethritis are not rightly interpreted, or not considered worthy of attention, or perhaps they are attributed to a purely neurotic condition, and the cessation of the pain is believed to be due to the remedies that may have been administered, whereas, in the majority of cases, the pain ceases owing to rapid resolution of the phlegmasia.

*The subjective symptoms* of this mild type of bulbo-

urethral adenitis are painful tension in the perineal region on the affected side, tenderness to pressure while the patient is in the sitting posture, pain during walking exercise, from friction by the clothing, and more or less burning sensation in the region of the urethral bulb.

*The objective symptoms* are slight tumefaction corresponding to the situation of the gland, which, though hard and increased in volume, is movable; moderate compression of the gland with the finger, causing more or less pain, which is propagated to the urethra. There is no febrile reaction, no redness of the skin.

*The progress* of acute bulbo-urethral adenitis is ordinarily very rapid. As a general rule, resolution begins in a few days. Otherwise, suppuration is established in the course of ten days or, at most, two weeks. The phlegmasia, at first confined to the gland, finally extends beyond its fibrous capsule and into the ambient connective tissue, and there is periadenitis. Then the gland can no longer be felt, for it lies in a pus cavity. The abscess sometimes encroaches upon the opposite side, and extends forward to the scrotum. The skin is œdematous, becomes red, then livid in the center of the swelling, and at length ulcerates and gives issue to the pent-up pus, and later, perhaps, to urine, unless timely surgical aid had been obtained. The beginning of the suppurative process is known by febrile reaction, throbbing perineal pains, and increase of tenderness and tension.

Among the consequences of neglected bulbo-urethral adenitis are retention of urine from mechanical compression of the urethra by the abscess, perforation of the urethra and urinary fistula, and obliteration of the excretory duct of the gland.

*The diagnosis* is easy during the period of increase of the phlegmasia. The situation of the swelling, its mobility, its tenderness, viewed in conjunction with the history of the case, demonstrate the existence of bulbo-urethral adenitis. But when periadenitis is superadded, it may be confounded with urinary or simple abscess or a boil. Here, again, the history of the symptoms comes in aid to make certain the true nature of the swelling. If, after the abscess has been opened, a fistula persists for months and discharges a very viscid fluid, particularly at the beginning of sexual contact, it may be asserted with confidence that this fistula springs from the gland or from its duct, which may be obliterated at its anterior portion. A fistula giving issue also to urine indicates perforation of the urethra.

*The treatment of acute bulbo-urethral adenitis* during its period of increase should be antiphlogistic, consisting in the application of half a dozen leeches to the perinæum, after which the ice-bag is to be used for three or four days. If at the expiration of that time resolution has not begun, the swelling and tension have increased, and the pain is throbbing, an incision should forthwith be made into the substance of the gland. The patient is placed in the lithotomy posture, a narrow, straight bistoury is plunged into the swelling, at its most prominent point, and the wound is enlarged to half or three quarters of an inch in withdrawing the instrument. A few drops only of pus or none may flow, but the tension will have been relieved and

perforation of the urethra prevented by this timely incision, without which it is almost certain to occur. As soon as the incision is made the cavity of the abscess should be irrigated with peroxide-of-hydrogen solution until the returned fluid is clear. The wound is then dressed antiseptically. Under favorable circumstances cicatrization is complete in the course of ten days. In the case of an abscess containing an ounce or two of pus there is very likely perforation of the urethra, and the healing process is necessarily long. To insure cicatrization, the patient is not allowed to urinate except through a catheter. In the case of a persistent fistula springing from the bulbo-urethral gland or its duct, attempts have been made to stop the flow of viscid mucus by injecting through the fistulous orifice different fluids designed to impair the structure of the gland, such as nitrate of silver, tincture of iodine, etc., but generally without success. Excision of the gland was proposed by Gruget, but it does not appear that he has ever performed this operation, which, from the situation and relations of the gland, would present no great difficulties, and which is justifiable in view of the facts that the affected gland is of no further use, and that the constant discharge of the viscid mucus is a source of no little annoyance to the patient.

(To be continued.)

#### NOTE ON THE TREATMENT OF INFLUENZA.

BY J. HARRISON METTLER, A. M., M. D.,  
CHICAGO.

As it seems probable that we are to have another outbreak of the grip, though less extensive and milder in degree, this winter, it is judicious for us to occasionally compare notes in regard to its treatment. Two years ago, when the epidemic first appeared in all its pristine severity, I endeavored, out of a large experience with it, to formulate some definite line of treatment that might be more or less applicable to all cases. I accomplished this to a certain extent, to my own satisfaction, but last winter, and so far this winter, I have met with such unusual manifestations of the disease that I have learned to recognize the fact that no two cases can be cared for in precisely the same way.

When the affection first appeared, the high fever and bronchitis seemed to me to be its most prominent features. Other symptoms—such as the aches and pains in the back, headache, coryza, and nervous depression—were common enough, but certainly not so universal, in my experience, as the fever and bronchitis. Indeed, many able practitioners at that time believed that the majority of the cases were nothing more nor less than severe general colds with bronchial cough. The cases that are falling under my observation now, however, portray an almost different type of the disease. The same fever and bronchial symptoms are present, but to a less marked extent, while the headache, the bodily pains, the bizarre sensations of all sorts, and especially the nervous depression, are much more loudly complained of. In a word, the present manifestation of the

epidemic partakes more of the neurotic type. Its character rather than its severity differs. Frontal headache immediately above the eyes and of a most distressing nature is very common; with this there is little if any nasal catarrh. Pains of various character are felt in the chest, but there is very little cough, no difficulty of breathing, and absence of the physical signs of pulmonary trouble. The pains in the loins and back of the neck are especially frequent and intolerable. Pain is not infrequently complained of in the lower part of the abdomen, and one of my patients says that she is most distressed by a peculiar, heavy aching pain around the thighs just above the knee. I do not find the temperatures rising so high now as when the epidemic first came upon us. In one of my cases the fever strangely disappears almost entirely if the patient gets up and exerts herself, whereas it rises to 102° and 103° as soon as she lies down and becomes quiet again. The appetite usually fails, while the action of the bowels remains normal. While these curious symptoms are severe and most annoying, the condition in my cases is less alarming as a whole than it was two years ago. In general, it may be said that the fever then was of the sthenic type, while now it is of the asthenic. For infants, aged people, and those debilitated by other chronic and intercurrent maladies, the one is no less a dangerous form of influenza than the other. Now, as then, such cases arouse anxiety and should be afforded unusual attention.

As soon as I see a simple case of the grip I at once recommend absolute mental and physical rest. Rest and quiet I have found the *sine qua non* for the successful treatment of the disease. Not only is this necessary to prevent possible complications, but it is desirable to counteract the nervous depression. A patient who consents to remain indoors until the attack has worn off is, of course, not liable to contract the pneumonia which renders this disease so fatal; and the absence of all excitement to the nervous system enables the proper remedies to effect a speedy and satisfactory cure. I am satisfied that we can not be too imperative with our patients in regard to this matter of rest. When I meet with one who is inclined to be argumentative, I even go so far as to say that I am certain I can cure him in four or five days at the most if he will remain quiet; but if he insists upon being up and attending to his business, it will take at least two weeks to effect the same result, let alone the risk of contracting a fatal complication. A plain statement of this sort I usually find restores to me the needed authority, and the patient is ready for the further treatment.

In the absence of the Turkish bath, I order the patient to take a hot bath that same night just before retiring. I am careful to explain that I mean as hot as he can bear it and only for a few moments. He must then rub himself thoroughly with a rough towel, take some stimulus, and place himself in bed beneath heavy blankets. If there has been some elevation of temperature, I do not forego the bath, but I administer in the early part of the evening or late in the afternoon about eight or ten grains of quinine. This acts as a febrifuge and stimulus. Immediately after he is in bed he takes a pill containing extract of opium,

one fourth to one half a grain; camphor and ammonium carbonate, each two grains. This relieves the pain, induces sleep, favors free diaphoresis, and stimulates. Upon visiting the patient next morning I have generally found that the night's rest has resulted in a marked improvement in his subjective feelings. The greatest trial at this time is to prevent him from getting up and going at once to his daily occupation. I remind him of my statements the last evening, and inform him that he is now ready to begin the regular course of treatment.

I urge him to remain in bed, but if the rooms are warm and he is feeling comfortable, I allow him to dress and lie upon the couch. Every two hours he must take some stimulus, either in the form of milk punch, eggnog, or brandy, whisky, or rum in sweetened water. Usually he will take the punch about three or four times a day and the pure stimulus in the intervals. Between the latter there is very little choice. If the bowels are inclined to be loose, I prefer brandy; if constipated, whisky. I have some patients who find that the stomach tolerates the rum better than either the brandy or the whisky. The quantity given each time need not be large, if the effect produced is satisfactory. One or two teaspoonfuls is quite sufficient in the average case. To this stimulation I sometimes add, particularly if the fever be a prominent symptom, a two-grain quinine pill to be taken four times a day. If there is simply nervous exhaustion with the various bizarre sensations previously referred to, with absence of febrile symptoms, I order, in place of the quinine, the syrup of the hypophosphites in stimulating doses, or a pill three times a day containing arsenious acid, gr.  $\frac{1}{40}$ ; strychnine, gr.  $\frac{1}{40}$ ; dried sulphate of iron, gr. ij; quinine, gr. j. If, in spite of this treatment, the fever shows a tendency to rise toward evening, bringing on a return of the headache, I leave with the patient a powder containing two grains and a half or five grains of phenacetin, to be taken every two hours until there is free diaphoresis and an indication of the fever declining. I have usually found this to occur after the second or third powder. The phenacetin is also analgesic and thus relieves the headache and other pains. Upon going to bed the patient takes the opium, camphor, and ammonium pill as he did the night before. If the fever has reappeared in the afternoon, in addition to this pill and the control of the fever by the phenacetin, he is to place his feet for fifteen or twenty minutes in a hot-water bath and then to wrap himself up in bed between blankets. He takes a light, nutritious diet with milk as its staple article every three or four hours during the day. No special attention is paid to the bowels or kidneys. With the regulation of the diet, *absolute rest*, and the above-described line of treatment, I have found the majority of patients with simple epidemic influenza to get rapidly well in three or four days. The patient is then cautioned about going out too soon and every suggestion offered to prevent his contracting the disastrous sequelae which seem to follow a too early resumption of an outdoor life. This line of treatment is explicit enough and adapted to the vast majority of cases so far as my observation has gone, but yet, as I said in the beginning, each case must be treated largely by itself and special indications met

with special therapeutic agents. If complications are present, such as bronchitis, pneumonia, or rheumatism, they must be treated by themselves as such affections usually are, with, however, this proviso: that it be remembered they are the complications of a state of extreme nervous depression requiring always the full and free use of stimulants.

4228 GREENWOOD AVENUE.

## COMPOUND FRACTURE OF THE SKULL AND WOUND OF THE ARM CENTER.\*

BY L. L. WILLIAMS, M. D.,

PASSED ASSISTANT SURGEON, U. S. MARINE-HOSPITAL SERVICE.

JOHN W., negro roustabout, aged twenty-three years, was admitted to the United States Marine Hospital, Memphis, Tenn., March 29, 1891.

Two days before his admission he received a blow from a heavy club on the right side of the head, and was unconscious for a short time after sustaining the injury. A compound fracture, with marked depression and extensive comminution, was found in the right parietal bone, at the center of the Rolandic region. The left arm below the elbow was completely paralyzed. There was slight motion at the shoulder and elbow. The intellect was unimpaired, and sensation was normal. Operation three hours after admission. An oval flap was raised and the fracture exposed. The area of depressed bone was circular in shape and as large as a silver half-dollar. Thirteen fragments of bone were removed; several of these were imbedded in the brain, and were extracted with some difficulty. The inner table of the skull was extensively comminuted, and, in order to remove all of the spicula, the opening in the bone was freely enlarged with the rongeur. There was a laceration of the surface of the brain three quarters of an inch long, with slight loss of substance. An irregular laceration of the dura, an inch and a half long, was sutured with fine catgut. The edges of the wound of entrance in the scalp were then carefully excised, and a short rubber drain placed in the resulting orifice. The oval flap was then adjusted, sutured with catgut, and a sublimate dressing applied. After recovery from the anæsthetic, the patient complained of various abnormal sensations in the left arm and leg. At times he felt as though these limbs were immersed in hot water, and when pinched had a sensation of pricking above the point pinched.

*April 2d.*—Wound suppurating; has slight motion in the fingers.

From this date until April 10th the patient was inclined to be somnolent, with occasional delirium. At times an uncontrollable tremor of the whole body, like a severe rigor, would come on. There was constant and severe pain referred to the back of the neck. The pulse varied from 46 to 52. The respiration was normal. The temperature never exceeded 37.4° C. [99.6° F.], and was for several days subnormal.

*11th.*—Has hernia cerebri; no delirium; pain in neck less severe; applied compression.

*13th.*—Hernia increased in size; there is now paresis of the left leg, and tongue deviates to the left; intellect not impaired; shaved off hernia at the level of the scalp and reapplied compression.

*18th.*—Has regained considerable motion in leg, and can ex-

tend the fingers and wrist to a slight degree. The hernia continued to increase in size in spite of treatment, and was shaved off three times. Nevertheless, the paralysis slowly improved. On April 28th elastic compression was applied. The tumor rapidly decreased in size and soon sank below the level of the scalp. The paralysis likewise rapidly improved.

*May 15th.*—Was suddenly seized with a peculiar sensation of throbbing in the floor of the mouth. Upon examination, the tongue was found to be the seat of violent clonic convulsive movements. He could protrude and withdraw it at will, but could not keep it still. A finger inserted between the tongue and the teeth of the lower jaw was firmly grasped on the left but not on the right side. The spasm was therefore unilateral—a true focal or "Jacksonian" epilepsy. The dressing was taken off and the gauze packing removed from the wound. The spasm ceased at once. The dressing was reapplied without the gauze drain and no further spasm occurred that night.

On May 18th he had clonic spasms of the left arm and leg lasting fifteen minutes. This was followed by temporary increase of paralysis, but in a day or two the lost ground was regained. Shortly after this the wound healed.

On July 16th the patient was examined as to the degree of paralysis remaining, and the following points were noted:

Motion at shoulder almost normal; can flex and extend the elbow and wrist; pronation and supination imperfect; can flex fingers, but can not completely extend them. All of the fingers of the left hand are partially anæsthetic, but not analgesic. Perception of heat and cold is normal; the tactile sense alone is affected. He picks up articles with difficulty—fumbles with them as a child would. With his eyes shut he can not pick up a book, and can not distinguish between a knife and a pencil held in his hand. There is marked rigidity in the muscles of the left arm and forearm, and has been ever since motion returned—a spastic condition which becomes more pronounced when voluntary motion is attempted. The forearm is flexed and extended slowly and in successive jerks. Pronation and supination, wrist movements, and movements at the shoulder are executed in the same manner. When told to flex and extend the wrist, he can not avoid at the same time flexing the forearm and fingers. He can not flex the forearm without flexing the thumb and fingers, but can extend the forearm with the fingers flexed. Can stand for only a few seconds on the left leg. The joints of the lower extremity can be flexed and extended easily, and the femur rotated inward and outward. In walking, however, the toes are turned inward. The knee-jerk and ankle-clonus are exaggerated on the left side.

When he was discharged, two weeks later, there was but little rigidity in the muscles of the shoulder, but the muscles of the forearm had not improved in this respect.

The spastic rigidity of the muscles of the arm, combined with paresis, as exhibited in this case, is quite similar to the condition that obtains in so-called spastic spinal paralysis, and is probably due to a like cause—viz., degeneration in the pyramidal tract and lateral column of the cord; in this instance a descending secondary degeneration, the result of partial destruction of the arm center. The persistence of numbness in the fingers has been noted in a number of cases involving injury of the cortical motor area, and would appear to indicate, at least, a very close relation between the centers for motion and sensation. The inability to pick up articles with the eyes closed, and the awkwardness manifested in picking them up at all, seem to indicate faulty co-ordination, although these symptoms may be partly due to anæsthesia of the fingers.

\* Read before the Tri-State Medical Association of Tennessee, Mississippi, and Arkansas, November 20, 1891.

In reviewing the operation, it is to be regretted that the lacerated brain tissue was not excised in the first instance. Primary healing might thus have been secured, and the subsequent loss of brain substance from suppuration and hernia avoided.

Since writing the foregoing I have seen this patient again. He is working on the levee, and is able to manage a dump-cart. The anaesthesia of the fingers and rigidity of the pronator muscles remain, and will, in all probability, be permanent.

REPORT OF  
A CASE OF TUMOR OF THE BRAIN,  
WITH AUTOPSY.\*

By CHARLES STEDMAN BULL, M. D.,

PROFESSOR OF OPHTHALMOLOGY IN THE UNIVERSITY OF THE CITY OF NEW YORK;  
SURGEON TO THE NEW YORK EYE INFIRMARY;  
CONSULTING OPHTHALMIC SURGEON TO ST. LUKE'S HOSPITAL AND TO  
ST. MARY'S HOSPITAL FOR CHILDREN.

In April, 1890, I was consulted by a gentleman, aged forty-five, on account of a difference in the size of the two pupils, which had then existed for nearly a year without any change, and which interfered somewhat with his comfort in reading. I had known the gentleman for many years, but had never examined him professionally. He was a man of very active mind, by profession a civil engineer, and of somewhat irregular habits. He had always been myopic and astigmatic and had worn glasses for twenty-five years. He had contracted a chancre fourteen years before, and had had numerous lesions of constitutional syphilis since then, but none of them severe. For five years he had had no demonstrable constitutional lesion, until about two years before I saw him. He then began to have some curious, ill-defined brain or nerve symptoms of which he could give no very clear description, but he stated that he was sure they arose in his brain. From the general ill-defined description furnished I concluded that they were probably attacks of *petit mal*, which were at times accompanied by transient loss of consciousness, which was never of long duration, but the attacks increased in frequency. There was no regularity in these attacks. There were at times lapses of memory of very varying duration. At no time was there any headache until a few hours before his death. When I saw him in April there was marked, though not complete, ptosis of the *right* upper lid and paresis of *both* internal recti. In the *left eye* the iris was moderately dilated and immovable, the pupil on this side being more than twice the diameter of the right pupil. With the right upper lid raised and the refractive error corrected, there was crossed diplopia, the right image being lower, and the two images were brought to a level by a prism of 2°. The internal recti were not completely paralyzed, but parietic. There was no paresis of any of the other ocular muscles. The difference in the size of the pupils had existed unchanged for nearly a year. R. E.  $\frac{3}{8}$  0: with sph. — D. 8  $\odot$  cyl. + D. 2.50 axis 90° =  $\frac{3}{8}$  0. L. E.  $\frac{5}{8}$  0: with sph. — D. 4  $\odot$  cyl. + D. 0.50 axis 90° =  $\frac{5}{8}$  0. There were small, irregular central opacities in both lenses. In the *right eye* there was a moderate case of neuro-retinitis with not much swelling of the disc, but with two or three small hæmorrhages in the retina near the margins of the disc. The fundus of the *left eye* showed merely the ordinary changes of a myopic eye. The field of vision was apparently normal in each eye, and there was no interference with the color sense. He was then under treatment by mercury and potassium iodide, and

the dose of the latter was increased to thirty grains four times a day. Under this treatment the neuro-retinitis and the muscular paresis slowly subsided, and finally entirely disappeared. During the summer he began to have attacks of vertigo, and in the early autumn these vertiginous attacks increased in intensity, and there appeared a hemianæsthesia of the left side which gradually became well marked. During the autumn there were a number of regular, well-marked epileptiform convulsions, and the lapses of memory became more marked. On November 14, 1890, I made another careful examination, and found that not a trace remained of the neuro-retinitis, or of the ptosis, or of the paresis of the internal recti muscles. The vision remained the same. A test of the dynamics of the muscles showed for 18 inches a convergence of 12° and a divergence of 5°. For 20 feet there was no convergence at all, and a divergence of 5°. There was no diplopia at any distance. His intelligence was apparently unaffected, except for the lapses of memory. The condition of the left pupil had remained unchanged. There was no loss of power in any of the extremities, but the hemianæsthesia was very marked. I had previously made a diagnosis of pachymeningitis, and a prominent and very careful neurologist had made a diagnosis of multiple sclerosis of the brain. The patient remained in about the same condition until the night of January 28, 1891. He had gone to bed feeling as well as usual, and woke suddenly about two o'clock in the morning shrieking with severe pain in the occipital region. He remarked that this was the first attack of pain in the head which had occurred. He became rapidly delirious, then sank into coma, and died comatose about 11 A. M., January 29, 1891.

The autopsy was made at 4.30 P. M. the same day. The frame was large, the muscular condition good, and the adipose layer considerable. The dura mater was rather thicker than the average and more adherent to the skull, but there was no trace of pachymeningitis anywhere within the skull. The sinuses were normal. The convolutions were flattened, especially over the anterior lobes. The anterior half of the left hemisphere was larger than that of the right hemisphere. A section made through the middle of the left frontal lobe passed through a tumor, two inches in longitudinal diameter and an inch and three quarters in a transverse diameter, with a broken-down center. The anterior portion of this growth was firmer than the brain substance, and was grayish-pink in color, with a few small hæmorrhagic spots. This mass reached to within two inches of the anterior extremity of the hemisphere.

A vertical incision made from the lower extremity of the fissure of Rolando, and cutting the longitudinal fissure two inches and a half in front of the fissure of Rolando, passed behind the tumor.

The tumor involved the corpus callosum and protruded downward from the roof of the left lateral ventricle.

The heart was normal. The right lung was normal. The left lung contained a few fibrous nodules in the lower lobe. In the right iliac region there were several old peritoneal adhesions between the omentum, cæcum, vermiform appendix, and the abdominal wall. The spleen was normal. The liver was normal. The capsule of the left kidney was adherent, and its surface a little roughened by fine irregular scars.

A careful microscopical examination of the tumor proved it to be a gliosarcoma.

**Actæa Racemosa.**—"The tincture of cimicifuga, or actæa racemosa, combined with small doses of iodide of potassium, is very effectual in acute rheumatism and sciatica. It is rapidly absorbed into the blood, depressing both the force and frequency of the pulse. Rheumatism in the hands and wrists seems especially to yield to the action of this drug when many others fail."—*British and Colonial Druggist.*

\* Read before the American Ophthalmological Society at its twenty-seventh annual meeting.

## APPENDICITIS.\*

BY W. H. LINK, M. A., M. D.,  
PETERSBURG, IND.

THERE is hardly a doctor in Indiana of ten years' practice but has a private grave-yard in which are buried one or more victims of appendicitis. Most, if not all, of these unfortunates might have been restored to health and usefulness had the natural history of the disease been as well understood as it is to-day. Many of them perished with a different diagnosis accounting for the "inscrutable decrees of an all-wise Providence." "Bilious colic," no doubt, carried some away. Some were euphemistically removed by "obstruction of the bowels." Others went by the broad highway of gastro-enteritis. A few were swept into the river by the twin forces "typhlitis and perityphlitis." While many, very many, found in "idiopathic peritonitis" their *facile descensus Averno*.

These grave-yards, though not filling so rapidly as in times not very remote, still occasionally make room for another tenant. Melancholy as the facts just stated may be, let us remember that they constitute only the obverse side of the shield. We now know that these cases do not necessarily die. That they did heretofore die was due to a wrong conception of the disease, to baneful therapy, and an utter failure to grasp the surgical aspects of the case. The patient was first, last, and always stupefied with opium. It was "the sheet anchor." He was next beslimed with poultices from one weary day to another, till patient and nurse were alike exhausted. Now and then eminent counsel was called in, and, because he knew not what else to do, the poultice was replaced by a blister. Occasionally, when the obstipation became very marked, large enemata were ordered. The exhausting effects of septicæmia and peritonitis were combated with quinine, milk, and whisky. If, perchance, the pus was kind enough to make its way to the outer abdominal wall, some one, a little bolder than the others, incised the "boil" and the patient got well. This, I think, is a fair picture of past treatment. It is not yet altogether past.

The first and greatest advance made in this disease was in a better knowledge of its pathology. So long as typhlitis and perityphlitis or paratyphlitis were the nearest approach to a correct understanding of the condition, just so long was treatment uncertain and shadowy. We now know that a vast majority of the inflammatory troubles located in the ileo-cæcal region are, primarily, due to inflammation, ulceration, or perforation of the appendix vermiformis. We have learned that the question of therapy or surgery depends upon the advance made in the general progress of the case from a simple catarrhal or adhesive inflammation to a gangrenous perforation. Unfortunately, we are not yet advanced far enough in our diagnostic resources to determine with positive certainty the exact status of a case from the rational symptoms or physical signs. There are no pathognomonic symptoms, no invariable or infallible physical re-

actions or conditions, that, like guide-boards, point both forward and backward, marking the exact distance alike from the inception and the end. But while both diagnosis and prognosis are only a balancing of probabilities, the indications for a given line of treatment, founded either on an enlightened experience or scientific research, are unequivocal. Locking up the bowels with opium is supreme folly, for they are already locked in a vast majority of cases by the paralysis of distention and the obtunded sensibility induced by disease. But opium does not only lock up the bowels. The secretions of the entire alimentary canal are deranged, and some of the emunctories in other parts of the system fail in their activities under the influence of this baleful drug. Should the trouble be due to the presence or contact of irritating accumulations, the effect of opium is to increase rather than diminish the underlying causes. My own experience and that of others teaches me that most frequently the condition under consideration is due to traumatism from without, or infections and traumatism from within—those from without acting acutely in the form of blows, falls, and strains; those from within, either acutely or in a chronic manner, as foreign bodies, hardened feces, improper food, or the invasion of pyogenic bacteria which find a culture medium in accumulations of necrotic material due to abundant secretion excited by some local irritant, decomposition being favored by abnormal retention. By locking up the bowels with opium this condition is not only maintained *in statu quo*, but, being an active, not a passive one, the destructive processes are hastened. At the same time, the pain being subdued, neither patient nor physician has any means by which the downward progress of the case can be measured until often a septic peritonitis appears and the patient is beyond the reach of help.

In such cases the indications are certainly plain: To get rid of irritating material. To place the absorbing and digesting powers of the peritonæum at the best advantage. To lessen inflammation by depleting the local engorgement. To sweep away bacteria and their poisoning ptomaines in a copious exudation of fluid from the capillaries of the bowel. Every day such a line of treatment is the salvation of the patient who submits to a section for the removal of a pus-tube or an ovarian abscess. If it works wonders in these pelvic troubles, why not in appendicitis? This lesion produces death pretty much in the same way that a leaking pus-tube does. The line of treatment good for one ought to answer equally well for the other. Instead of giving opium and applying poultices, the indications are far better met by a full dose of sulphate of magnesium every hour till free watery discharges occur. Then absolute rest in bed and a strictly fluid diet. To illustrate the application of the foregoing principles, I wish to report the following cases coming under my care within the last year:

CASE I.—Young man, twenty-four years old, printer by trade, perfectly healthy heretofore, family history good (except that his father died of appendicitis under the old opium treatment), came into my office saying that he had a "soreness in his side" which gave him great pain, and which had been troubling him for the last twenty-four hours. Temperature, 102°; pulse, 100, and of that quick, jerky character noticeable

\* Read before the Mississippi Valley Medical Association at its seventeenth annual meeting.

in any trouble involving the abdominal viscera. Physical examination showed marked resistance over right ileo-cæcal region, with great tenderness on palpation. Pressure with the finger-tip at the McBurney point elicited prompt remonstrance. He was ordered to bed, forbidden anything but fluid nourishment, and put upon the following prescription:

℞ Magnesiæ sulphatis . . . . . ℥j.

℞. Sig.: Take one drachm every hour till free catharsis follows.

Next day his pain had disappeared, soreness and resistance diminished, fever abated, and pulse improved. His general improvement continued, until in a week he was apparently as well as ever, which condition he has maintained ever since, or almost a year.

CASE II.—Boy, sixteen years old, brought to the office by his father. Had been complaining of pain in his side while going to school for the previous three days. The boy, being very stoical in disposition, would not give up till the pain became so agonizing that he could endure it no longer. When he was first seen his features were pinched and drawn in a manner that expressed great suffering. He was bent over toward the right, and walked in a way to shield himself from sudden jars or movements. Tongue coated, bowels constipated, anorexia, fever, and the peculiar abdominal pulse as in the previous case. Physical examination showed very great tenderness in ileo-cæcal region, marked rigidity of the abdominal muscles, and the McBurney point easily demonstrated. Prescribed rest, fluid diet, and—

℞ Hydrarg. submur. . . . . gr. x.

℞. Sig.: To be taken at once, and followed in five hours by one drachm of sulphate of magnesium. Take in small amount of water, and repeat every hour till free watery dejections occur.

By next morning there was relief from pain and marked decrease in the abdominal tenderness and resistance. Improvement continued, so that in four days he was able to leave the bed, and in a week was apparently as well as usual. He has had perfect health since, or for about six months.

CASE III.—B. Y., young man, twenty-seven years old. Family history good; previous health good, except some trouble of late from constipation. Came in for advice in regard to "a lump in his side and a general bad feeling." Tongue coated; temperature, 102.5°; pulse, 105, and of that quick, jerky character as in the cases before described. In the ileo-cæcal region there was a large fusiform swelling. Over and around it there were well-marked abdominal resistance and tenderness on pressure. Pain was most easily demonstrated with the finger-tips at the McBurney point. He complained of pain down the inner and back part of the thigh of the affected side. He kept the right leg and thigh slightly flexed when lying on his back. About a week before applying for relief he was attacked with severe colicky pains radiating from the right side. After this, and about three days before I first saw him, he noticed the tumor in his side. Since then he had suffered so much from pain and soreness in his side and back that he could not turn over in bed without great suffering. The tumor itself was tense and elastic, but at no time could anything like fluctuation be obtained, and both œdema and redness were absent. Ordered him to bed, and forbid any but liquid nourishment. Prescribed—

℞ Magnesiæ sulphatis . . . . . ℥viij;

Acidi sulphurici aromatici . . . . . ℥jss;

Aquæ . . . . . q. s. ad ℥viij.

M. Sig.: One ounce every hour till all is taken.

He took the entire amount before noticing any effect. He then passed a large number of copious stools, completely emptying the gut. Next morning felt better, but there was no improvement in general symptoms, except that the temperature

had fallen to 100°. No change for four days, when tongue became more heavily coated and bowels ceased to move with regularity. Ordered—

℞ Hydrarg. submur. . . . . gr. xx.

Ft. chart. no. ij.

℞. Sig.: One every two hours, and after five hours give one drachm of sulphate of magnesium every hour till three doses are taken.

Free catharsis followed. After the effects of the calomel had disappeared the only improvement noticeable was in his ability to take nourishment. Considering his condition such that further medication was uncalled for, I advised a resort to surgery. Dr. Byers, Dr. Lamar, and Dr. Duncan then saw him, and, concurring in the diagnosis, advised an operation. At the request of himself and friends surgical interference was postponed till next day, in order that we might have daylight in which to do our work. In the mean time he had grown more restless, his temperature had risen to 103°, and his pulse gone up ten beats. The soreness was greater, and he thought he could feel a throbbing. Just after midnight he sent for me in great haste, saying it had burst inside, he thought. When I reached his bedside I found some diminution of the swelling; temperature, 98.5°; pulse, 85, and stronger. When we visited him the next morning his improvement was still noticeable, and operation was indefinitely postponed. His temperature continued to go above normal in the evening for three days, when both pulse and temperature remained normal. The swelling and tenderness gradually disappeared, till in fifteen days from the time I put him in bed he was able to walk about the house. After that his improvement continued so rapidly that in ten days more he was able to go to work. Four months afterward I examined him carefully, and could elicit neither swelling, tenderness, nor abdominal resistance. He is seemingly in perfect health, though I fear a recurrence.

CASE IV.—A. J. S., man, forty-six years old, farmer, always strong and healthy, came into the office with a soreness in his side and wanted medicine for relief. He had suffered for more than a week from severe colicky pains radiating from the right side, with great tenderness on pressure at ileo-cæcal region. Riding horseback or in buggy or wagon increased the pain and soreness. Tongue coated, bowels constipated, fever, rapid jerky pulse, abdominal resistance on palpation, McBurney point easily found. Ordered him to go home and go to bed; to take only fluid nourishment. Prescribed, as usual—

℞ Hydrarg. submur. . . . . gr. x.

℞. Sig.: Take at bed-time, and follow in the morning by one drachm of sulphate of magnesium every hour till the bowels move freely.

After catharsis he felt better. The next day, after being purged, he felt so much better that he got up and went to work. He has been working at intervals since, but when he "lets his bowels clog up he has pain and his side cakes." Salts give prompt relief, but some tenderness remains. Carries his hand in his pocket with the palm pressed against his abdomen over the site of the appendix, when riding or walking, to guard against sudden movements. He will not go to bed or keep quiet, but goes about his work. Any severe exercise brings on an exacerbation of his symptoms. I fear perforation with resulting peritonitis, but my patient will take medicine much more readily than he will take advice.

The foregoing represents my own experience with the saline treatment, and my own views founded on that experience and on what I have been able to glean from the experience of others. As late as four years ago physicians, in my part of the world at least, had just begun to see the

light on the mountain-tops. Before that period—typhlitis, opium, poultices! These were the nearest we ever got to the truth. Since then Morton, Sands, the Prices (Mor-decai and Joseph), McBurney, and others, have let in a flood of light; and prompt surgical treatment saves from an untimely death many an unhappy sufferer who, under the old *régime*, would have been removed with certainty if not with dispatch. Though surgery has responded to advanced knowledge, the old opium Man of the Sea has his legs still entwined about many a professional neck, and diagnosis is often obscured, prognosis made uncertain, and timely relief rendered impossible by his stupefying influence. The patient sleeps, and so does his medical attendant.

It was my misfortune to treat one patient under the old opium, poultice, do-nothing plan. He died from a septic peritonitis about as promptly as if he had been knocked on the head with a club. Observation in the practice of my friends has shown me two other cases. One of them died from idiopathic peritonitis, the other of shock from a section deferred for months till he was moribund. From the foregoing principles and facts I would beg leave to offer the following conclusions:

In the commencement of an attack give salines often and liberally till the gut is completely emptied. Advise perfect rest in bed. Forbid any but liquid nourishment. If pain is severe, apply counter-irritation and dry heat locally till salines act.

If the patient improves, wait. If the pulse grows worse, if the temperature rises, if pain increases, if tumefaction becomes larger, if tenderness becomes more marked, *operate*. At no time give morphine, but consider an increase of pain sufficient to demand relief by opium an imperative, unequivocal, and emphatic indication for surgical interference.

## THE TREATMENT OF LARYNGEAL TUBERCULOSIS WITH LACTIC ACID LOCALLY.

By CHARLES R. WEED, M. D.,

UTICA, N. Y.

It is not necessary to repeat here the many details of general therapeutics, dietetics, or hygiene which have been so fully discussed in the past ten years by writers upon tuberculous disease, and I shall confine myself simply to the local treatment as used in three typical cases, trusting that my experience may add to the future a remedy to combat the inroads of tuberculous laryngitis.

In presenting these cases I have taken care to observe closely each condition, and particularly to assure myself that the disease germ or tubercle bacillus was present in each, confirmed by microscopic investigation. I do not claim originality in the use of lactic acid, but, after reading that Krause, of Berlin, had been most successful in this form of local treatment, claiming, and no doubt justly, the cure of a small number of cases, in an exhaustive paper read before the Laryngological Subsection of the Fifty-ninth Meeting of the German Naturalists and Physicians, at Ber-

lin, September 21, 1886, I determined to try it, and the efficacy of his suggestions is shown in the following cases:

CASE I.—I. M., German, aged thirty-eight years, occupation furniture finisher, called on me November 2, 1887, and gave the following history: About two years previous he had noticed that his general health was failing, and, being troubled with a bad cough, consulted a physician, who diagnosed his trouble to be phthisis. He was put upon treatment, but the disease progressed until in June, 1886, when his throat began to trouble him. He drifted from one practitioner to another, but could get no relief. At last he was advised by friends to consult me (I being a new-comer here), as he was unable to either eat or drink without great distress. This man was terribly emaciated; his face was anxious; breathing hurried; temperature, 101°; pulse, 90 and weak; voice lost; in fact, every symptom betokened the "beginning of the end." Considering the case hopeless, I gave him no encouragement, but said I would do what I could to relieve the laryngeal pain and the dyspnoea.

Examination laryngoscopically revealed as follows: Membranes pale; ventricular bands and space infiltrated; submucous membranes covering the arytaenoids and ary-epiglottic folds tumefied; vocal cords but slightly visible, the edge of the left one having the characteristic ulceration of tuberculous disease. I proceeded to cleanse the parts carefully with a mild alkaline spray; then applied, with the cotton carrier, a six-per-cent. solution of cocaine thoroughly; after this a sixty-per-cent. solution of lactic acid to every visible diseased surface of the larynx. Though weak, he stood the application well, and after giving him general instruction as to his treatment at home—sprays, medication, etc.—he left, to call again two days after.

This patient improved wonderfully; in two weeks he was able to eat and drink without much discomfort, and at the end of three months had gained several pounds in weight. The treatment was kept up at short intervals for a period of eighteen months, and a gain of sixteen pounds resulted; the voice was slightly improved, now reaching to a hoarse whisper. As he considered himself on the road to recovery, I saw less and less of him, and he left here in June, 1889, for the West, and I lost track of him; but a lease of life of two years nearly was a result to be satisfied with, particularly after the prognosis made in his case.

CASE II.—On November 26, 1890, I was called in consultation by Dr. Nicholson, of Madison, N. Y., to see a Mrs. B., aged forty-one; family history bad; cancerous disease, both parents; had been ailing for three years, and lately had emaciated rapidly; weight at present time, eighty pounds; menstruates regularly, no pain. The lung sounds were negative, which coincided with the opinion of other physicians who had examined her prior to my being called. In September, 1890, she lost her voice, and now speaks in whispers; she complains of pain over and in the larynx; temperature, 100°; pulse, 88; appetite good, but can not gratify it, owing to the dysphagia, regurgitation of fluids, and constant cough; sleep disturbed, and she feels very weak and discouraged.

Laryngoscopic examination shows the characteristic lesions of tuberculous disease, but not so far advanced as in Case I. The disease here being primary, I at once decided to treat the case with the lactic acid, and, following the routine above given, made the application, and with direction to the attending physician left, requesting him to acquaint me from time to time of the patient's condition.

Two months after I was sent for to see this patient and was surprised at her improvement. Deglutition was resumed and without pain; the swelling and infiltration in the larynx had subsided and the ulcerations healed (originally there were sev-

eral small tuberculous ulcers on the epiglottis); she could sleep the night through, and the cough had decreased so that the irritation from that source was remedied; I gave a few suggestions, curtailing the acid in strength and frequency, also modifying the sprays which she was using.

The last report from this patient is that she is still improving, and that the throat gives her no discomfort. Her general health is better, and there is slight increase in weight; the voice continues about the same; at times she thinks she notices a slight increase in tone.

CASE III.—Miss E. D., aged eighteen years, sent by Dr. Shumway, of Utica, N. Y., September 2, 1891, with history of phthisis, which was confirmed on examination. For the past two weeks she had complained of inability to swallow either liquids or solids without great pain; voice lost; is very thin, only weighing seventy-two pounds; menstrual function normal. This was simply a question of immediate relief or slow starvation, and for this reason I had been consulted. Examination showed a great amount of infiltration, with tumefaction of the membranes, and space nearly closed; I also noticed that the ulceration in this case coalesced, and part of the cartilage was destroyed. I was obliged to scarify to relieve the œdema present, and then followed the routine employed before, but only using in this case a twenty-per-cent. solution of the acid. The patient did not stand the application very well, there being so much pain present, which the cocaine did not control as well as in Cases I and II; still, she promised to call the day following, which she did, and I increased the acid to a thirty-per-cent. solution; this treatment was continued tri-weekly, and she now experiences no pain upon either eating or drinking. This case I have little hopes of, as the disease in the lungs is so far advanced, but I cite it with the other two to prove the value of relief obtained from the use of the acid over every other form of local medication.

Other cases under treatment I do not consider myself justified in presenting, as time sufficient to prove results has not transpired, but all show improvement from their original conditions when first seen by me.

In conclusion, I will say that the treatment that these patients had been subjected to prior to my seeing them had consisted of about all the local remedies from menthol to iodoform, and the nitrate of silver—so strongly lauded by the late Professor Horace Green, of New York—in strength varying from a twenty to a sixty per cent. solution, but without *relieving* the diseased conditions. Have we then in lactic acid the remedy *par excellence* in this disease? I trust so, and hope that others of my medical brethren may be led to use it, and, like myself, give to medical literature the results they obtain.

226 GENESEE STREET.

## A CASE OF UMBILICAL HÆMORRHAGE.

BY R. H. MONTGOMERY, M. D.,  
CLEVELAND, OHIO.

On the 24th of December, 1890, I was called to see Mrs. E. She had been married eleven years; had had one child eight years ago. No miscarriages. She was a large, well-nourished woman, and had always enjoyed excellent health. She was now eight months pregnant. On the preceding day she had taken a laxative. I was called to check a violent diarrhœa which had been in operation during the night and forenoon. She had considerable griping, but no uterine pains or uterine

hæmorrhage. No vaginal examination was made. Morphine was prescribed and in six hours I called again. She was then having labor pains, and the os was dilated to the size of a half-dollar. It was a face presentation. Labor progressed normally, and in four hours she gave birth to a male child weighing three pounds and a half. It was weak, poorly nourished, and had a pronounced "old-man" appearance. The possibility of hereditary syphilis was entirely eliminated by information from a thoroughly reliable source.

The child was enveloped in cotton and intrusted to a competent nurse. It did well. On the fourth day the cord separated and the umbilicus assumed the usual appearance.

By the eighth day it had gained considerable strength, and its battle for life seemed to have been won. On the afternoon of this day the nurse found the abdominal band stained with blood from the navel. When I called I ordered alum to be applied if there was any more bleeding. I was called in three or four hours, there having been a return of the hæmorrhage which alum and other astringents had failed to control.

I poured brandy over the navel, which immediately stopped the bleeding, and it did not return for six hours.

Upon its reappearance, brandy was again tried, but without avail. Pledgets of absorbent cotton, saturated with Monsel's solution, were then pressed into the umbilicus and held there. This promised good results.

Dr. A. C. Wilson, of Youngstown, was called in consultation. It was decided to pack the navel with the saturated cotton and arrange a graduated compress over this, held in place by an elastic bandage encircling the abdomen.

For eight hours no hæmorrhage was visible, and the anxiety of the family and myself had somewhat abated. At the end of this time, to our dismay, blood was found oozing from beneath the bandage. A fresh dressing was applied, but to no purpose.

I then placed my thumb upon the navel, and, with my fingers over the lumbar vertebra, the navel could be compressed against the bodies of the vertebrae, controlling the bleeding. The father and myself alternately compressed the umbilicus in this way for several hours, but eventually the blood would well up around the compressing finger with every movement of the now restless and almost transparent babe. Finally no degree of compression we were able to make would control the hæmorrhage. Our efforts were as fruitless as those of Sisyphus.

At this juncture I obtained the consent of the family to transfix the umbilicus with needles. The needles were introduced at right angles to each other, going deeply into the tissues and crossing each other beneath the umbilical depression. The ends of the needles were approximated and a figure-of-eight ligature applied. This controlled the bleeding at once. After forty-eight hours the needles were removed and, happily, there was no return of the hæmorrhage.

The child rapidly gained flesh and strength, and now, at the age of eleven months, is a fine, healthy baby, never having been sick since this early experience.

Fortunately, these cases are rare, occurring only once in about five thousand births. The case reported in the *Journal* for October 31st by Dr. Wagoner is a very interesting one. The method of treatment which proved successful in his hands should not be lost sight of, as the high percentage (eighty-three per cent.) of deaths in these cases shows how inefficient treatment has been, and the success of this treatment, after the usual remedial measures had been tried and found wanting, bears testimony to its efficiency.

842 LOGAN AVENUE.

A CASE OF BASILAR MENINGITIS  
DEVELOPING FIVE WEEKS AFTER AN INJURY TO THE HEAD.

By EDMUND Y. BURROUGH, M. D.,

SURGEON, RED STAR STEAMSHIP LINE.

On the morning of Tuesday, the 22d of September, I was called to see H. C. B., a seaman, aged twenty three years, a native of Denmark. He was a robust, well-developed man. I found him in his berth in the fore-castle. He complained of feeling alternately hot and cold. His bowels had not moved for four days. He had headache; his pulse was 120 in the minute. I gave him four compound cathartic pills and twelve grains of quinine, to be taken in divided doses during the day. At midnight of the same day I was again called to see him. His messmates told me that he was "out of his head," and that they had great difficulty in keeping him in his berth.

He replied to my questions in a rational manner; said that his bowels had moved three times since morning, and quite freely each time, but that his headache was no better. I gave him ten grains of antipyrine and left three five-grain powders to be taken an hour apart. On Wednesday, at 9 A. M., I saw him again, and found that he had passed his urine and feces in bed. At this time he was comatose, his eyes wandering about restlessly, and he took no notice of the hand passed before his eyes. The conjunctival reflex was absent; the patellar reflex was present in both legs; the ankle clonus was present, and equally good in both ankles. No strabismus was apparent. The point of a pen-knife drawn across the soles of his feet elicited no response. On pressure there was a slight gurgling sound in the right iliac region. On the abdomen were some spots resembling those seen in cases of typhoid fever, but they disappeared on pressure. He was given one tenth of a grain of calomel every hour for ten hours, and an ice-bag was applied to his head.

In the afternoon of the same day he took a small quantity of milk and beef-tea, this being the first nourishment he could be induced to take. At 7 P. M. his temperature was 99.9°, pulse 120, and he was in a profuse perspiration. The spots visible on the abdomen in the morning had disappeared.

At 10 P. M. his temperature was 101.9°, pulse 140. Strabismus was now noticed for the first time, as well as paralysis of the alæ of the nose. Opisthotonos was well marked. The patient now lay with his head turned toward the left side, and there was constant twitching of the right arm and leg.

At 8 A. M. on the 24th his pulse was 120 and very weak; temperature, 101.8°; respiration, 48 in a minute. At 9.15 he died.

The interest in this case lies in the fact that five weeks before the symptoms of meningitis manifested themselves the patient was, with others, hauling on a watch-tackle when the hook of the distant block broke off and the block, flying back, struck him on the left parietal region with considerable violence. Although the skin was scarcely broken, he appeared to suffer great pain at the time, but after a few minutes seemed relieved and resumed his work. He did not "lay up" on account of the blow, or, as far as I know, did he suffer any further discomfort from it until the beginning of his fatal illness, which was undoubtedly the result of the accident.

The International Dermatological Congress of 1892 will meet in Vienna, on September 5th to 10th. Dr. Prince A. Morrow has been appointed secretary of the Congress for North America.

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THE PHYSIOLOGY OF TEARS.

This subject is considered in a bright and interesting paper recently published in the *Asclepiad*. Fear, grief, and joy, to say nothing of pathos and anger, bring tears to the eyes. They are said to come from the heart; and this is true, for no one ever reasoned himself into weeping without a first appeal through the imagination to some emotion. Tears are the natural outlet of emotional tension. They are the result of a storm in the central nervous system, giving rise to changes in the vascular terminals of the tear-secreting glands. These changes induce profuse excretion of water, and weeping results. In a mild degree some excretion is always in process, to bathe the eye and clear it of foreign matters. The controlling center is at a distance, though the secretion may be kept up by the small trace of saline substance that is present in the tears themselves. The lacrymal glands lie between the nervous center and the mucous surface of the eyeball. Tears afford a good illustration of the way in which nervous fibers are capable of conveying to a secreting organ exciting impulses from both sides of a gland lying in their course. Afferent and efferent communications bring about a similar result. Internal nervous vibrations and external excitation or reflex action cause a flow of tears. In both instances the exciting impulse is a vibration. Niobe, "all tears," and the unfortunate pedestrian with a minute particle of steel from the rail of an elevated road in his eye, are unwilling exponents of a similar process. They weep the same kind of briny fluid, in exactly the same way, though from widely different causes. Imagination is at times sufficient to excite the nervous system into the production of tears, without external aid or reflex. Writers and readers of good fiction weep over it alike, and the actor loses himself so entirely in the exigencies of dramatic art that he sheds real tears and the audience shed tears with him. Of a truth, the man who never weeps has a hard heart, and the quality of his intellect may also be questioned.

Emotion, then, affection, grief, anxiety, incite to tears, not pain or discomfort. The pangs of maternity are tearless, though the influence of ether or chloroform may cause some emotional dream that results in weeping. In the earlier days of surgery patients might scream and utter such pitiful cries as to sicken the by-standers, might even faint with pain, yet there were seldom any tears. These, being pure waves of emotion and a relief to the heart, are almost powerless to mitigate pain. Perhaps one who weeps from pain does so from unconscious though selfish pity—in other words, from emotion.

For the tearful, change of scene, mental diversion, and outdoor life are the best remedies. The author quoted objects to

alcohol as fearfully injurious. It disturbs and unbalances the nervous system, keeps up a mandlin and pitiful sentimentality, and sustains the evil. Alcohol is the mother of sorrow. An opiate, however, prescribed at night, soothes and controls and really disciplines rebellious nerve centers. Sleep cures tears. And so does Time, the restorer. Persons subjected to many and repeated griefs forget how to weep, and the old as compared to the young are almost tearless. Tears have their value in the life of humanity, not as tears but as signs. They show that grief centers are being relieved of their sensibility, and that the nervous organization is learning how to bear up against sorrow.

#### TETANUS NEONATORUM.

THE infectious nature of tetanus was for a long time suspected, and the truth of that belief is now conclusively proved. Nicolaier eight years ago found in superficial soil a bacillus which by inoculation produced tetanus in animals. Not long after, a germ of similar appearance and life history was found by Rosenbach in the secretions from a wound of a patient suffering from tetanus. The chain of evidence was not completed until recently, when Kitasato, a student in Koch's laboratory, succeeded in isolating the germ and produced tetanus by inoculation of its pure cultures. There is still doubt as to whether this germ is the only one which may produce the disease. Examination of the surface soil of various countries shows that the bacillus of Nicolaier is very wide spread, being more common in that from tropical regions. This agrees with clinical experience, for the disease, as a rule, is much more common in hot than in cold countries. Experiments show that while the digestive fluids have not the power either to kill or alter the germ, a dose vastly greater than that required to produce death by inoculation can be taken into the stomach with impunity. This is also in accordance with clinical experience, for the disease develops in connection with an open wound or an unhealed umbilicus. The evidence is strong that the disease is at first local in character, and there is ground for the belief that it may be prevented by early treatment at the point of inoculation. There is certainly much to be expected from cleanliness and antisepsis as prophylactics, and this, again, is in accord with practical experience.

The fact that the disease is prevalent in certain localities, causing the death of a large proportion of new-born children, and attacking nearly every surgical patient, is strong evidence of its infectious nature. It has for years been a scourge of Iceland, contrary to the usual rule that it is more prevalent in warm climates. The *Lancet* for July 15, 1891, reports that it is also alarmingly frequent in St. Kilda, one of the Hebrides Islands. The disease has for several years been vastly on the increase in spite of the amelioration in the comfort and social condition of the population. The mortality has become so alarming that an agent has been sent to confer with the medical authorities of Glasgow. The symptoms develop within a week after birth, the most marked being tetanic convulsions, which increase in severity until the child dies. The disease runs its course in

about twenty-four hours, and is always fatal. Of the numerous hypotheses regarding the aetiology of tetanus, that of its infectious nature is the only one which satisfactorily explains the condition existing at St. Kilda and other isolated communities.

### MINOR PARAGRAPHS.

#### RELAPSE IN SCARLET FEVER.

It was believed by the older authors that relapse in scarlet fever does not occur. As opposed to recurrence, true relapse is certainly rare, but that it does sometimes occur can not now be doubted. It would seem to be analogous to the relapse of typhoid fever. Hensch believes that, though less common than in typhoid, actual relapse does occur. After the patient has been free from fever several days or even weeks the temperature suddenly rises, the rash again appears, sometimes over a portion of the body only, and the patient passes through a typical course followed by desquamation. In many cases the course of the disease in the relapse is irregular. However mild the symptoms may be, the relapse must not be regarded as less important than the primary attack. In the *Edinburgh Medical Journal* for October, 1891, Mr. Boddie reports two undoubted cases of relapse. The first patient, after passing through an attack of scarlet fever of moderate severity, followed by desquamation and albuminuria, had apparently made a perfect recovery. On the thirty-seventh day, following exposure to cold and wet, the temperature suddenly rose to 103° F., a rash appeared, and he passed through another typical attack of scarlet fever. Desquamation was more profuse than after the first attack. In the second case the relapse occurred on the twenty-seventh day. The attack continued about five days and was not as severe as the first illness. The second desquamation began on the thirty-fifth day. It was partial and was quite over in a week.

#### A STUMBLING-BLOCK TO MEDICAL WRITERS.

Is there ever to be an end of the pranks played by the little Latin word *os*—whether meaning bone or mouth—in medical writings? It is not many months since we called attention to an instance in which the *Centralblatt für Gynäkologie* used the expression "ossis uteri," and now we find the *Lancet* heading one of the editorial annotations in its issue for December 19th A Case of Defecation *per Orem*!

#### ITEMS, ETC.

**The Alumni Association of the College of Physicians and Surgeons** will give a dinner on Saturday, the 16th inst., in honor of the consummation of the active union recently established between their *Alma Mater* and Columbia College. Addresses are expected from President Low, of Columbia College; Dr. J. W. McLane, Dean of the Medical School; Dr. W. H. Draper, of the medical faculty; Mr. J. H. Choate, Mr. F. Hopkinson Smith, and others.

**The Harlem Medical Association.**—At the meeting held on the 6th inst. the order of business was a paper by Dr. T. H. Manley, on The Pathology and Treatment of Diseases of the Hip, Knee, and Ankle Joints.

**The New York Academy of Medicine, Section in General Surgery.**—The meeting to be held on Monday, the 11th inst., will be devoted to a consideration of the subject of Surgery of the Intestinal Tract. Specimens illustrating intestinal tumors, sutures, anastomosis, etc., will be exhibited; Dr. R. F. Weir will present a patient in whom the ileum was transplanted to the sigmoid flexure; Dr. R. Abbe will read the re-

of his personal work in this field, and the subject will be discussed at length by Dr. J. A. Wyeth, Dr. B. F. Curtis, Dr. W. T. Bull, the chairman, and others.

**Medical Attendance in the Jury-room.**—"The sanctity of a jury-room appears to be so well guarded that, even in case of sudden sickness, a physician may not enter except after due process of law. In the Foss will case, tried recently in Boston, the jury were deliberating, when, late in the evening, one of them was suddenly attacked with what proved to be a stroke of apoplexy. The officer in charge notified the deputy sheriff, who, not having authority to let any one into the jury-room, drove across the city and informed the sheriff, but even this official was not high enough to act, and another expedition started in search of the judge. As the latter happened to be at home, the requisite order was obtained to summon a doctor."—*Boston Medical and Surgical Journal*.

**Marine-Hospital Service.**—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the three weeks ending December 19, 1891:*

- BAILHACHE, P. H., Surgeon. Detailed as chairman of Board for Physical Examination of Officer, Revenue Marine Service. December 17, 1891.
- STONER, G. W., Surgeon. Granted leave of absence for twenty-one days. December 16, 1891.
- CARTER, H. R., Passed Assistant Surgeon. To proceed to South Atlantic Quarantine for temporary duty. December 10, 1891.
- BANKS, C. E., Passed Assistant Surgeon. To inspect unseviceable property at Marine Hospital, Baltimore, Md. December 10, 1891.
- DEVAN, S. C., Passed Assistant Surgeon. To proceed to Montreal, Canada, on special duty. November 30, 1891.
- PETTUS, W. J., Passed Assistant Surgeon. To report in person to the Supervising Surgeon-General, December 3, 1891. To proceed to New Berne, N. C., on special duty. December 12, 1891.
- GOODWIN, H. T., Passed Assistant Surgeon. Granted leave of absence for ten days. December 2, 1891.
- STONER, J. B., Assistant Surgeon. Granted leave of absence for seven days. December 18, 1891.
- CONDUCT, A. W., Assistant Surgeon. Granted leave of absence for seventeen days. November 30 and December 15, 1891.
- GUITÉRAS, G. M., Assistant Surgeon. Granted leave of absence for ten days. December 15, 1891.
- STIMPSON, W. G., Assistant Surgeon. Granted leave of absence for ten days. December 2, 1891.
- BROWN, B. W., Assistant Surgeon. Detailed as recorder of Board for Physical Examination of Officer, Revenue Marine Service. December 17, 1891.
- COFER, L. E., Assistant Surgeon. Granted leave of absence for fifteen days. December 15, 1891.

#### Society Meetings for the Coming Week:

**MONDAY, January 11th:** New York Academy of Medicine (Section in General Surgery); Lenox Medical and Surgical Society (private); New York Ophthalmological Society (private); New York Medicohistorical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Boston Society for Medical Improvement (annual); Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

**TUESDAY, January 12th:** New York Medical Union (private); Kings County Medical Association; Medical Societies of the Counties of Chautauqua (semi-annual), Chenango (annual), Clinton (annual—Plattsburgh), Erie (annual—Buffalo), Genesee (semi-annual—Batavia), Greene (quarterly), Jefferson (annual—Watertown), Livingston (semi-annual), Madison (semi-annual), Oneida (semi-annual—Rome), Onondaga (semi-annual—Syracuse), Ontario (quarterly), Oswego (semi-annual—Oswego), St. Lawrence (annual), Schenectady (annual—Schenectady), Schuyler (annual), Steuben (semi-annual), Tioga (annual—Owego), Wayne (semi-annual), and Yates (semi-annual), N. Y.; Newark, N. J. (election), and Trenton (private), N. J., Medi-

cal Associations; Norfolk, Mass., District Medical Society (Hyde Park); Baltimore Gynecological and Obstetrical Society.

**WEDNESDAY, January 13th:** New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Medical Societies of the Counties of Albany and Dutchess (annual—Poughkeepsie), N. Y.; Tri-States Medical Association (Port Jervis, N. Y.); Pittsfield, Mass., Medical Association (private); Hampshire (quarterly—Northampton) and Worcester, Mass. (Worcester), District Medical Societies; Bennington, Vt., County, and Hoosie, N. Y., Medical Society (annual—Arlington, Vt.); Philadelphia County Medical Society; Kansas City, Mo., Ophthalmological and Otolological Society.

**THURSDAY, January 14th:** New York Academy of Medicine (Section in Pediatrics); Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society (annual, election); Medical Societies of the Counties of Cayuga, Fulton (annual—Johnstown), and Rensselaer (annual), N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

**FRIDAY, January 15th:** New York Academy of Medicine (Section in Orthopedic Surgery); Baltimore Clinical Society; Chicago Gynecological Society.

**SATURDAY, January 16th:** Clinical Society of the New York Post graduate Medical School and Hospital.

## Letters to the Editor.

### DISAPPEARANCE OF SUGAR IN A CASE OF DIABETES MELLITUS.

AUGUSTA, ME., January 5, 1892.

To the Editor of the *New York Medical Journal*:

SIR: In the issue of the *New York Medical Journal* for January 2d J. Page Burwell, M. D., of Washington, D. C., reports a case of diabetes mellitus and its successful treatment. Having seen equally pleasing results follow very different treatment in a similar case, I am prompted to report the case.

On March 8, 1889, I was called to see Mrs. H., married, aged forty-eight. The patient complained of intense pruritus of the genitals, accompanied by considerable tumefaction, and an excoriated condition of the inner aspect of the thighs. There was great polyuria, frequent and painful micturition, followed by extreme distress, after the act, and lasting some minutes. She complained of severe headache, backache, and general malaise.

Upon examination of the patient, I found that she further complained of intense thirst, that the tongue was red and glazed, and the appetite deranged—at times excessive, at other times almost *nil*. There was also feebleness of vision, and an eczematous eruption upon different portions of the body. The *embonpoint* of the patient was very noticeable.

An examination of the urine gave a specific gravity of 1.056 with an acid reaction. Fehling's test showed a large amount of sugar.

The treatment was five-grain doses of iodide of potassium before each meal. One saline and chalybeate pill three times daily. A teaspoonful of Sprudel salts in a glass of water before breakfast each morning.

The diet consisted of gluten bread, milk, fish, and those vegetables allowable in this disease.

Under this treatment the sugar gradually disappeared, as determined by fortnightly tests of the urine, until a test made July 1, 1889, failed to show the slightest trace.

The patient returned to her normal weight in a few months, and is now apparently well. W. H. HARRIS, M. D.

## Proceedings of Societies.

### NEW YORK NEUROLOGICAL SOCIETY.

Meeting of December 1, 1891.

The President, Dr. L. C. GRAY, in the Chair.

#### Resection of Posterior Branches of Upper Three Cervical Nerves for Spasmodic Torticollis, with Report of a Case.—

Dr. CHARLES A. POWERS read a paper with this title. (Will be published.)

Dr. R. W. AMIDON thought that Dr. Powers had been too modest in that he had not called attention to the marked improvement in the patient's right arm. Before the operation this had been practically powerless, while now its functions were restored. The position of the head was now similar to that before the operation, but the spasm was now tonic instead of clonic, and therefore much more endurable. There was now no elevation of the chin, which was conclusive proof that none of the muscles originating or inserted in the occipital bone were now implicated. The elevation of the right shoulder was now much more marked and there was no doubt that the levator anguli scapulae entered largely into the production of the deformity. The speaker then went over the action and nerve supply of the muscles of the shoulder with the view of demonstrating that possibly the present condition might be brought about by this group, the nerves which had not been cut.

Dr. C. L. DANA thought that the muscles of the right side, which had been cut, had possibly entered into the production of the spasm, but that the nerve force was now distributed through fewer channels, and perhaps this was the reason that the spasm was now tonic. The question was at any rate of extreme interest, because heretofore there had been much skepticism as to the value of operation for wryneck. He thought that the experience of American observers was that operation on the spinal accessory had been uniformly fruitless, but the relief obtained where the upper cervical nerves were involved had given a more favorable showing. With better technique, perhaps more favorable results would come in the case of the spinal accessory. He did not doubt but that the condition under consideration was the result of a central nervous lesion. Why surgical treatment should cure he did not know, unless it was the result of the operation *per se*.

Dr. M. A. STARR had seen these cases treated by division of the spinal accessory. No improvement had followed. He had therefore hesitated to recommend such procedure. He thought it had yet to be demonstrated that the condition was one of cerebral origin, as there was nothing analogous to wryneck in the form of cerebral spasm of any other muscle. A patient had come to him last February with an extremely pronounced case of wryneck. This patient had noticed that pressure on the right side of the occiput high up would relieve the spasm. An apparatus was accordingly constructed which, being constantly worn, had enabled him at the onset of the spasm to bring the necessary pressure to the required spot by means of a system of levers worked by his arm. The speaker had that day seen the patient, and had found him apparently perfectly cured and able to leave off the apparatus. It was difficult to determine in these cases what muscles or set of muscles was implicated. The spasm was probably a complex act by a large number of muscles and usually reflex in character, induced by sensory irritation somewhere.

Dr. W. M. LESZYNSKY thought that there was a lack of such pathological knowledge of the disease as would indicate that there existed a central lesion. It was remarkable that so few

microscopical examinations had been so far made of nerves which had been resected. In the present case no explanation had been offered as to the cause of the arm symptom, and whether it was supposed to have borne any relation to the spasm in the neck. He had been interested in a few cases of spasmodic wryneck, and felt confident that the hypodermic injection of atropine had helped them. He had reported a case in which the spinal accessory was implicated, and he had felt that the benefit done was the result of the atropine. He thought that this measure should be energetically tried as part of a treatment by drugs before surgery was resorted to.

Dr. G. M. HAMMOND said that the general idea was that operations of this kind were not successful. The result in the present case seemed to relate more to the comfort of the patient than to benefit from a pathological standpoint. It might be easier for the patient to have a tonic instead of a clonic spasm, but the condition of wryneck remained.

Dr. J. M. MORRIS cited the history of a patient who had come to him with a well-marked case of spasmodic wryneck of long standing. Every effort had been made therapeutically. He had tried suspension. The sittings had numbered about five, each lasting about five or six minutes, the patient's toes being just free of or barely touching the floor. Improvement had been prompt and had continued to a cure, which had been maintained up to the last report.

The PRESIDENT had never seen any good results from operative work in these cases. While out of a large number operated upon for him by different surgeons temporary improvement had taken place in some, relapse had ultimately occurred. He had obtained more satisfactory results by deep injections of atropine than from any other form of treatment, though he had found the internal administration of belladonna effective. As to the permanency of the atropine benefit he could not speak, the patient having passed from observation. Temporary results were worthless for purposes of deduction, and relapses were probable at any time.

Dr. POWERS thought that the indications for operation must come from the physicians, surgeons being hardly justified in interfering until every other method of treatment had been tried. Promise of amelioration must be guardedly given. If the technique were perfected so as to cover the nerve supply to the muscles involved, he did not see why the spasm could not be stopped.

**Alleged Cerebral Tumor.**—Dr. LESZYNSKY showed a patient whom he had presented to the society three years ago; at that time the diagnosis had been made of cerebral tumor. The symptoms had then been frontal headache, vomiting, and double optic neuritis. Now this man was in perfect health, and since treatment had never lost a day's work from illness. There was atrophy in both optic nerves. Vision was in one eye,  $\frac{3}{80}$ ; in the other,  $\frac{2}{80}$ . There was no disturbance in the color field. The treatment during the acute stage had been by large doses of iodide of potassium, with leeches and cathartics when the inflammation was excessive. The speaker had been able to find only one case where autopsy had revealed localized basilar meningitis in the region of the optic chiasm.

### NEW YORK ACADEMY OF MEDICINE.

SECTION IN GENERAL SURGERY.

Meeting of November 9, 1891.

Dr. WILLIAM T. BULL in the Chair.

**The Pernicious Effect of Early Excision of the Knee Joint in Children.**—Dr. V. P. GIBNEY exhibited a number of patients for the purpose of illustrating this point. In all the

cases shown there was marked shortening, in some instances amounting to five inches, and the excisions had left sinuses and other sequelæ, which had called for treatment by osteotomies at the hands of the speaker when the patients had come under his care.

**The Fibula used to effect Union after Compound Fracture of the Tibia.**—Dr. B. F. CURTIS showed a patient who last June had caught his leg in the belt of a planing machine, the limb being forcibly carried against the pulley. The resulting injury had been compound fracture of the tibia and fibula and fracture of the femur. Three inches of the tibia had projected through the wound and union had taken place in the femur and in the fibula, but had failed in the tibia. When the speaker saw the patient first there had existed a considerable gap between the ununited fragments, the space being occupied by a granulating mass. He had found that any attempt at freshening the ends of the bone and using mechanical approximation would result in a total shortening of the leg of three inches. He had therefore cut down on the fibula and forced it through the soft parts into the gap between the tibia fragments, which had been previously freshened. The resulting union had given the patient a leg with only an inch and three quarters of shortening, much of which was due to the fracture of the femur. Union had taken place slowly, but was already sufficiently firm to enable the limb to support the man's weight. There had been no inflammatory action.

**Trephining for Traumatic Epilepsy.**—Dr. A. J. McCOSH presented a boy, seven years of age, who, on August 11, 1890, had fallen down stairs and had been found in a semi-comatose condition. He had remained in this state for some twenty-four hours at the hospital and could only be aroused with difficulty, lapsing immediately into unconsciousness. There had been no paralysis and no lesion of the scalp. On the third day the patient had been less stupid but extremely irritable. By the seventh day intelligence had been restored, but there had been partial paralysis of the left upper extremity and of the left side of the face, with twitchings over these areas, going on to convulsions limited to the left side. On the eighth day paralysis of the left upper and lower extremities had been complete and the patient had had several epileptic seizures commencing in the left arm and becoming general. The diagnosis had been that of pressure by clot on the motor center for the left arm, face, and leg in the posterior and anterior ascending convolutions. Operation had demonstrated the external surface of the skull as uninjured, but that there was a clot, which was followed backward, by use of the rongeur, from the original trephine opening, made three quarters of an inch in front of and about the middle of the Rolandic fissure. This clot was beneath the dura mater, which had appeared to be uninvolved. To fully expose and enucleate this clot, which was half an inch thick, had required an opening in the skull of two inches and a half in diameter. It had then been observed that at the posterior part of this opening there was a fissure running upward and backward, meeting at a sharp angle a second fissure running downward toward the ear through the squamous portion of the temporal bone. This triangular piece of bone being removed, a tear was seen in the dura mater an inch and a quarter long, with a quantity of broken-down brain substance beneath it. After thorough removal of clot and *débris* the scalp was sutured over a drainage-tube. Some slight movements had taken place in the paralyzed left arm as the boy had come from under the anæsthetic. In twenty-four hours movements had become pretty general over affected areas. In three weeks motion had been complete, and in six weeks they had been of normal strength. The patient had become perfectly well and had so remained. There was at present no inconvenience of any kind. The case

was one of brain irritation with destruction and with symptoms of both. The exact localization of the clot had been made from the symptoms alone.

Dr. R. H. M. DAWBARN cited a case in which he had trephined on the right side for left hemiplegia. The patient had complained of most pain on this side, but on the brain being exposed there had been no lesions to account for the compression symptoms. Post-mortem examination had revealed a large clot on the same side as the paralysis. This case he regarded as one in which there was no crossing of the motor fibers in the medulla. In future cases, while he would make his first trephine disc on the side indicated by physiological rules, he would then, if he failed to find cause for the symptoms, make his next attempt over the most recent external evidence of injury he could find.

Dr. J. D. BRYANT said that one of the special features of the cases mentioned was that trephining had been resorted to at all. Two cases had come under his observation within six months in which the trephine had been used when there had existed no scalp lesion, the operation being undertaken on account of the paresis and convulsive symptoms. In one case removal of bone had revealed a large blood-clot between the dura and pia, which had given rise to pachymeningitis. In another case, in the service of Dr. Janeway, the speaker had been asked to operate. In this there had been partial paresis of one side with semi-unconsciousness. The paresis had been upon the same side as the injury. He had not operated at once, and meantime the patient had died. The compression had been found to be on the same side as the injury.

Dr. T. H. MANLEY showed a piece of bone removed from the skull of a child of four years of age who had fallen down four flights of stairs. Four days after the accident there had been paralysis of the left side. The speaker had found the portion of skull shown imbedded in a mass of clotted blood. In cleansing he had employed no chemical solutions. The child had got along quite well except that there now existed a cerebral hernia, which he must confess he would be glad to know how best to treat.

**Hysterectomy for Prolapsus Uteri.**—Dr. McCOSH also related the case of a woman, forty-two years of age, who for twelve years had suffered from prolapse of the uterus. For six months there had existed an irreducible mass composed of the enlarged uterus, the entire bladder, and the dragged-down rectum. This mass had been of the size of a Derby hat and external to the vulva. After the patient had rested a week in bed the mass had been still irreducible. A sound passed into the urethra had defined the limits of the bladder entirely outside of the vulva. The uterus, which had been retroverted and of double the normal size, had been dragged two inches below and behind the vulvar orifice. The speaker had decided to do hysterectomy, and dissection had been commenced within half an inch of the os uteri and carried upward until the lower portion of the broad ligament had been reached, and this had been tied with silk and cut. Dissection had then been continued in front and behind and carried upward until the peritoneal cavity had been opened. The remainder of the broad ligament had then been secured by two sutures on each side and the uterus had been removed. It had measured six inches in length. There had still remained a large cone of vaginal wall nearly an inch thick and the bladder and rectum. The vaginal mass had been carefully dissected away. The remaining prolapsed mass could not be returned at the time of operation and had resisted all efforts at reduction until the twentieth day. The bladder had gone back into place and three months had now elapsed since the operation without recurrence of any protrusion of the parts. The speaker, of course, recognized the fact

that too short a time had elapsed to allow of this case being used in citation as to the ultimate value of the operation.

**The Thiersch Method of Grafting in Plastic Operations on the Nose.**—Dr. C. A. POWERS presented a female patient upon whom he had operated for vascular papilloma springing from the nose. Three fresh grafts had been taken from the arm and the wound had healed throughout. On previous occasions the speaker had applied a single large graft in regions where the skin could not be approximated, and twice these grafts had failed to catch. He could only account for this by the assumption that the ligatures used had interfered with the blood-supply. He thought that where a single large graft would catch the cosmetic effect was better. When the graft was taken from the arm it was introducing a skin different in color from that at the site it was to occupy.

**Errors in the Use of the Cystoscope.**—Dr. L. B. BANGS, in a paper on this subject, said that there could be no doubt as to the value of the cystoscope as an instrument of precision and an aid to diagnosis. Conditions of the bladder formerly unrecognizable were now clearly definable by the use of this instrument. Stone in the bladder, cysts, ulcerations, localized hyperæmias, infiltrations of various types, and tumors might all be seen and diagnosed definitely. The situation of the mouths of the ureters could be detected and inspected with perfect accuracy; and by means of the tube attachment by Dr. Brenner, of Germany, these channels might be catheterized and the fluid descending from each kidney reserved for microscopic examination. But the cystoscope had its limitations and fallacies, and the first step in the direction of their removal was to recognize them. One of the symptoms frequently met with in diseases of the genito-urinary organs was hæmaturia or blood in the urine. Sometimes the source of this was extremely doubtful. A diagnosis was often made with resort to instrumental observation, and, notwithstanding the existence of the cystoscope, we might still have to resort to the older and more ordinary methods of diagnosis. In other words, the amount of blood present in the urine or in the bladder might be so abundant that the cystoscope would be of no use and reliance would have to be, as formerly, upon the process of exclusion. Another difficulty arising from present imperfection in the cystoscope was the possibility of optical illusions which were at times very deceptive—such, for instance, as the magnifying of the object by too close an approximation to it of the window of the instrument. It should be borne in mind that an object seen through a fluid medium was more likely to be magnified when looked at directly or outside of the body. Only the skill which came from frequent practice could enable the operator to eliminate this source of error. Again, it had frequently happened to even the most skillful to see things which did not really exist or which gave to the eye the appearance of existence. The bladder had been opened for the purpose of removing tumors seen through the cystoscope which when the bladder was opened were not present. Another limitation to the use of the cystoscope was in the case of elderly men in whom stone was suspected and in whom there was a tortuous or long prostatic urethra making catheterization difficult or impossible.

The speaker did not wish to have it inferred that he was not an enthusiastic user of and believer in the cystoscope. He employed it under all possible circumstances. His practice had been enlightened by it and cases had been cleared up and successful treatment made possible by the knowledge which it gave. He did urge, however, that difficulties existed only to be overcome by long experience with the instrument and by the most careful exclusion of all sources of error.

Dr. W. K. ORIS thought that there existed an idea that it was only necessary to possess a cystoscope to make sure of the diag-

nosis. As to the question of hæmorrhage into the bladder, it was wonderful how small an amount of blood would make it impossible to see anything with the cystoscope. He thought that it would be rare that hæmorrhage from the kidney would be sufficiently rapid to mar the use of the cystoscope. Bleeding from the kidney was comparatively readily recognized, but when the hæmorrhage was from the bladder the resorption test by iodide of potassium would give the knowledge that the bladder was at fault, and then the cystoscope could be used to define the exact cause. Another source of error in the French instruments was the spherical aberration, so that a perfectly flat surface examined in the phantom bladder looked like a globe. The speaker and Dr. Stratford were now at work upon a cystoscope which they hoped would give a flat field.

Dr. WILLY MEYER said that Nitze and other authorities had always maintained that it was necessary to have five ounces of water in the bladder when making an examination, and he thought that when this point was observed the eye could be more readily trained. In stretching the bladder by fluid a syringe—not a fountain syringe—should be used. When there was hæmaturia it was impossible to view the bladder, and it was better to wait. It was also necessary that the urethra should admit of the passage of a catheter of 23 caliber.

The CHAIRMAN inquired if there was any record of accident occurring as a direct result of the use of the cystoscope.

Dr. BANGS had not heard of anything other than some slight burning from too prolonged contact of the lamp.

**The Treatment of Hæmorrhage.**—Dr. R. H. M. DAWBARN, in a paper on this subject, advocated the more frequent use of the Spanish windlass where this measure was indicated. He also gave the particulars of a case which he had successfully treated in the following manner: Being able to make out the pulsation of the femoral artery, he had introduced a hypodermic needle, and, having verified its position by seeing the blood enter the barrel of the syringe, he had removed the barrel, and, attaching a soft-rubber catheter to the base of the needle, had used this as a connection to a Davidson syringe apparatus. A warm saline solution had been employed and passed thus into the arterial circulation. The case had been one of imminent gravity, and the result of the treatment most efficacious.

Dr. W. W. VAN ARSDALE had found these saline solutions of little benefit. Certainly his experience had been limited to operative cases. The most satisfactory results, lives having been saved, he had got where blood had been used with the saline solution. The injections had all been intravenous.

The CHAIRMAN thought more experience should be gained before accepting the method of puncturing the femoral with even so small a needle as a matter of routine. He could indorse the value of the saline solution, and made it a point to have in readiness a quantity of proper strength for addition to a given quantity of water. He thought a vein could usually be entered without much difficulty, and that for the present he should prefer that method of making these injections.

#### SECTION IN PEDIATRICS.

*Meeting of November 12, 1891.*

Dr. A. CAILLÉ in the Chair.

**Soxhlet's Modified Milk Sterilizer.**—Dr. LOUIS FISCHER demonstrated the working of a recent modification by Professor Soxhlet of his now widely known apparatus for the sterilization of milk for infant feeding. The recent device, which had been patented in Germany, consisted in placing a small rubber disc upon the bottle containing the milk. This disc was held in place by a loosely fitting metal cap. When the bottle was heated the contained air, in expanding, escaped by lifting the little

disc. When cooling was commenced there was a vacuum above the milk in the bottle and the air-pressure without drove the disc home upon and partly into the neck of the bottle and effectually sealed it until the disc was forcibly removed. The disc could not be replaced after being removed.

**The Physiological Importance of the Proximate Principles.**—Dr. W. H. PORTER read a paper on this subject.

The CHAIRMAN said that the equivalent of foodstuffs had been ascertained, as shown in the dietary of animals, but that in pathological conditions we did not always know what the changes were.

Dr. W. H. THOMSON said that the paper was of value as it dealt with the physiological chemistry of the urine and the physiological importance of water. In high-tension pulse and in other symptoms of lithæmia water was required, and from it we obtained a therapeutic result. Probably the system got water in some other way than by the mouth. He had observed patients with diabetes insipidus who passed two or three times as much as they had taken. Workmen in glass factories would lose two or three pounds in sweat and in a little time regain their weight without drinking. We had probably the power of acquiring water from the air as well as of losing it in perspiration. He regarded the mineral waters as of value in cases where the portal circulation was at fault, but thought that the contained chloride of sodium did the most of the good. He hesitated to admit physiological chemistry to the bedside, and he doubted whether we could follow these foods in the abstract and say that too much or too little of this or that was used. He would not give meat, as indicated in the paper, to children, but would rather employ vegetable albumins and milk and thus avoid nervous disorders.

Dr. A. ZEH thought that in cases in which too much starch had been taken albumin and skimmed milk should be given and the starches and sugars be limited.

Dr. PORTER did not regard the internal mechanism and the laboratory as identical. He considered milk the fundamental article of food. In infancy, however, the biliary and pancreatic ferments being limited, there was not a complete digestion of fat and proteid. The milk sugar caused a little fermentation, which was productive of peristaltic movement. He had found that by the use of proteids he could drive uric and oxalic acid from the urine, when by the continued use of a diet of starches and sugars he had failed. Uric-acid infarcts in the fœtus and infant he believed to be due to the use of improper food by the mother.

## New Inventions, etc.

### A NEW NEEDLE-HOLDER.

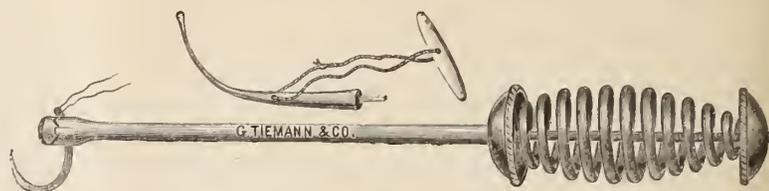
By G. WILLIS, M. D., L. R. C. P. (Ed.),  
GREENVILLE, CAL.

I VENTURE to present to the surgical profession a new pattern of needle-holder, devised to carry the ordinary surgical needle, Hagedorn's needle, and Thiersch's spindles for ligature *en masse*. The holder consists of four very strong and simple parts:

1. A hollow tube with a distal plate.
2. A central stem.
3. A spiral spring.
4. A proximal (or heel) plate.

The spring forms the grip or handle; the proximal plate screws on to the central stem, has a milled edge, and compresses the spiral spring, which, in turn, compresses the stem and tube. By turning the proxi-

mal plate the needle grip is rendered invincible. When this heel plate is unscrewed the four portions of the instrument drop apart. Release of the needles is effected by compression of the spring, one hand only being required.



The advantages alleged for the instrument are simplicity of construction, aseptic form, the ease with which it may be instantly separated for purposes of boiling or cleansing, and the combination of Thiersch's most useful spindle apparatus with a simplified Hagedorn and other needle-holder.

Needles pass in at a right angle or obliquely upward. The instrument in its present form has been developed from my rough model by Messrs. George Tiemann & Co., of New York, from whom it may be procured. My best thanks are due these gentlemen for the skillful manner in which they have expanded my crude idea.

## Miscellany.

**The Brain of a Great Chess Player.**—An article On Blindfold Play and a Post-mortem, by Charles Tomlinson, F. R. S., published in the *British Chess Magazine* for August, 1891, serves as a text for the following editorial in the *British Medical Journal* for December 19th:

To most people playing at chess seems rather too strenuous an effort to be called an amusement. It is said that ten years of incessant study and practice are necessary to make a first-rate chess player. A good deal of his excellence consists in the memory of problems, and we are told that, since the institution of a time limit, the professionals in match games endeavor to construct intricate positions for which correct solutions can scarcely be found within the time at command. Nevertheless, some strong-headed people go a good deal beyond this; they can play a game blindfold—that is, the moves are made without seeing the board. Blindfold play, Mr. Tomlinson tells us, is at least a thousand years old, but it has taken a marvelous development in our own day. "When it was revived by Philidor," writes Mr. Tomlinson, "the world was astonished at his skill in playing two games at once without seeing boards or men; and it was thought that his brain during the performance must have been in a fearful state of tension. To the surprise, however, of all present he was quite at his ease, and even mingled light conversation with his play. In our own time Morphy played eight games without sight of boards or men; Blackburne played twelve in my presence, Zukertort fourteen."

Mr. Tomlinson tells us that Blackburne, during his blindfold performance, "sat on a low platform with his face to the wall, his eyes closed, and he grasped tightly the fingers of one hand in the grip of the other; he took no refreshment within the ten hours that the contest lasted except some lemonade." When asked how he slept after such a task he replied: "Badly, unless I take time to cool down, but if I go to bed about three hours after the play I don't experience much inconvenience." This is the usual result of intense mental exertion.

Of course the blindfold player must have a distinct mental image of the chess board with its sixty-four black and white squares, and also the position of the different pieces of chess varying with each move; but in the case of a man playing a dozen games at once this requires an enormous effort of memory. The success of the game must greatly depend upon the distinctness of the image. "Zukertort's account of the mental process was that he had somewhere in his brain fourteen boards, numbered from 1 to 14, placed in separate closets side by side in a row, each closed by a door; having made his move, say, on No. 1

board, the door closed and that of No. 2 opened, and in this way he passed in due order from one to another until he arrived at No. 14. He dismissed from his mind, at the moment, all the boards except the one before him; a mental glance enabled him to realize the position, receive his adversary's move, and dictate his own. Then, passing on to the next, he acted in like manner, just as if the apparatus described were actually before him." This is in accordance with precedent; not only would it be necessary that the boards should be mentally realized, but each would need some distinctive mark to prevent confusion. We are told that the process is so exhausting that Morphy became deranged and died under melancholy circumstances while still young. Zukertort and La Bourdonnais are also said to have died from illness produced by the intense mental strain of these blindfold games.

The most wonderful piece of information is still to come. A great blind chess player, Mr. Richard Rookwoode, could play twelve blindfold games with ease, but could not get on with fourteen. This gentleman died about a year ago, and his brother, "who is a skillful anatomist and physiologist," obtained permission to examine the brain of the great blindfold player. He took for his basis phrenology, which is assumed to be the explanation of the functions of the brain at present in acceptance. The organ necessary for a good chess player is locality, other faculties being subsidiary. On examining the portion of the brain occupied by the organ of locality it was found that "the molecules had arranged themselves into forms somewhat resembling chess-boards, with certain marks on the squares supposed to represent the final position of the pieces in the last twelve games that had been played blindfold. Twelve positions were thus probably indicated by the aid of the highest power the microscope could supply; the thirteenth or fourteenth boards, or what might represent them, were blurred and indistinct." It is lucky that Dr. Rookwoode, in making his microscopic sections, went the right way—for example, if he had cut at a right angle instead of horizontally to the surface of the molecular chess squares, his important discovery could scarcely have been made. For further details we must still wait for "the elaborate Memoir which is to be submitted to the Royal Society as soon as the numerous illustrative drawings are completed. The purely anatomical details are to be laid before the College of Surgeons." This makes some questions on mental philosophy delightfully easy. We wonder whether in molding a statue or painting a picture the "molecules" of the brain of the sculptor and painter arrange themselves into a little model or sketch. This should be sought for when the next great sculptor or painter dies, and the result might be laid before the Royal Academy of Laputa.

**The Question of paying Hospital Nursing Pupils** has lately been discussed by various correspondents of the *Evening Post*, one of whom, Dr. J. West Roosevelt, writes as follows:

The letters of "J." and "F. T. D." present a question of importance to the public. The education of nurses is a matter of moment. Having taken rather an active part in a discussion of the same topic in certain professional journals, I have read the communications of your correspondents with great interest. May I be allowed to say something in the *Evening Post*?

It is necessary to state clearly the question, for the public in general have not yet become familiar with it. It may be summarized as follows:

Training-schools for nurses give their pupils an education which enables them to earn a living, provide them with board, washing, and lodging during the period of instruction, and also pay them more or less money while teaching them their profession. Is it right to pay them?

The policy adopted by the Government at West Point or Annapolis has no relation to the subject. As "J." points out, the cases are not parallel; but if they were, it would make no difference. The methods of the Government are not necessarily right. In the particular instances alluded to the Government is undoubtedly right, but as the training-schools do not educate nurses for the purpose of providing trained employees to do needed work for the benefit of these schools, while the Government has this purpose, and this alone, in view, there is no resemblance between the aim of the Government and that of training-schools.

It is possible, though not at all probable, that nurse pupils really should be paid. If a sufficient number of equally good pupils can be had in no other way, they must be offered money. In that case also there can be no justice in calling the wages "charity," for they are fairly earned. The demand for pupils exceeds the supply. Nurse-pupils while under instruction necessarily work, and few can understand how hard they work, for the good of the sick in hospitals; one reason for the existence of training-schools is to provide good nursing for hospital patients. Indeed, I believe that this was the first object in the minds of those who established the oldest institution of the kind in this country. Hospital nursing is very hard work, and must be paid for in some way. If the education given is a sufficient reward, any money paid is not earned, and therefore those who give it offer, and those who take it accept, "charity" in the same sense meant by "J.," or, to speak plainly, alms. Moreover, it is hard to see what excuse the managers of trust funds, such as those belonging to these schools, can offer for the needless expenditure. Trustees have no right to be sentimental. They are bound to make the best use of their trust. It is their duty to get the best pupils, and it is also their duty to spend as little money as possible. The fact that at one school during the year 1890 there were forty five applicants for each vacancy surely makes it more than probable that the pay is not necessary.

There seems to be an idea in the minds of many that the schools are intended to provide certain unfortunate young women (especially those in "reduced circumstances") with a means of livelihood. This is utterly false. They exist to teach competent women to become nurses, and to furnish hospitals with good nursing. The previous circumstances of an applicant (except in so far as they affect the question of her fitness), her misfortunes, her social position, the "pull" she may have, her extreme goodness of heart, the fact that her father was a missionary or something equally meritorious, are unimportant; her ability to become a nurse is the only question to be considered. The managers of these schools can not, in justice to their trusts, knowingly admit incompetent scholars. As to paying the latter, their action must be determined by the law of supply and demand.

As a most sincere friend of the training-schools, and one who quite as much as "F. T. D." resents any attacks upon the dignity of the nurse's calling, I feel that the pay system is a source of danger to the very existence of the former, while as to the effect of giving unearned money upon the dignity of the recipient—is it likely to be elevating?

**The Diagnostic Significance of Alterations of the Reflexes.**—Dr. James Jamieson, of Melbourne, contributes the following article to the November number of the *Australian Medical Journal*:

In spite of the great increase of knowledge in the department of diseases of the nervous system many questions of almost fundamental importance still remain unsettled. It might rather be said, indeed, that because of the recent progress in their study, the whole subject is constantly being subjected to revision. This holds good of the significance to be attached to alterations in the reflexes, even though the chief points in the interpretation of these alterations are generally accepted as settled. Of all the phenomena of this kind, which can be elicited in the various regions of the body, those to which appeal is most frequently made are the reflexes at the knee and ankle joints. The alterations in the knee and ankle reflexes are chiefly of service in the diagnosis of diseases of the spinal cord and its nerves, though not of these exclusively; and, for general diagnostic purposes, they are undoubtedly the most important of the reflex phenomena producible in the trunk and limbs. The others may be helpful in confirming the indications which they provide, and may further be required for definitely fixing the exact seat or extent of a lesion. But for determining the existence of spinal disease, or fixing its characters, the evidence supplied by observing the changes in the knee and ankle reflexes is of supreme importance. If I limit myself, therefore, to a consideration of that evidence alone, there are good practical reasons; and perhaps I shall be pardoned for beginning this discussion with a reference to the mechanism of production of the patellar and other similar reflexes.

The parts of the nervous apparatus, in the so-called reflex arc, are these: (1) An afferent nerve or nerves conveying an impression from the surface to the nerve center; (2) a sensory apparatus, cells in the

posterior column of the cord, by which that impression is received: (3) a motor apparatus, cells in the anterior column, to which the impression is transmitted, and by which, in turn, an impulse is communicated to (4) an efferent nerve or nerves, conveying that impulse to certain muscular fibers, which respond by contraction. It is perhaps necessary to postulate (5) a system of fibers by which communication is made between the sensory and motor parts of the central apparatus. Practically, however, we know nothing about any independent affection of this portion of the arc; and it may be doubted if any interruption in the transmission, from periphery to center and back to muscles, could be explained by a break in the communications there.

For the production of a normal reflex, like the knee-jerk, we have to assume the integrity of all these parts of the sensori-motor apparatus forming the arc.

An alteration of the patellar reflex may be in the way either of increase, or of diminution even to complete abolition. And while abolition of the reflex is something definite, it is not by any means easy to define what the normal condition is, or to say with certainty whether an apparent increase or diminution is actually a pathological condition. Certainly, there are great differences in different persons, as regards the ease with which the jerk is produced; and even considerable differences in the same person at different times, and independently altogether of the supervention of disease of nerve or nerve center. In occasional, though probably rare, cases the knee-jerk can not be elicited, and that though there is no other evidence of disease of the nervous system. It can not, therefore, with certainty be said that even absence of patellar reflex is a pathological condition, though its abolition, in a person formerly exhibiting it, would be more significant. Alterations of the knee-jerk, therefore, in the way of diminution especially, are not always easy to estimate for diagnostic purposes.

In the case of the ankle joint there is nothing which can be regarded as strictly analogous physiologically to the knee-jerk. The muscles of the calf may offer some involuntary resistance to dorsal flexion of the foot, and the same muscles may contract involuntarily, when the tense Achilles tendon is struck. But diagnostic significance does not belong to the degree of readiness with which such contraction takes place. The phenomenon connected with this joint, which alone has importance, is ankle clonus, and its significance is so far definite that its production is always proof of the existence of some abnormal condition. What the conditions are, which lead to its production, will be considered later on, along with exaggeration of the patellar reflex, with which it is regularly associated. It may be said merely that these conditions are far more complicated and difficult of interpretation than those which cause diminution or abolition of the knee-jerk.

Taking abolition as something definite and ascertainable, it may be said that if its causes are numerous, they are also easily definable in the great majority of cases. We may leave out of consideration cases of severe shock to the central nervous system, as from injuries or cerebral hemorrhage, in which almost all the superficial and deep reflexes may be absent. But taking cases in which the patient is conscious, we may arrange the causes of abolition of patellar reflex according to the part of the reflex arc whose functional capacity is lowered or abrogated. Interruption of communication, along either afferent or efferent nerve, will of course lead to such abolition. But as sensory and motor fibres are so closely intermingled toward the periphery, it can not readily happen that interruption will be confined to the sensory or motor path respectively. Injuries of nerves may of course cause abolition of reflex contractions, but far more frequently the cause is neuritis. Of late years, multiple peripheral neuritis has occupied a large place in nerve pathology; and it must be reckoned among the most frequent causes of abolition of patellar reflex. The discovery of this symptom is important, therefore, in the diagnosis of peripheral neuritis, as it is seen in cases of alcoholic and diphtheritic paralysis for instance; though, for absolute differential diagnosis, account must be taken of other conditions present or absent, the history of the case often supplying important help.

Of pathological conditions seated in the posterior column of the cord, and interfering with the reception of sensory impressions, the best known is the degenerative change associated with the disease known as locomotor ataxy. Of the systemic diseases of the cord affect-

ing its motor portion, and by loss of function in that preventing the transmission of motor impulses to the muscles, the best known is anterior poliomyelitis. This, which is the cause of infantile paralysis, is occasionally found also in adults, and absence of patellar and other reflexes is one of its symptoms, being in fact one of the results of the very complete loss of motor power in this form of disease. But while we can thus distinguish cases in which the abolition of the knee-jerk is due to a lesion confined either to the sensory or the motor region of the cord, there are other cases in which both parts are involved. In diffuse or transverse myelitis, affecting the lumbar portion of the cord, loss of knee-jerk and of other reflexes in the lower extremities forms part of the large group of symptoms by which the disease is characterized. These causes cover the vast majority of cases in which there is loss of patellar reflex. It is noted as one of the symptoms which may be present in acute ascending (Landry's) paralysis; but there is no uniformity in this respect, and it is very probable that, under this heading, there have hitherto been often placed cases really belonging to other conditions, and notably to poliomyelitis anterior with paraplegic character, and multiple neuritis of a very severe and acute form. It is possible, also, that abolition of knee-jerk may be due to pressure on nerve roots, or on the cord itself, by tumors, or hæmorrhagic or other exudations within or outside of the spinal canal, or as a result of mechanical injuries (fracture, etc.). But if this symptom is to be manifested, the pressure must bear on the lumbar portion of the cord or its nerves, and specifically on the parts normally governing the reflex. If the pressure is higher up, and the lumbar portion is not affected, then the knee-jerk is more likely to be exaggerated. The history of the case will often go far to determine its nature, while the exact seat of the lesion may be fixed, partly by observation of the state of the reflexes of the trunk or upper extremities.

The general conclusion, therefore, is that diminution and ultimate abolition of the patellar reflex must be interpreted as due to a lesion, acute or chronic, mechanical or pathological, affecting one or more of the parts already enumerated as making up the reflex arc. The lesion, if not actually destructive, must at least be such as to interfere with the transmission of impressions from the surface to the sensori-motor center in the cord, and back again to the muscles. The lesion need not be, and generally indeed is not limited to that portion of the cord or its nerves; but whatever other portions of the nervous system may be affected, that segment certainly is; and in so far the symptom is helpful in determining not only the nature of the lesion, but to some extent also its seat.

If the causes which lead to lessening or abolition of the patellar tendon reflex are thus on the whole plain, it is not so with those which lead to its exaggeration. The knee-jerk may have an increased range, or be too easily produced, in many states other than organic diseases of the nervous system. In tetanus and in poisoning with strychnine it is increased in marked degree; and so it may be in hysteria. The same may readily be the case also in febrile states, or in emotional conditions of various kinds. In these latter it is most probable that the exaggeration is, in its nature, practically the same as the intensification which is obtained by Jendrassik's procedure—viz., causing the person under observation to make some voluntary effort, such as pulling at the hands which have been hooked into each other. It should always be remembered, however, that increase or exaggeration of a reflex is only relative, and its reality should not be too hastily assumed. If the person's normal or ordinary condition is known, the determination of an increase may be easy and safe; but otherwise it should be accepted as real only when present in marked degree. We have a useful test of its reality, or at least as to the presence of any organic nervous disease as its basis, in its association with or independence of the occurrence of ankle clonus. It is safe to assume that the latter always has some abnormal state of the nervous system as its cause. For, just as it may be found where the muscles of the calf have been quickly exhausted by standing on tiptoe, so it may sometimes be found after an epileptic attack, and possibly in other states of exhaustion. But these causes of the production of ankle clonus are generally obvious enough, and the phenomenon itself, when so produced, is usually not marked, and the artificial susceptibility is of short duration.

There are cases, however, in which there is room for uncertainty

whether a case of paresis or paralysis is a hysterical manifestation, or is actually due to organic disease. It is a common observation that, in hysterical paralysis, there is habitually exaggeration of reflexes, in addition to other peculiarities. Still, as the same is true also in many cases of paralysis from disease of the brain or cord, this condition has but a relative diagnostic value. But the check, supplied by testing the ankle condition, then becomes of extreme value in doubtful cases. If the increase of the patellar and other reflexes, superficial or deep, has ankle clonus as its accompaniment, the presumption in favor of the presence of organic disease is immensely greater; while absence of clonus, under these circumstances, if not absolute proof, is very strong evidence that we have to deal with nothing more formidable than hysterical paresis.

There are three conditions in which exaggeration of tendon reflexes in the lower extremity or extremities is regularly met with: (1) In hemiplegia of cerebral origin, at some stage of its course; (2) in sclerosis of the lateral columns of the cord, whether it be the pure form, known as *spastic paralysis*; in the mixed form, known as *amyotrophic lateral sclerosis*, in which the anterior gray column is also involved; or in *disseminated sclerosis*, in which the exact grouping of symptoms must depend on the distribution of the degenerated patches; and (3) in conditions interfering with or stopping conduction from the lower part of the cord to the brain, and *vice versa*. These are chiefly transverse myelitis and pressure on the cord by tumors, or as the result of disease or injury of the vertebrae. To produce this effect, it is manifest, however, that the disease or injury must be seated clear above the reflex arc, which must itself be intact. It is in these cases that careful investigation into the state of the other reflexes of the trunk and upper extremities is needed, for determining the exact level of the lesion in the cord, whether it be in the dorsal or the cervical portion.

Conditions, in many respects so diverse, having in common this symptom of exaggeration of the reflexes, the question at once arises whether the mechanism of production is the same in all. The purely reflex or automatic centers in the cord being subject to regulation or inhibition by the higher centers in the brain, it is a most natural and generally accepted opinion that exaggeration of reflexes may be, and indeed often is, the result of mere withdrawal of the subordinate spinal centers from the control of higher centers seated in the cerebrum. This explanation covers sufficiently the majority of cases in which exaggerated patellar reflex is found, whether the morbid condition be hysteria, an epileptic attack, pressure on the middle or upper part of the cord, or a cerebral lesion producing hemiplegia. But, though this be admitted, there remains the question whether such withdrawal from cerebral control supplies a sufficient explanation of all cases, and in particular of primary lateral sclerosis in which the increase of reflex activity is most marked. It is held by some authorities that the exaggeration of reflexes in lateral sclerosis, whether primary or secondary, is, like the contractures which are another prominent symptom, the result of irritation in the cord itself, caused by the formation and subsequent shrinking of the new tissue deposited in the lateral columns chiefly. That irritation of the cord may cause increased reflex activity need not be questioned, tetanus and strychnine poisoning being instances of it. But it is a fair objection to this explanation that the sclerosis is essentially a degenerative process of slow production, and therefore not of the kind which would be expected to produce an increase of activity in the part affected, or in those adjacent to and standing in close functional relation with it. Is it not far more likely, indeed, that in this, as in the other cases already enumerated, the exaggeration of the patellar reflex and production of ankle clonus are due to the cutting of communication between the cerebral centers and the lower spinal ganglia by degeneration of the great path in the lateral columns? Even where, in a case of hemiplegia, the exaggeration of reflexes appears to become more marked in the paralyzed extremities, when secondary descending degeneration has set in, it is not necessary to assume irritation of the cord as the cause. It is just as rational to explain it as the consequence of more complete withdrawal of the spinal centers from cerebral control, when to the lesion of the brain there comes to be added degeneration of one of its main paths of communication with the spinal centers. Light is thrown on the mode of production

of exaggeration of knee and ankle reflexes by the phenomena observed in cases of hemiplegia, accompanied by early rigidity. One such case, under my care lately in hospital, was of interest in this respect. The case was one of right hemiplegia, with partial aphasia and slight facial paralysis. There was great exaggeration of reflexes on the paralyzed side, ankle clonus being very easily produced; and there was also some exaggeration of knee-jerk on the left side, with distinct, though less marked, clonus. After a time there was great improvement, the rigidity of muscles relaxing, the clonus disappearing altogether on the left side and becoming less distinct on the right, *pari passu* with the recovery of power over the limbs. Here, evidently, descending degeneration and associated spinal irritation were not the cause of the knee and ankle phenomena, as they and the rigidity accompanying them could not have been expected to pass off as they did during a stay of a few weeks in hospital if they had been consequent on a secondary degeneration of the motor tracts in the cord.

The balance of evidence, therefore, is in favor of the doctrine that increase of knee-jerk and ankle clonus have a similar mode of origin, whether the lesion with which they are associated be seated in the brain or in the cord. That mode of origin we must take to be an unregulated action of motor spinal centers, owing to withdrawal of control by the higher center in the cerebrum. It is only by careful observation of associated symptoms that we can determine what the nature of that lesion is and what is its exact seat.

Leaving out of consideration temporary conditions operating in various ways—such as shock, febrile or emotional states, toxic influences, etc.—and taking account of actual pathological conditions of the nervous system only, it may be said that the general laws which govern alterations of the knee and ankle reflexes are these: I. Diminution or abolition of the reflexes is caused by conditions which interrupt the communication of impressions and impulses in the reflex loop whose spinal segment is seated in the upper lumbar portion of the cord. II. Increase of patellar reflex and ankle clonus are due to withdrawal from cerebral control of the same portion of cord, which must itself be intact, that loss of control being due either to a lesion in the brain itself or in the cord at some higher level.

But when the laws have been thus formulated it remains to be considered whether there are exceptional cases or conditions in which they do not hold good.

In 1882 Dr. Charlton Bastian expressed the opinion that certain cases of lax paraplegia, in which there is loss of sensation as well as of motion, and absence of patellar reflex as well as of ankle clonus, owe the latter peculiarity to the fact that the spinal lesion is complete transversely, whether it be softening or separation mechanically from some injury. He held, thus, that there are cases of spinal lesion in the dorsal or cervical portion, cutting off the lumbar portion completely from connection with the brain, in which, notwithstanding, the reflexes are abolished instead of being increased. This view did not commend itself to authorities on the subject of nervous diseases. Even with the proofs and arguments contained in Dr. Bastian's book, *Paralyses: Cerebellar, Bulbar, and Spinal*, the doctrine that transverse lesions are and must be attended with exaggeration of reflexes, if the lumbar portion of the cord is intact, continued to be held. In a communication published in the *Medico-chirurgical Transactions* for 1890, however, he returns to the subject, and, by the help of cases carefully observed during life and examined after death, he establishes the correctness of his opinion, which has since received confirmation from other observers. The duration of some of the cases makes it impossible to explain the absence of reflexes by the existence of shock, as was at first suggested by some critics. The cases showed not only that complete transverse destructive lesions do cause abolition of reflexes, but, further, that the descending degeneration of the lateral columns which follows the lesion does not cause rigidity and contracture in the paralyzed extremities. It seems to be almost a necessary inference that the spastic condition observed in lateral sclerosis, primary or secondary, is not due to the sclerosis as such, as is taught by most authorities. The explanation of the great difference in the state of the reflexes in cases of paraplegia due to lesions of the cord in its middle and upper portions, beyond the circumstance that in some the lesion is a complete transverse one and in others incomplete, must at present be almost purely

hypothetical. Dr. Bastian, following an earlier suggestion by Dr. Hughlings Jackson, believes that we must assume a double controlling action by the brain over the functions of the cord. The cerebrum exerts a regulating or inhibiting influence over the purely spinal reflexes, and when this controlling influence is withdrawn, in consequence of cerebral lesions on the one hand, or sclerosis or other lesions affecting the lateral columns on the other, the spinal centers act in an exaggerated and unregulated way. The controlling or inhibitory influences evidently pass downward along the pyramidal tracts. But how account for the absence of this exaggeration when the lesion affects a complete cross-section of the cord, since certainly the controlling influence must here be completely withdrawn? The suggested explanation is that the cerebellum has, as part of its function, the duty of keeping up the state of *tonus* in the muscles, acting through the cord; and that its influence in this way is communicated downward in some part of the sensory columns. When this stimulating or tonic influence is withdrawn, by destruction of the sensory tracts in the posterior and central portions of the cord, the spinal centers are unable to effect a response in the form of a reflex contraction.

The importance of this new doctrine is considerable in regard to diagnosis, and still more to prognosis, and sometimes to treatment. In cases of injury to the spine, followed by lax paraplegia with complete loss of knee and ankle reflexes, the necessary conclusion would seem to be that, if this condition persisted after shock had passed off, recovery would be hopeless, and that no benefit was to be expected from any operative measures adopted with the view of relieving pressure. So long, on the other hand, as the reflexes are preserved, even though the paralysis is very complete, there is hope of recovery, since the whole thickness of the cord has not been affected by the destructive lesion. And that recovery may occur, even under very unfavorable conditions, is clearly shown by a case of Charcot's, in which the patient had been affected with and recovered from paraplegia, associated with vertebral disease and angular curvature. When she died, two years after, it was found that the spinal cord, at the level where compression had existed, was no larger than a goose-quill, and when cut, its section was not more than about one third of that of a healthy spinal cord examined in the same region. (Charcot, *Diseases of the Nervous System*, second series, p. 80, N. S. S. translation.)

Locomotor ataxy has already been referred to as one of the diseases very regularly associated with loss of patellar reflex. That the association is not an absolutely constant one has been repeatedly shown, some at least of these exceptional cases being where the disease began in the cervical portion of the cord, instead of in the lower portion, as is the rule. Occasional cases of hemiplegia, occurring in persons already the subjects of locomotor ataxy, have been recorded, and in a few of these it has been noted that the patellar reflex was present. But with the exception of a case, reported by Dr. Hughlings Jackson and Dr. Taylor (*British Medical Journal*, July 11, 1891), it does not seem to have been noticed whether the knee-jerk was absent previous to the coming on of the hemiplegia. In this patient the ataxic symptoms had existed for about twelve years when he came under observation. He had then had two attacks of hemiplegia, the second eight days before admission, the right side being affected, and the knee-jerk absent on both sides. Forty-seven days after the second attack it was noted that there was slight return of the right knee-jerk. Two years after, the right knee-jerk was readily obtained, and a slight jerk could also be got on the left side, though with difficulty. Some of the ataxic symptoms had improved, while others had remained stationary, or become aggravated. Here, then, there was a remarkable instance of restoration of a normal physiological phenomenon, apparently resulting from the addition of a fresh disease, a cerebral lesion with secondary lateral sclerosis of the cord, to the original disease, posterior sclerosis, which had caused its abolition. It is difficult to account for the restoration of reflexes in this case, and the authors of the paper only venture the suggestion that a few fibers had remained intact in the posterior columns, but that they had been insufficient to convey strong enough impressions from the periphery, till the sclerosis came on, and by stimulating the anterior horn made it more prone to respond to slight impressions. In view, however, of the cases collected by Bastian and others, in which the occurrence of de-

scending sclerosis, following lesion of the cord, led neither to increased reflexes nor contracture, it is not easy to accept the sclerosis in this case as, *per se*, the cause of the restoration of the patellar reflex. In accordance with the facts and arguments already adduced, it seems a more probable supposition that the descending sclerosis acted rather in the way of cutting off, more completely than before, any remains of cerebral control. In the absence of inhibiting influence, the few fibers left in the posterior columns might be in a position to convey impressions, strong enough to stimulate the now unrestrained automatic motor centers in the anterior horn. Whatever be the correct explanation, it remains an established fact, not only that the patellar reflex may continue in well-marked cases of locomotor ataxy, but that it may possibly be restored after having been abolished.

Perhaps the most important lesson to be derived from this study of the relation of leg reflexes to pathological conditions of the brain and cord is the need for caution in arriving at conclusions on too narrow a basis of observation. Pathognomonic symptoms are rare, and if it be necessary in all diseases to make symptoms, and even groups of symptoms, serve as checks on each other, for diagnostic and prognostic ends, above all must this be necessary where conditions are so complicated as they are in the nervous system and its diseases.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or profuse histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

Original Communications.

PSEUDO-EXPERTS IN LUNACY.\*

BY S. GROVER BURNETT, A. M., M. D.,

KANSAS CITY, MO.,  
 CLINICAL LECTURER ON DISEASES OF THE MIND AND NERVOUS SYSTEM,  
 KANSAS CITY MEDICAL COLLEGE;  
 MEMBER OF THE NEW YORK MEDICO-LEGAL SOCIETY;  
 FORMERLY ASSISTANT SUPERINTENDENT, LONG ISLAND HOME OF NEW YORK  
 FOR DISEASES OF THE MIND AND NERVOUS SYSTEM, ETC.

In bringing this subject before you at this meeting I am not prompted by any selfish motive of radicalism, but rather for the purpose of drawing the attention of both the medical and legal professions to a subject which should interest us alike. Not only should it be of common professional interest, but worthy of consideration by all thinking people generally. It shadows the point where the two professions meet, and has always been a delicate and difficult chasm to bridge over—that all who are so unfortunate as to come within the pale of the law through either disease or crime, or both, might be guided over it to a rest of justice. Any efforts spent upon the solution of a question that means so much to the human family certainly should not be considered in vain though the reward be not in view.

That we may at once get at our text there is no better illustration offered us than in the case of Myers, of this city, who was adjudged insane on the testimony of the general practitioner. Myers, with a companion, was going about the country, so they aver, in search of work. Not having comfortable quarters for the night, they went to the depot where they could keep warm. Secing a man asleep, the companion remarked that he had money, when Myers proposed “to stun and rob him.” They secured an iron pin used for coupling cars and returned to the scene of the coming tragedy. Myers again proposed the killing, and asked the companion (a boy) to make the attack, but he refused, saying he was not strong enough. Myers then struck the sleeping man several times, each time breaking the skull. The money obtained was equally divided. Rational effort was made to escape, and it was only after the boy had turned State’s evidence that arrest was made. They were convicted, Myers receiving sentence of death and his companion life imprisonment. On the second trial Myers received the benefit of a “hung” jury, and a third trial accomplished his release on the ground of insanity. He went to the poor-farm for a few days, and then was allowed to go to his home.†

I do not propose to discuss this in full, neither is it intended to cast a personal reflection upon any of the gentlemen connected with this case; but in this brief history there are medico-legal points that should not be overlooked. First, Myers was the senior co-operator; he reasoned well

\* Read as the opening address at the annual meeting of the Missouri Valley Medical Society, at Council Bluffs, Iowa, September 17 and 18, 1891.

† I am informed that in obtaining the release of Myers from the poor-farm the plea was, they feared he would lose his mind if compelled to remain there. The absurdity of this is difficult to explain without being personal.

in planning and executing the crime in every particular, excepting the proposition made by the boy that the man had money. Myers proposed the killing, and, realizing the enormity of his crime, tried to use the boy as his tool, but, failing and realizing the possibility of making a failure of the deed through the boy’s lack of strength, he had the power to put his premeditated project into effect. Rational effort was made to escape. Equal division of the booty was exacted. These facts, all of which were indications of the mental state at the time of the commission of the crime and constitute the only reasonable facts upon which a verdict should be rendered in such a case, are certainly not in keeping with the verdict in this instance. Keeping the nature of the verdict in view—that of acquittal on the plea of insanity—and admitting that it be a just verdict, what are we to think of it when we recall the manner in which the individual was disposed of—turned loose to continue the destruction of human life in accordance with the dictates of an insane mind? There are two possible explanations of this, as the disposition of the case is directly opposite to the meaning of the verdict rendered—namely, undue consideration and illogical comprehension of the facts upon which a diagnosis of insanity should be made, or a determination to defeat justice to gain personal satisfaction, regardless of the dangers engendered in the future, to react again upon society by a repetition of the former deed.

I should regret to learn that we lived in a State whose statutes were so imperfect in offering protection to its citizens, and, in the face of facts here presented, I can not refrain from saying that others should not be anxious to share the reflections of such a contradictory verdict as was promulgated by the abettors connected therewith.\*

For the benefit of those who have not had the privilege of becoming familiar with medico-legal technicalities, and to show how delicate a consideration the subject requires, I have thought it best to give in brief a review, as near as I am able, of the indications arrived at, pointing out the peculiar mental conditions to which an individual should be subjected that he may be classed as an insane criminal. Among the great thinkers of the medico-legal world there has been going on for the past quarter of a century a “silent revolution” with reference to the doctrine of the legal handling of a class of culprits commonly designated, owing to the absence of a better nomenclature, as criminal insane.

\* In an interview with my friend, Dr. Willis P. King, whose testimony had much to do with the verdict in this case, he says the very appearance of Myers would immediately call to mind the theory of Darwin, and there was little doubt that his ancestors had not been walking on their hind legs very long. According to Dr. King, the boy mentioned was an overgrown youth with a criminal history in his family, and, knowing the weakness of Myers, he urged him to commit the crime. Dr. King would have me believe that Myers, when questioned, would be able to say which was right or wrong, but had not the power to avoid doing the wrong and adhere to the right when urged by the companion. This is an important technicality, and is possibly well taken; it is in keeping with the verdict rendered, and casts great reflection upon the legal disposition of the accused.

As usual in the advancement of scientific procedures, Germany was an early participant here, and long ago adopted in her criminal code of laws the proposition that "there is no criminal act, when the actor at the time of the offense is in a state of unconsciousness, or morbid disturbance of the mind, through which the free determination of his will is excluded" (Code of Germany, Sec. 51, R. G. B.). As we look a little farther we find the interpretations of the code of France agreeing in every particular, practically speaking, and gives great support to the efforts of the medical minds so ardently exercised in perfecting that which is of such medico-legal interest and utility. This silent revolution (so named by A. Wood Brenton, Esq.) has now reached the minds of England and America.

Judge Somerville says: "It is the same old fight of science against the crystallized prejudices of error and ignorance" (*Medico-legal Journal*, December, 1890).

To attempt to discuss the law as to the testamentary capacity of the insane, and the law as to their capacity to enter into the contract of marriage, etc., would be a presumption on my part as well as a digression; hence I will confine myself to a mentioning of the various legal requirements as have been prominent in the decision of lunacy cases from time to time, among the first of which was the "wild-beast" theory of Mr. Justice Tracy, which is of little interest to us to-day.

In succession of this came the great theory of Lord Mansfield—namely, "the right and wrong theory"—which in turn was revolutionized by the decision in the MacNaghten case. Judge Somerville's decision, in the case of *Parsons vs. The State*, 1881, Ala., 577, also alluded to by Mr. Breton, was rendered in the Alabama Supreme Court, June, 1887 (*Medico-legal Journal*, September, 1890, and December, 1890), and was also a repudiation of the right and wrong test, as affirmed by the MacNaghten case, just mentioned, which was a decision of the English courts, and gives its indorsement to the modern view that "no insane person who, through disease of the brain, has lost the power to choose between the right and the wrong, and to avoid doing the act in question, is legally culpable or accountable."

The learned members of the medical profession have long recognized this feature, and the efforts of both professions to bring about a test that would be compatible to law and medicine alike have been arduous and many. The great Dr. Ray, of England, was an early benefactor to us in this line by his approval of the charge in Haskel's case in these words: "The true test lies in the word *power*. Has the defendant in any case the *power* to distinguish right from wrong, and the *power* to adhere to the right and avoid the wrong?"

Many times in my asylum practice have I been called to recognize this feature among the inmates. Frequently relatives of the insane have said to me, It is pure cussedness in him, for he knows it is not right, still he continues repetition after repetition of the offense. Unquestionably, those of the medical world of any special training in this direction will affirm any efforts that will lead to a unanimous adoption of this "modern view" or test.

In the report of the Alabama Hospital for the Insane,

by Dr. Peter Brice, for 1889, we find him voicing the profession on this subject. He says: "The thousand patients now under treatment in our hospital, and thousands of others who have filled its wards during the past twenty-eight years, furnish unmistakable evidence, even to ordinary observation, of the fact that persons of diseased brains, affecting the mind, may be capable of distinguishing the moral and legal quality of a criminal act, and yet not be able to abstain from its commission. They know the right from the wrong, and do not hesitate to avoid it, but they can not choose between the two, and often deplore their inability to control their actions. It would, it seems to me, be a backward step, in both humanity and science, to place these victims of disease in the same category with ordinary convicts in whose behalf no such plea can be interposed. The whole question is one of disease or no disease to an extent which practically destroys the patient's power of self-control." He adds: "The medical profession is almost unanimous in its repudiation of the right and wrong tests of this disease, and the interest of society, humanity, and science would, in my judgment, be promoted by the adoption of the same view by our courts of justice."

This in brief gives us the most acceptable and recent medico-legal view of a mental condition for which the possessor should not be held responsible with reference to acts that may be judged as criminal; but here the question arises, By whom and upon what qualifications shall such a mental condition be determined, and what protection are we going to offer to society? Shall the testimony of an embryo M. D. in the general practice of medicine be acceptable in such cases? According to present usages such is allowable. An individual having once been found to be and declared to be an insane criminal by a court of justice, shall he be turned loose upon a sister State again to repeat his acts of violence in order that the State in which he was convicted may escape the expense of the maintenance of such a character? Dr. Gooding says (*Medico-legal Journal*, December, 1889): "The finding not guilty by reason of insanity of a person who has committed a capital offense should carry with it the presumption of continued insanity and the forfeit of the personal liberty of the individual." Fortunately, in our more densely populated States this class of cases is quite well looked after in the way of offering protection to society; it would seem quite apparent that errors in such instances were apt to be the outgrowth of slipshod medico-legal procedures, if they can be called medico-legal procedures at all. The insanity plea has become so popular that it is not difficult to see how hands stained with chronic criminality would be ready to accept any new resources of defense. In such instances it has been with the utmost difficulty and prolonged study of the case that some of our most learned men in psychiatry, who have spent a lifetime in its study, have been able to arrive at a definite, logical, and scientific diagnosis. There are reasons why the plea of insanity should be adopted; such individuals, having come into the hands of the law, would prefer incarceration in an asylum for a time, with the hope of an early recovery (?) and release from custody, than to suffer capital punishment. In the case of *Myers vs. the State of Missouri*

this process was shortened by turning him loose at once upon the State of Pennsylvania. According to Dr. Church (*Medico-legal Journal*, September, 1890), our first step in arriving at a judicious decision in these cases is a difficult one, as "the question of insanity is made a question of fact to be decided by a jury." No matter how intelligent be these twelve men, they are in no wise capable of rendering a judicious verdict upon such difficult problems as to whether the deed was the result of an obscure disease of the mind unless they are educated men in medicine, which is never the case. Upon the testimony of the medical expert, and the ability of the jury to comprehend the same, depends the solution of the question, and here we reach a point that may hinge the verdict according to the ability and character of said witness. If in the power of the attorney for the defense, he will not admit of any testimony, regardless of its proficiency, unless it points out his client's exit to liberty; upon such technicalities depends the clashing of expert testimony in lunacy cases. Were the judge alone empowered to select medical experts, this clashing would be avoided.

Again we are left largely to speculation, as the point at issue is not the mental state of the criminal at the time of the prosecution, but when the act was committed, dating probably from a few months to a few years prior to the rendering of the verdict. Charge any man, especially if he is a little below the average in his physiological stamina, with murder in the first degree, with convincing evidence for his conviction, give him from one to three years in jail to think it over, and certainly his condition may warrant the plea of insanity at the time of the prosecution. Such mental strains are sufficient to alienate great minds. If with this plea and a little legal diplomacy they can substantiate the fact that the accused was "kicked by a mule" when a youth, that some one in the same village had hysteria or some of the various neuroses, his chance for a transfer to a palatial sanitarium at the State's expense may be looked upon with favor; and should he be fortunate enough to reside in a State where more attention is given to the getting rid of, instead of the prosecution of, or care of such cases, he may be liberated in a few days after the rendering of the verdict with the proviso to skip the State and stay skipped. It is rational to state that a verdict rendered at the time of the prosecution must be based largely upon suppositions, and often illogical conclusions, as the mental state upon which the judgment should be made is at the time of the criminal act—always prior to the date of the individual's coming under the observation of both jury and experts. Upon the testimony of the latter will be based the verdict of the former, and, as it means life or death, justice or injustice, we have here placed before us the only class of testimony that should be accepted before a court of laws, and that is expressed in the word *ability*.

I care not how competent a general practitioner is, he is no more competent to pose as an expert in psychiatry than he is to perform the most delicate and critical operation in surgery. Were I, after having seen a half-dozen or possibly a full dozen operations of a capital nature, to proceed to usurp the functions of a finished operator, you would rise

up in a body and declare me mad. Then imagine a man who has seen a whole dozen cases of insanity in his practice—in half of which number he guessed at the diagnosis and in the other half accepted somebody else's word for it—coming forward at so critical a moment and offering a scientific diagnosis and prognosis upon which shall depend the life or death of the accused, and perhaps the conviction of the innocent or acquittal of the guilty, which, according to the decision in the Myers case, means liberty to the offender and danger to the public wherever he may roam.

The diagnosis of insanity, if made scientifically, is often difficult to minds of long and patient training. In criminal cases the examination should be made with two possible features in view—namely, a motive for malingering and the actual predisposing influences, and the condition of the mind present, just prior to, and at the time of the commission of the crime. For instance, the case of Nellie Bly, who passed under the observation of two of the best clinicians in psychiatry that this country has, had a motive for the deception. It is true her commitment was based largely upon circumstantial evidence, but it was so convincing that these learned men were deceived. Evidence of less convincing nature would be sufficient to cause an inexperienced psychologist, in the majority of cases, to testify to the mental incapacity of the accused. The very fact that Nellie Bly appeared in the insane pavilion of Bellevue Hospital among pauper insane cases, with no apparent cause for her appearance and actions, and that she was watched by competent persons to catch her off her guard with negative results, seemed ample grounds for committing her to the asylum; of course it was afterward conceded that she was simply feigning insanity in order to gain access to the asylum that she might expose the maltreatment which some supposed to then exist. In the Court the criminal has a strong motive for feigning insanity, and an error in its detection is a grave error, though difficult of solution at times; the error also of finding a man not insane when he actually is insane is often equally as grave. To show that the practitioner's examination is apt to follow the routine of his daily cases is illustrated by the following: Dr. —, of Jamaica, Long Island, was ordered by the Court to testify in the case of Mr. A. C., who was then in the asylum under my care and suffering from an intellectual type of chronic mania. The doctor examined the pulse, tongue, temperature, condition of secretory and excretory organs, etc., and could go no further. He asked me to give him testamentary evidence, some of which was to the effect that Mr. C. had at times hallucinations of sight and hearing and delusions of persecution. This he testified to in Court, and when asked to explain to the jury the significance of his testimony, he failed and was dismissed. Here is expert testimony offered the acceptance of which meant life incarceration in an asylum, and it was obtained in an interview of about thirty minutes with the patient. Unfortunately for the witness, he used words too large for his vocabulary and his weakness was exposed. The readiness with which some physicians hasten to swear an accused to heaven, or *vice versa*, based upon a meager interview or two of a few minutes each, certainly merits criticism.

Some of the difficulties in making a diagnosis in criminals supposed to be insane is illustrated by the following case which came under the writer's observation in the Tombs Prison, New York city:

The charge was grand larceny in the first degree, which meant, if convicted, five to ten years in prison. My friend, Dr. Matthew D. Field, examiner in lunacy for the city of New York, was sent to see him during the fifth week of his confinement at the Tombs. Mr. J. D.'s condition was then, as it had been since being in jail, totally indifferent to his person and surroundings; the only voluntary movements were his eyelids and occasionally his lips: took no food or drink; he followed wherever led, and remained in the position in which he was placed. Food and water left with him were never disturbed: the attendants were positive that he could not swallow solid food, and gave him liquid food, which he swallowed in a mechanical way. Personal cleanliness was wanting and Nature's demands unattended, his clothing and bed being soiled without notice on his part. The attendants thought it unsafe to allow him to lie flat in bed for fear he would smother, and, as a precaution, braced him up with pillows in a half-reclining position, and they always found him as they left him, notwithstanding frequent observations were made; his eyes opened with the same staring expression. His indifference was such that, when being led through the cell door, which was low, he would strike his head terrific blows on the iron casing unless he was caused to stoop. He received several severe blows in this manner before being guarded against by the attendants.

With this history in brief Dr. Field first saw the case on December 18, 1887, and at frequent intervals afterward. When the patient was led into the examining room the keeper pushed him back and he sank down without resistance and remained in that position. He was tall and anæmic, had a fixed, staring expression, would not speak, or give any evidence of comprehending his situation or surroundings. He was neglected and careless in appearance. His pulse was small and quick; breathing shallow. Reflexes, superficial and deep, seemed normal. His limbs when raised sank back, as if from gravitation rather than from a paralytic condition. Cataleptic indications were negative. In the mean time two physicians had examined the case and reported to the district attorney that the patient was in a cataleptic or cataleptiform state and could not be tried. If Dr. Field stood in front of the man and threw water in his face or pricked the skin, no manifestation of feeling was made. When the same was done from behind, where the examiner could not be seen, involuntary movement followed. Severe pressure upon the supraorbital nerve gave no evidence of pain or anger, but caused suffusion of the face and a few tears to flow from the eyes. The pain inflicted was certainly as severe as one was justified in producing. Frequent interviews and various projects never induced him to speak. Dr. Field decided to photograph him, which he did twice. Owing to defective light, the exposure was about a minute and three quarters. No evidence of movement by the patient was manifest, to the astonishment of the photographer. I examined the photographs personally and they certainly were good. Even the eyelashes were as perfect as if portrayed by the delicate touch of an artist's brush. During his stay in the Tombs he became much emaciated, losing some forty pounds in weight. Dr. Field learned that J. D. had stolen a watch and escaped by rational effort. When arrested he pleaded not guilty and subscribed his signature. That night he was reported to have made an outcry and to have had a fit, after which he was as heretofore described.

*Personal History.*—At thirteen years of age he received a fall and was confined to bed five or six weeks. He had always

been "funny"—at times sulky and depressed, and at other times abnormally gay. Up to the time of arrest he was employed by his brother, who saw nothing strange in his actions. He was sentenced to prison three different times prior to this offense for felonious assault and larceny; his entire term of imprisonment extended over a period of nine years. When first arrested on the present charge he was rational and made offer to return the watch if they would not prosecute him. Relatives and prison officials were alarmed at his emaciation and were anxious to have his case settled, but, owing to the report of the two physicians to the district attorney that he was in a cataleptic condition and not fit to be tried, his case could not come up for trial. Dr. Field was firm in believing the man to be feigning, and asked that he be sent to Bellevue Hospital for observation; this they did not do, but instead sent him on December 29, 1887, to Jefferson Market prison, and he was there lost sight of. One morning the announcement in the paper was this: "The silent man departs." By the aid of one John Mack, on the night of February 5th, he sawed a bar out and escaped. Mack was recaptured, and from him Dr. Field learned that he and J. D. had been companionable for a month and that he kept watch for J. D. so as to allow him to exercise and get relaxation without detection, and that they frequently conversed together.\*

This certainly is as typical a case of deception as we are called upon to diagnose, but these are the very cases that teach us the value of observation. The majority of inexperienced observers in mental diseases would have made the same report in substance as did the two physicians who reported to the district attorney in this case and would have testified accordingly had the case come to trial; more especially would they have given the accused the benefit of their defective knowledge if there were a lawyer in charge of the case who understood the handling of lunacy cases and lost no opportunity in aiding the physician in getting his testimony in a presentable shape.

Again, there are persons unquestionably of unsound mind who are able to conceal the mental defects for a long time in many instances. The insane man will deny that he is insane, and when so able will conceal his eccentricities from those about him, as he is aware of their significance and the appreciation of the same by his friends. This peculiar deception is common in cases of paranoia, and often their delusions prompt them to the commission of murder in order that some imposed duty may be fulfilled. The manner of concealing their mental alienations from their friends is illustrated by the following well-known case which was on my service in the Amityville Asylum for two years: Miss —, about thirty-three years of age, was of great literary talent, and ranked high as a contributor to *Harper's*, *Scribner's*, and other popular magazines of the day. She conceived the idea of a lover, his going to sea, shipwrecked, and for a long time supposed to be lost. She learned of his rescue and return to New York. Through a conspiracy he was compelled to live under an assumed name, the name being that of a well-known correspondent of the *New York World*. This delusion grew till there were great numbers of conspirators in the scheme, and in the mean time she had decided some one must suffer death to clear up

\* Through the kindness of Dr. Field I am given this case in detail, for which I am under obligations to him.

everything; at times she thought she was the victim; at other times others were selected, owing to individual power of the conspirators. Her delusions were always systematized. This great deterioration went on for many months unknown and unobserved, until one Sunday morning a glowing article from her clever pen, covering nearly a page, appeared in the papers. Her ability to conceal her delusions finally failed. Fortunately the outbreak came in the form of a scandalous exposure rather than in murder. Prominent families were libeled and their good names stained with disgrace. Her own respected family never recovered from the shock, and it was only after prolonged efforts to compromise with the accused persons publicly excoriated in her defamatory article that they were saved from financial ruin arising from large damage suits. No compromise was acceptable except confinement in an asylum, and she was committed to Middletown under Dr. Talcott. Even there she was so acute in her deception that only learned alienists were aware of her true mental state. She would guard her subject, and, unless forced to speak upon it, no delusions could be obtained. For nearly two years I observed this case with interest, and in her delusions became an active conspirator. She continued to conceal her delusions well excepting at intervals, when she had to be restrained. Her vicious pen and ability to slip her notes to the public press were dreaded by those who knew her. Visitors at the asylum who talked with her believed in her rationality, and many sought to "show up" the asylum by carrying her writings to liberty. While on my service she wrote several interesting novels, as follows: *Was it a Delusion? The Model Boy of the Age; Hints to Friends on the Management of the Insane.*

Nine tenths of the readers of these novels would find them well written and of great interest, and rarely detect anything wrong in the writer's handling of the subject. In *Was it a Delusion?* a close observer who had known the author could detect a little something peculiar in the last four or five pages only.

These cases cited are simply representatives of the class of cases upon which medical men are called to render a decision as to whether the accused is or is not to be held accountable for his deeds and punished according to the provisions made by the law unto such cases, or whether he shall be cared for as an invalid as prescribed by the law of the State in which the crime was committed. You will observe in the Myer case before alluded to that neither one of these suggestions was carried out, but that he was allowed to go home and to liberty and to continue his homicidal acts as prompted by his delusions, and if he is an insane man he will certainly have his delusions at times. When the expert swears that in his opinion the subject before the bar is a malingerer, he assumes a great responsibility, and when he swears that the accused is of unsound mind and not accountable for his criminal acts, he also assumes a great responsibility; an error either way will give an excuse for the rendering of a dangerous verdict. Now, in the face of the argument given in the medico-legal blending of opinions, as to the mental state which may be classed under the nomenclature of the criminal insane, the

delicacy of making a scientific diagnosis in such cases and the great responsibility attached to the diagnosis made, I will allow you to ask yourselves this question, namely: Does the acceptance of expert testimony from the general practitioner in lunacy cases give rise to dangerous verdicts?

## DISEASES OF THE URINARY APPARATUS.

BY JOHN W. S. GOULEY, M. D.,

SURGEON TO BELLEVUE HOSPITAL.

(Continued from page 38.)

PART I.—PHLEGMASIC AFFECTIONS.

SECTION II.—SPECIAL CONSIDERATIONS.

### VIII.

#### URETHRITIS; ITS NATURE, CAUSES, AND DIAGNOSIS.

URETHRITIS, the most common of all the affections of the uro-genital apparatus, is a phlegmasic process, beginning generally in the mucous membrane of the urethra and ordinarily characterized by pain, ardor, dysuresis, and a more or less abundant muco-purulent discharge. In many cases it is contagious, but in the great majority it is non-contagious.

This phlegmasia was named urethritis, in the year 1802, by Bosquillon, because he regarded the word urethritis as expressing the locality and the phlegmasic character of the disease, and "gonorrhœa and blennorrhagia" as failing to convey the idea that the urethra is in a state of phlegmasia; the one meaning a flow of semen and the other a breaking forth of mucus. Therefore it was that he followed the example of Sauvages in the use of the suffix *itis* to denote phlegmasia, and accordingly constructed the word urethritis to express a correct idea of the nature and seat of the affection, *i. e.*, a phlegmasia of the urethra.

"*Gonorrhœa*" is the most ancient of the designations of this disease, and was used because of the supposition that the discharge was semen and originated in the seminal vesicles; and this erroneous designation is still used almost universally, although it is more than three centuries since urethritis was distinguished from the so-called gonorrhœa. In the sixteenth century Ambroise Paré spoke of gonorrhœa as an involuntary discharge of semen, and of *chaude-pisse* (clap) as a purulent discharge which he believed to originate in the seminal vesicles or, at least, in the prostatic region of the urethra. William Cockburn was the first English author to assert that "gonorrhœa" was seated in the urethral mucous membrane and not in the prostate or seminal vesicles. The first edition of his work, *On the Symptoms, Nature, Causes, and Cure of Gonorrhœa*, appeared in London in the year 1713, and the fifth edition in 1728. Many physicians who are acquainted with these facts still persist in speaking of the flow of pus in urethritis, in vulvitis, and in vaginitis, as "gonorrhœa," which means nothing more than a running of semen, because, they urge, the term has been sanctioned by long usage. Because an error has been reiterated for three thousand years or more assuredly does not make it less an error, and the long existence of this evil in language is certainly no argument in favor of

sanctioning its continual perpetration. Otherwise, how great would be the inconsistency of those who are striving to bring the science of medicine to its proper level in this nineteenth century of progress!

"*Blennorrhagia*," an outbreak of mucus, was first employed by the Austrian, Swediaur, in the latter part of the last century, in preference to "gonorrhœa," which, as he says, implies a flow of semen, while in reality nothing of the kind ever occurs in this disease. But the word "blennorrhagia" fails to indicate that the urethra is in a diseased condition. Even if the adjective urethral were always prefixed to "blennorrhagia," the two words would also fail to convey the idea of phlegmasia of the urethra. Although many different words have been proposed as substitutes for these two obviously inaccurate terms, the French still adhere to "blennorrhagia," which they originally borrowed from the eminent Austrian syphilographer.

"*Venereal catarrh*" is another expression now commonly used, in Germany and other countries, instead of "gonorrhœa." It was suggested in 1806 by Capuron, a Frenchman. Venereal catarrh of what particular part or mucous membrane of the body does not appear in the expression. But catarrh means simply a downward flow, not even a flow of mucus. Therefore catarrh fails to designate the true character of urethritis.

It is often asked, Is not "gonorrhœa, or blennorrhagia, or venereal catarrh" something more than a phlegmasic affection? Sometimes it is, and in that case there is urethral chancre, chancroids, or mucous patches—otherwise, "gonorrhœa, blennorrhagia, and venereal catarrh" have never conveyed to the mind of any thoughtful reader and investigator the faintest notion of phlegmasia, and to such the only meaning they express is a flow of semen in the first case, an outbreak of mucus in the second, and a downward flow from venery in the third case. It is asked also with equal frequency, Is there not high authority for saying that the terms "gonorrhœa, blennorrhagia, and venereal catarrh" should be applied to that form of disease which is contagious, and urethritis to that which is non-contagious? Yes, high authorities have made the assertion, without agreeing which of the first three terms should be used; but when high authorities misuse words there is no obligation to follow their bad example.

Many other names have been proposed to take the place of "gonorrhœa"; among them, *arsura*, *pyorrhœa*, and *syphiloïd*. The latter was used for a time by Ricord. None of these names had a long survival, for they were most unfit. But "gonorrhœa, blennorrhagia, and venereal catarrh" are, so far, examples of the survival of the unfittest. It is to be hoped that urethritis, answering as it does all present needs and indicating so clearly the phlegmasic character of the disease in the male, as do vulvitis and vaginitis in the female, may survive all those unfit names that always give a wrong impression if they convey any idea whatever. *Arsura* was spoken of by John Arden (1320 to 1370) as an interior heat with excoriation of the urethra, and he spoke of this same *arsura* as occurring in the genitalia of women. *Arsura* was also used as synonymous with *erysipelas*. The popular saying, "He was burnt" (meaning that he contract-

ed venereal disease), is likely to have originated from the old word *arsura*, which was apparently technical in the fourteenth century and coined from *ardere*, *arsum*, to burn, burnt.

The names given to urethral phlegmasia by the vulgar of several nations in some respects are more appropriate than those employed by the medical profession. These names, based upon different manifestations, are surely not worse than "gonorrhœa, blennorrhagia, or venereal catarrh." For example, the common people of England and of this country call urethritis *clap*, the French *chaudepisse*, the German *Tripper*, and the Spanish *purgación*.

*Clap* is derived from the old French *clapier*, which means a burrow, a hiding place, and is often applied by surgeons to burrowing abscesses. It means also a filthy place, a hovel, or brothel. The term *clap* may have been adopted on account of this meaning of *clapier*—a hovel or brothel where dwelt the women from whom the disease was supposed to be contracted, or perhaps on account of the filthy condition of the genitalia of these women.

*Chaudepisse* was suggested by the great scalding which is experienced in urination during the second or stage of increase of urethritis. For the milder cases the people use the terms *échauffement*, heating, and *coulante*, running.

*Tripper* is taken from *trip*, which means to drop or drip, and has reference to the dripping of the pus from the urethra.

*Purgación*, from *purgare*, *purgatum*, to cleanse, has reference to the abundant discharge, which the vulgar imagine "cleanses the system of a humor." It may also have reference to the fact that it is sometimes contracted from women during the menstrual period, for the people call the menses *purgaciones*, which they take literally from the Latin.

*Antiquity of Urethritis*.—There does not appear to be any historic period when urethritis was unknown. Dujardin and Peyrille, in the history of surgery from its origin to their day, speak of the great frequency of "gonorrhœa" in the East, and in alluding to the operation of "circumcision," which was employed partly to prevent venereal disease, trace the origin of this operation to a period antecedent to the time of Abraham. Moses very clearly points out "gonorrhœa" as existing in his time, and his sanitary laws tending to its prevention are admirable, and, if followed to the letter, would unquestionably lead very materially to the decrease of the disease. Hippocrates, Galen, and Celsus discourse upon this disease and its causes, and nearly all the medical writers of the middle ages make reference to urethritis.

THE NATURE OF URETHRITIS was long in dispute, and the question, Is it an infectious disease, a simple phlegmasic process, or a contagious affection *sui generis*? was earnestly discussed by able physicians, whose conclusions were so diverse that, for convenience, they were classed and designated as the identists and the non-identists. The identists were those who asserted that "gonorrhœa" and syphilis are identical diseases, *i. e.*, that "gonorrhœa" and chancres are produced by one and the same virus, and that "gonorrhœa" can produce chancres and *vice versa*. The early authors who

treated of syphilis were not identists—that is to say, they made a distinction between the “simple chancre,” the infecting chancre, and urethritis, and it was not until about the middle of the sixteenth century that the distinctions of these three diseases ceased, and that the doctrine of identism was promulgated by Musa Brasavola, of Ferrare, and generally accepted. This doctrine continued in vogue until the latter part of the eighteenth century, and was first questioned by Balfour (1767), then by Tode, of Copenhagen (1777), and by Fabre, a disciple of the renowned Petit, who showed that he had doubts upon the question of identism when he asserted that the consequences of “gonorrhœa” were not the same as those of chancre. The first edition of his work on venereal diseases was published in 1758. Hernandez, of Toulon, a surgeon of the French navy, published, in 1812, a monograph of 348 octavo pages to establish the non-identity of the “gonorrhœal and syphilitic viruses.”

The answer that may now be made to the question respecting the nature of urethritis accords with neither that of the identists nor that of the non-identists, which are so extreme, but includes all that seems rational from each side. *i. e.*, urethritis is, in all cases, a phlegmasic process. It is often contagious, but most frequently it is simple, non-contagious. It is contagious but non-infecting when it arises from urethral chancroids; it is styled virulent when it arises from the contagium of virulent vulvitis or vaginitis, and it is infecting when due to urethral chancres or mucous patches. It is not auto-inoculable when simple or when due to an infecting chancre. It is auto-inoculable when owing to a non-infecting chancre, called chaneroid by Clerc.

John Hunter was at the head of the identists, and Benjamin Bell ably and eloquently pleaded the cause of the non-identists. Hunter declared that “gonorrhœal” virus was capable of producing chancre and chanerous virus of producing “gonorrhœa.” The great master endeavored to settle this question in the month of May, 1767, by making an inoculation upon the prepuce and another upon the glans penis with pus taken from the urethra of a patient whom he believed to be affected with “gonorrhœa.” There resulted two chancres which were followed by constitutional syphilis. He therefore concluded that the two diseases proceeded from the same virus. A detailed account of this event with its ultimate result is given by Hunter in his treatise on *The Venereal Disease*, London, 1788, pp. 324–327. It now seems fair to assume that the urethral pus used in this experiment was the product of a syphilitic sore of the urethra.

Benjamin Bell took a diametrically opposite view of the subject, and, to overthrow the doctrine espoused by Hunter, made an elaborate and strong argument, abundantly illustrated by cases, in which his final conclusion was, that the pus of chancre could never produce “gonorrhœa” and that the pus of “gonorrhœa” could never produce chancre. This argument, contained in the first chapter of Bell’s work on *Gonorrhœa virulenta and lues venerea*, 1793, entitled the consideration of the question whether “gonorrhœa” and lues venerea originate from the same contagion, is well worthy of careful perusal by those who may wish to investigate the question.

Both eminent observers had their adherents, who warmly and ably argued the question which, many years after the death of the two contestants, continued to be discussed. It was finally settled by the concurrent labors of three earnest workers in this field of medicine—namely, Ricord, Bassereau, and Cullerier—but they shall now speak for themselves through the last named, who expresses their ideas substantially as follows: Ricord, who has made inoculations of venereal matter on the largest scale, has come to the conclusion that simple urethritis is never inoculable, that is to say, produces no specific sore, but that when a specific sore results from inoculation with urethral pus it is because there exists in the urethra a chancre which had escaped detection. But these observations, which at first sight seemed to throw such great light upon the question, have lost much of their value since the publication of the work of Bassereau, before which Ricord believed that chancre and syphilis were the same thing. From an exhaustive and conscientious clinical study of the subject, Bassereau was forced to conclude that all chancres were not of the same nature; that whenever there were syphilitic symptoms, these had been preceded by an indurated chancre; that the indurated chancre has always originated from another indurated chancre; and that a soft chancre has always been due to another soft chancre and never caused syphilis. Cullerier at first combated these ideas, as he had, though rarely, seen constitutional symptoms follow soft chancres; and it was not until the year 1857 that Ricord accepted the doctrine of Bassereau. In endeavoring to establish the differential characters of the two chancres, Ricord offered the following proposition: the soft chancre is inoculable for an indefinite period, while the indurated chancre can scarcely ever be inoculated—on the infected individual of course. This is a direct contradiction of his original proposition, which was to the effect that what distinguishes virulent urethritis, urethral chancre, from simple urethritis is that the former is inoculable, and that whenever the inoculation is negative in urethritis there is no syphilis. On the other hand, Ricord maintains that the indurated chancre alone gives syphilis and is rarely, if ever, auto-inoculable, and that the soft chancre has the property of being inoculated upon the sufferer. Therefore, says Cullerier, whenever an inoculation is made with the pus of urethritis, if this inoculation be successful, it is to be concluded that there exists in the urethra a soft chancre and that there will not follow any constitutional symptoms. If the inoculation is negative, this will afford no proof whatever that there will not follow constitutional symptoms, inasmuch as the indurated chancre rapidly loses its property of being inoculated.

From these statements of the case it is plain that what has been said of the value of inoculation to serve in distinguishing the two species of urethritis should be blotted out, or at least should be given another signification, for it is evident that the most inoculable is the least dangerous. The evidence furnished by inoculation is therefore not to be absolutely depended upon in the distinguishing of simple, chanerous, and chaneroid urethritis. The more rational and tenable position in regard to the nature of urethritis, so far as it is related to chancre and chaneroid—and this position

is based upon a careful analysis of the propositions of both the identists and non-identists and upon clinical observation—is that urethritis may be simple, or contagious, or it may be the consequence of a non-infecting, or of an infecting chancre, either of which being accidentally situated in the urethra, and acting, so far as the urethra is concerned, as a local irritant. The primary lesion of syphilis *per se* possesses no inherent property which, other than as a local irritant, may cause urethritis, the two diseases being entirely distinct. The same may be said of the third disease, the non-infecting chancre. From what precedes it may be concluded that a man can contract urethritis from a woman who has a chancre, chancroids, or mucous patches of the genitals. Many experienced and sound observers have encountered cases of urethritis so contracted, and the patients have not had the slightest indication of chancre or chancroids. Cullerier thus explains the phenomenon: In the primitive ulcer there are two things—a phlegmasiac product and something special; therefore the individual may take that only which is simply phlegmasiac and escape syphilitic or chancroidal infection, the pus acting only as an irritant. He quotes, from Benjamin Bell's work, the case of a medical student who placed some chancrous pus between the glans penis and prepuce, and this caused a simple balanoposthitis, while others, after introducing chancrous pus into the urethra, had only non-virulent urethritis.

It has happened that, from the same woman, a man has contracted a chancre on the glans penis, and nothing else, and that another man, almost immediately after, has only caught a simple urethritis. It has also happened that a man has contracted, from one woman, a "gonorrhœa," an infecting chancre, and non-infecting chancres; the woman being affected with all three diseases.

It may now be said that the proposition, contained in the answer to the question respecting the nature of urethritis, is sustained and may be summed up as follows: Urethritis may be non-contagious, it may be contagious and non-infecting, or it may be due to the presence in the urethra of an infecting or of a non-infecting chancre, and the same patient may contract a non-infecting urethritis simultaneously with a chancre or a chancroid in the urethra. This may have happened in the case cited by Hunter to prove the identity of the two diseases.

CAUSES.—Urethritis is said to be infecting when due to the presence of an infecting chancre or of a mucous patch in the urethra. It is non-infecting when owing to a urethral chancroid. It is named virulent when it arises from a contagium capable of reproducing itself indefinitely under proper conditions, as exemplified in the cases of urethritis commonly designated "gonorrhœa," contracted from virulent vulvitis or vaginitis, or by mediate contagion. It is called simple when non-contagious, whether originating from sexual commerce or from local irritants.

*Infecting urethritis is followed by distinct manifestations of syphilitic infection* in the course of from six weeks to three months. The physicians who judge from observation of the effect of chancre at the urinary meatus deny that urethritis is produced by urethral chancre, for in such cases

there is little if any tendency to the backward extension of the phlegmasiac action, which is commonly of short duration, and the mucous membrane of the urethra behind the sore remains intact. That a chancre seated within the urethra does produce urethritis was exemplified by John Hunter's well-known experiment. The urethritis caused by a urethral chancre, besides generally being slight and of short duration, is accompanied by little or no pain during urination. A case of urethritis which gets well, without treatment, in a week or in two weeks, needs to be viewed with suspicion and to be kept under close observation for at least three months.

The following is given in illustration of the clinical history of a case of infecting urethritis: The patient, finding it necessary to invoke medical assistance owing to certain symptoms which had caused him some anxiety, gave a part of this account of his complaint. Three months before he had contracted for the first time what he supposed to be an ordinary urethritis which gave him very little inconvenience and was well in a week. He had never had any other venereal disease. There was no visible sore or scar upon any part of his sexual organs. In the course of six weeks after the cessation of the urethral discharge he had a well-marked roseola, which was observed by a medical officer of the navy, and in six weeks more—that is, three months after the disappearance of the urethritis, when he applied for treatment—he was suffering from mucous patches in the fauces, and showed other unmistakable symptoms of syphilis. When this supposed simple urethritis began he was at sea (had sailed from New York several days before), and for the next eighty days was on board a man-of-war and in no way exposed to the contagion of syphilis. Assuming the veracity of the patient's story, it is fair to conclude that his urethritis was caused by an intra-urethral chancre.

*Urethritis due to mucous patches in the urethra*, though of rare occurrence, has been repeatedly verified by careful observers. It is characterized by a discharge which is at times sanious and which continues as long as the mucous patches exist. During urination there is some scalding pain. A patient who has never contracted urethritis, but after impure sexual commerce becomes infected with syphilis and, several months after the initial lesion, is affected with mucous patches in the fauces and a purulent sanious urethral discharge, may fairly be regarded as suffering from urethritis due to the existence of urethral mucous patches, provided that, in the mean time, he had abstained from sexual commerce.

*Non-infecting urethritis due to urethral chancroids* is not followed by lesions such as those which characterize the infecting, syphilitic variety, but it has its own special virus which acts locally and possesses the property of reproducing itself indefinitely in proper soils. The same observers who deny that urethral chancre produces urethritis also assert that chancroids do not give rise to this phlegmasia, and probably for the same alleged reason. That chancroids of the urethra do cause urethritis is a fact which few physicians now dispute. These chancroidal ulcers are prolific sources of cicatricial strictures in the fossa navicularis and even in the phallic region of the urethra. Chancroidal ure-

thrititis continues until the ulcer is healed and sometimes long after the healing process. The discharge is often profuse and sanious. When a doubt arises as to its nature, the question is decided by inoculating with it the patient.

By *virulent urethritis, improperly styled "gonorrhœa,"* is meant the urethritis resulting from sexual contact with a person suffering from a species of vaginitis or vulvitis characterized by a purulent discharge capable of reproducing itself, even when applied artificially to any of the mucous membranes that are susceptible to venereal phlegmasia.

*The mucous membranes which are most susceptible to venereal phlegmasia* are those of the glans penis, the prepuce, the urethra, the prostatic utricle, the urethral crypts, the anus, the mouth, and the conjunctiva.

*The mucous membranes which are refractory to venereal phlegmasia* are those of the ducts of the bulbo-urethral glands, the prostatic ducts, the ejaculatory ducts, the seminal vesicles, the spermatic canals, the bladder, the rectum, the nose, and the lacrymal canals.

Bonnières, who has compared the histological characters of these two groups of mucous membranes, describes the first as being supplied with papillæ and covered with pavement epithelium, with an underlying network of lymphatic capillaries whose parietes are constituted by epithelial cells, while the second group is covered by cylindrical epithelium with an underlying network of red blood-capillaries instead of lymphatics, and concludes that the venereal phlegmasia acts primarily upon the lymphatic capillaries and the epithelium, and that the phlegmasia of the neighboring tissues is only secondary thereto. In the prostatic region, for instance, there is a close subepithelial network of lymphatic capillaries which anastomose with the lymphatic capillaries of the spongy portion of the urethral mucous membrane and terminate abruptly at the urethro-vesical orifice, the bladder mucous membrane being entirely destitute of lymphatics; hence it is that the bladder is refractory to phlegmasia such as might otherwise be propagated through the urethra (Perrin).

THE NATURE OF THE CONTAGIUM OF URETHRITIS.—It has been asked what evidence is offered in support of the assertion that there is such an affection as a *sui-generis* virulent contagious urethritis? Many writers have endeavored to answer this question; among them, Dr. Thiry, of Brussels, and Mr. Hutchinson, of London.

Dr. Thiry enumerates three kinds of urethritis—the first, simple; the second, syphilitic; and the third, having a virus of its own which he calls the granulous virus, and which, he says, is the distinctive character of true contagious urethritis whose morbid elements are granulations. But granulations exist in the vagina and cervix uteri in many women who seldom give urethritis to men who are accustomed to lie with them or, to use Ricord's expression, whose genital organs are acclimated. This fact is undeniable, and overthrows Dr. Thiry's doctrine. If Dr. Thiry's views were correct, urethritis should be the rule and not the exception in these cases.

According to Mr. Hutchinson, the contact of dead pus, whose corpuscles are in an advanced state of fatty degenera-

tion, such as that from an abscess, causes but little irritation, while living pus, recently formed, is contagious and likely to cause phlegmasia when in contact with tissues similar in structure to those whence it originated. But this also fails to establish the character of the contagium said to be peculiar to non-infecting contagious urethritis. In accordance with the light thrown, of late years, upon phlegmasic processes, pus consists of dead leucocytes that have failed to destroy the morbid materials they have attacked; therefore there are no living pus-corpuscles. Pus is a dead substance to be ejected or encysted and rendered innocuous until transformed. That urethritis is often contagious is fully and frequently demonstrated clinically. A man affected with acute non-infecting virulent urethritis who deposits his urethral pus into the healthy vagina of a woman contaminates this vagina, and there follows vaginitis, and this same vaginitis causes urethritis in another man who exposes himself to the contagion. What, then, is the element of contagion, and where does it reside? Is it in the pus-cell, in the serum of the pus, or in the mucus contained in the morbid discharge? These questions have not yet been satisfactorily answered, although several theories have been advanced respecting the nature of the contagium, the latest being the microbial.

Among those who regard the contagium of urethritis as microbial is Dr. F. P. Jousseume, who, in his inaugural thesis on the vegetable parasites of man, Paris, 1862, describes an alga of urethritis, to which he gives the name of genitalia, and whose habitat, he says, is subepithelial. He believes urethritis, as well as vaginitis, to be caused by the presence of this parasite. This is here recorded only as a part of the history of the doctrines relating to the contagium of urethritis.

Many of the modern patho-histologists assert that in the discharge of simple urethritis no micro-organisms are present, while in non-infecting virulent urethritis, "gonorrhœa," the pus-cells contain a specific diplococcus, named "gonococcus," and discovered in the year 1879 by Neisser. It is further asserted that whenever this contaminated pus is conveyed to the urethra there follows a urethritis with the reproduction of the "gonococcus" in the pus-cells of the new urethritis.

Since the announcement of Neisser's discovery several other organisms have been detected in the pus of virulent urethritis. In some cases of virulent urethritis no "gonococci" have been found, while in many cases of non-virulent urethritis "gonococci" abound.

Diplococci undifferentiated morphically from "gonococci" have been seen repeatedly in pus from different parts of the body and in abscesses distant from the genital and urinary organs of patients in whom there were no traces of venereal disease.

It has been suggested that the contagium resides in the mucus of the urethral discharge, with the implication that this contagium may be a toxalbumin destructive to the epithelium. But whence this particular toxalbumin which selects the genitalia with such nefarious intent?

Since several different micro-organisms have been found in the pus of urethritis, may not any or all of these organ-

isms be capable of acting as irritants, and give rise to super-secretion of mucus, to blood stasis, plastic exudation, the emigration of leucocytes, and exfoliation of epithelium; some irritant being essential to the development of phlegmasia? Or is the irritant of urethritis likely to be a virulent ptomaine? This is certainly not impossible, since urethritis has been experimentally induced by the injection of dilute liquor ammoniæ.

Nothing so far discovered has sufficed to explain the nature of the contagium of that variety of urethritis mis-called "gonorrhœa."

By *mediate contagion* of urethritis is meant the transmission of the disease without coitus, but by contact with objects impregnated with the urethral or vaginal discharge of a diseased individual. The question of mediate contagion is of great consequence. Much ridicule has been cast upon it, and honest and veracious patients have often been discredited when they have declared that their urethral discharge was not the result of sexual commerce. Nevertheless, the possibility of contracting contagious urethritis mediately—that is to say, without sexual approach—is a fact which has been attested by excellent observers for a century past, and which was recognized even in the time of Moses, as indicated in Leviticus, chapter xv, verses 2, 3, and 4: "The man that hath an issue of seed shall be unclean . . . when a filthy humor, at every moment, cleaveth to his flesh and gathereth there. Every bed on which he sleepeth shall be unclean, and every place on which he sitteth." That patients contract purulent ophthalmia by using towels soiled by a person affected with contagious urethritis or vaginitis, or by the affected individual himself carrying a soiled hand to his eye, is of constant occurrence. What, then, is to prevent contagion if this pus be applied to the orifice of the urethra instead of the eye? That in these days patients do contract urethritis in unclean places without sexual contact is not a very uncommon occurrence, and that a healthy man sleeping in the same bed with a man suffering from contagious urethritis is liable to contract the disease is also a very reasonable assertion, as it is only necessary for an almost infinitesimal quantity of infected pus to make its way to the urethra to insure contagion, and contact with freshly soiled bed-linen during sleep is not unlikely. Nurses affected with contagious vaginitis or vulvitis have communicated purulent ophthalmia to infants in their charge entirely through soiled hands, and in the same way have given urethritis to children. Contagious urethritis engenders contagious vaginitis and *vice versa*. Such are among the ways in which the disease is propagated and perpetuated.

By *simple urethritis* is meant a phlegmasia which has no specific virus and is not contagious, but which arises from the action of mechanical or chemical irritants to the urethral mucous membrane, from sexual excesses, from masturbation, etc. It is characterized by symptoms similar to those of virulent urethritis. It has the peculiarity that the phlegmasic process often begins in the prostatic, membranous, or perineal region of the urethra, and gradually extends forward, and finally invades the whole canal, but it also frequently begins in the fossa navicularis, extends backward,

and is attended with nearly all the complications and sequels of the contagious form. In some cases there is much febrile reaction, and the discharge is very profuse; in other cases the urethritis is superacute, while in the majority it is subacute.

*Gouty patients are sometimes affected with a purulent urethral discharge*, which is often attended with scalding sensation during urination. This discharge usually disappears on the cessation of the gouty symptoms. In certain cases, however, the discharge lasts many weeks. Urethritis is frequently one of the first manifestations of an attack of gout, and thus shows itself each time the patient is newly attacked with "the gout." This occurs so commonly in some cases that the patients are able, two days before, to announce the advent of a gouty seizure, and they base their prediction upon the ardor urinæ, which they had noticed as so regularly preceding former attacks. The urine of these sufferers is loaded with uric-acid sand, and the ardor urinæ is caused by minute punctures inflicted upon the urethral mucous membrane in its whole extent by the sharp points of the uric-acid crystals. The mucous membrane thus wounded yields more or less blood, which passes away with the urine, and there soon follows a flow of pus which does not cease until the urine is free from crystalline matter. It sometimes happens that a number of uric-acid crystals are cemented together and form concretions of various sizes, from one to six millimetres in mean diameter, which, when carried along in the stream of urine, have been known to block up the urethra, cause retention of urine, and phlegmasia, and even ulceration of the urethral mucous membrane. Several such concretions have been found lodged behind urethral strictures, causing retention of urine, besides a copious purulent collection.

*Stone in the bladder, particularly the phosphatic, is sometimes an indirect cause of urethritis.* The ammoniacal urine, loaded, in such a case, with prismatic crystals, being extremely irritating to the urethral mucous membrane, at length causes a urethritis which, though subacute, is attended with inordinate sensitiveness of the canal.

*Urethritis is known to arise from the ingestion of substances which, being eliminated by the kidneys, render the urine acrid and irritating.* For example, the free and continuous use of asparagus as an article of food is not an uncommon cause of urethral phlegmasia. There are many persons who can not make use of this succulent delicacy for two or three consecutive days without being inconvenienced by a very considerable smarting sensation in the urethra during urination, and even by a purulent urethral discharge. Soon after eating asparagus, their urine emits a characteristic strong odor, and often contains innumerable crystals of oxalate of calcium, and this continues so long as they persist in indulging their desire for this luxury.

Among the many who have complained of the ill effects of asparagus is a young man who, during three consecutive summers, was annoyed by profuse urethral suppuration with much scalding in urination. On each occasion he believed himself affected with contagious urethritis, from which, however, he had never suffered, but during these periods he had been indulging very freely in asparagus. He was ad-

vised to abstain from this his favorite dish, and the discharge always ceased soon after his compliance with the advice.

*New ale, beer, cider, and other fermented liquors, even when used in moderation, are known to excite urethritis.* These beverages exert an evil influence upon the imperfect digestion of elderly men, and their use should be forbidden. The abuse of all alcoholic stimulants is a potent factor in the production of urethritis.

*Free doses of cantharides given ignorantly or with malicious intent* have led to the gravest consequences besides a free flow of pus from the urethra. Large Spanish-fly blisters applied to the trunk or extremities have been followed by the same ill effects.

*Urethritis may be due to any obstruction which favors stagnation and fermentation of urine in the bladder.* Those patients who have long suffered from obstructed urination caused by urethral stricture or prostatic enlargement, and, in consequence thereof, have been obliged to urinate with undue frequency, nearly all suffer from urethritis as a result of the great irritation produced by putrid, ammoniacal urine.

*Urethral phlegmasia is sometimes the outcome of frequent or of violent catheterism.* Sufferers from enlargement of the prostate, who are obliged to use the catheter four or five times daily to relieve their bladders, are, in the beginning, much inconvenienced by urethritis. In some cases the first catheterism excites an acute urethritis which renders subsequent catheterisms painful, but as it would be unwise to suspend the use of the instrument, measures are taken to mitigate the phlegmasia and relieve the pain, and they are ordinarily successful. Many cases could be cited where the first catheterism caused acute urethritis which, in a few days, yielded to rest and mild local treatment, and did not recur after the urethra had become habituated to the passage of the catheter. There are, however, many cases in which the urethral discharge becomes chronic and is maintained solely by the irritation to which the catheter gives rise, notwithstanding the most careful antiseptic precautions. In other cases, and unfortunately they are not few, the patients, from an unwise sense of economy, allow themselves to use worn-out, defective, or improperly constructed catheters, which seldom fail to cause local mischief. Others again, from carelessness or ignorance, use more or less violence, or catheterize themselves with undue frequency, and urethral phlegmasia, if not a more serious injury, is the almost invariable result.

When the external orifice of the urethra happens to be narrower than natural, and the patient is in the habit of catheterizing himself frequently and clumsily, there sometimes follows a phlegmasia of the extremity of the penis, with more or less induration, which renders the use of the instrument difficult and distressing. In a patient so affected, the induration had involved such a considerable portion of the glans penis that it was at first suspected to be of a malignant nature; but, after the more careful use of a smaller catheter and the local application of acetate of lead solution, the induration subsided, and the meatus was incised, so as to allow the easy passage of ordinary-sized catheters.

Exploring catheterism, even with a sterilized instrument, may cause urethritis. The following is a fair illustration of this point: A., sixty-five years of age, who applied for treatment on account of an attack of acute urethritis, with copious purulent discharge, and was not as frank and outspoken as a patient should be with his medical adviser, betrayed so much anxiety as to the probable cause of his ailment and asked questions of such character as to lead his hearer to the surmise that he might have exposed himself to contagion. However, after the summing up of a considerable amount of cross-questioning, this did not seem likely. At length it was incidentally learned that he had been catheterized, with due precaution, a few days before, with a view of discovering the cause of obstruction to urination, of which he had been complaining. The instrument did not penetrate the urethral canal more than two inches, and in two days the discharge of pus had begun. A cautious exploration revealed a very narrow stricture in the phallic region of the urethra, and the conclusion arrived at was that, if the patient had illicitly indulged his sexual desire, he surely had not contracted virulent urethritis, but that the acute phlegmasia was the result of the catheterism perhaps violently practiced upon an already diseased and sensitive urethra. The discharge ceased a few days after the urethra was properly enlarged.

*Foreign bodies of various kinds introduced from without into the urethra and retained for a certain length of time give rise to urethritis.* Among these foreign bodies may be mentioned broken ends of catheters or bougies, fragments of wood or straw, pudendal hairs, and many other objects. Several cases of urethritis caused by the accidental passage of pudendal hairs into the urethra have been observed, the purulent discharge ceasing soon after the removal of these foreign bodies from the fossa navicularis urethrae.

A catheter retained a few days in the urethra excites phlegmasia of the mucous membrane, and has been known to cause ulceration at certain points, such as the navicular fossa, the peno-scrotal junction, and the bulbo-membranous region, particularly in those cases of urethral stenosis treated by continuous dilatation where the instrument is sometimes unwisely retained a week or two weeks.

*Sexual excess appears to be the most common cause of urethral phlegmasia.* Fournier expresses the opinion that by excessive sexual indulgence men give themselves urethritis oftener than they receive it. He further asserts that seventy-five per cent. of all cases of urethritis are non-contagious. The majority of women from whom urethritis is supposed to have been contracted had not vaginitis or, at least, had not contagious vaginitis or vulvitis. The urethritis so developed is, of course, simple, non-contagious. There are women whose vulvar and vaginal secretions are so acrid as to give urethritis to all those that have sexual commerce with them. A case often quoted in illustration of this point is that of a noted and very attractive courtesan, whose genital organs were in a perfectly healthy state, but who, nevertheless, gave urethritis to all the men who won her favor.

*The occurrence of urethritis from sexual contact during immediately before, or too soon after, the menstrual flow, or*

during the early period of loehial discharges, has been very frequently verified, and such urethritis, although ordinarily mild, is often as obstinate as it is severe, and is sometimes followed by many of the evils of virulent urethritis, but it is never contagious.

*Urethritis is often caused by sexual contact with persons suffering from leucorrhœa, or from uterine cancer, or tuberculosis.* Excessive sexual indulgence with a woman affected with leucorrhœa is likely to cause urethritis in the man, who, when he discovers his infirmity, is too apt to accuse of infidelity his partner in the sexual debauch. This has frequently happened in the case of the newly married and has led to connubial infelicity, to much misery, to ill treatment of the innocent wife, to divorce, and to utter ruin. Other sad consequences, particularly to an oversensitive man who may have been suffering from an old gleet, are self-accusation, despondency, and perhaps even suicide, under the erroneous impression that he had infected his wife with a "disease of which he was not properly cured." It is almost needless to say that chronic urethritis is not contagious.

The following case illustrates another point of medical and legal interest. A medical man who had been under treatment for faucial diphtheria went away alone for a few months, and shortly after his return called to say that he had urethritis, from which he had never before suffered. In two weeks he was well without having had recourse to the ordinary internal treatment. The urethra was daily irrigated with mild astringent solutions, and a glass of Vichy water was taken thrice daily. It was ascertained that his wife had, at the time and long before, been suffering from leucorrhœa, and that such was the cause of the urethritis which had attacked the husband. In a year after this the wife went on a visit to her relatives in the country. On her return in three months her husband became affected with urethritis, and again on a third similar occasion. This last did not so rapidly yield to treatment, though it was milder than the first two attacks. The wife had so far refused to submit to treatment; at length, consenting, she was relieved of her local affection, and her husband never again contracted urethritis even after an absence of several months. A point of much interest in the case is that after recovery from each of the attacks of urethritis the patient had no trouble until the first sexual approach several months after a forced separation from his wife. The case corroborates the assertion of Ricord in regard to what he terms "acclimation" of the genitals.

That some men are less susceptible to urethritis than others is a fact which careful observers have repeatedly verified. Of two men, of the same age and of equally sound body, indulging themselves sexually, within two or three hours, with the same woman, untouched meanwhile by others, one has escaped unharmed while the other has contracted urethritis. In some instances it happens that the first becomes diseased; in other cases it is the second that becomes affected.

Men contract urethritis from women suffering from malignant or from tubercular ulceration of the cervix uteri. That women affected with ulcerated uterine epitheliomata, emitting acrid discharges, give urethritis to their husbands,

is a fact which bears the attestation of physicians of extensive experience. The discharge from tubercular ulceration of the uterus is not only capable of causing urethritis, but of producing tuberculosis of the urethra. Some cases of tuberculosis of the male genital organs have been traced to this cause.

*Masturbation as a cause of urethritis* requires more than a passing notice. Those addicted to the vice of masturbation are, in consequence, attacked with urethritis with greater frequency than is generally supposed. This urethritis usually has the characters of chronicity from the outset, and the discharge is so slight that it at first escapes observation, or otherwise it is thought to be of little consequence by the patient, the sensitiveness of whose urethra has perhaps been blunted by long-continued abuse; hence the many cases of stricture, the origin of which is not satisfactorily traced, except by those physicians whose attention has been fixed upon such cases and who have been able to extract the truth from patients regarding early habits of masturbation. The common story of these patients is that they had noticed a constant urethral discharge which they had regarded as diurnal emissions of semen. In rare cases this urethritis becomes acute and even superacute.

*Almost any sort of mechanical irritation of the urethra is likely to lead to phlegmasic action.* Infant boys sometimes suffer much from urethritis by being fingered by vicious nurses desiring to gratify their own depraved instincts, or, as they often pretend, "to prevent the child from crying." Young boys are not infrequently attacked with urethritis during dental evolution, or during affections which lead to errors in nutrition, the consequent hyperlithuria being the chief factor in the causation of the urethritis.

*Urethritis occurring in elderly men* is often a source of much anxiety and suffering. A question often asked is, To what extent are elderly men liable to urethral phlegmasia, and does this differ from the urethritis of youth; if so, in what particulars? This question may thus be answered: While urethritis is generally simple, non-contagious, among elderly men, and is less frequent than among young and middle-aged men, it can not be regarded as an infrequent affection in advanced life. For instance, it occurs to a greater or less extent in a very considerable proportion of cases of enlargement of the prostate, and of gravel and stone in the bladder. It is not denied that elderly men are sometimes affected with contagious urethritis, for some among them are so unwise as to expose themselves to contagion, but happily they are comparatively few, and those who commit sexual excesses are not many. Urethritis is generally not so violent in elderly men as in youth or middle life. Only very exceptionally is it severe in the acute type, and it is very rarely superacute. Most frequently it is subacute and soon passes into the chronic state. It is characterized by less pain, less ardor, less dysuresis, and generally less purulent discharge than in youth, but it is more persistent and less amenable to treatment. In youth, in the great majority of cases, urethritis begins in the anterior extremity of the urethra, while in advanced life it very often begins at the posterior extremity or at once invades the whole canal.

**DIAGNOSIS.**—For diagnostic, prognostic, and therapeutic purposes it is essential to bear in mind the following points: Contagious non-infecting urethritis, "gonorrhœa," and simple non-contagious urethritis may be benign, subacute, acute, or superacute, and may be primitive, in cases where the urethra was never before diseased, or secondary in cases where the urethra had been the seat of phlegmasia at some more or less remote time. Primitive contagious urethritis is said to incubate from four to seven or even fourteen days, while primitive simple urethritis has a very short period of incubation, and sometimes declares itself a few hours after the action of the irritant which has been its cause. Secondary urethritis, whether contagious or non-contagious, has also a very short period of incubation. Urethritis ordinarily begins in the balanic region and gradually extends backward, sometimes even to the vesical orifice.

The adjective *benign*, applied by some authors to urethritis, is intended to signify a type characterized by mild symptoms, such as a little ardor in urination, an itching sensation in the fossa navicularis, and a slight mucous discharge, all of which disappear in a few days. Though benign urethritis may thus rapidly resolve, it is frequently in reality the first stage, the close of the period of incubation of the other types. That is to say, what for three or four days may appear to be a simple benign urethritis may become a subacute, an acute, or a superacute urethritis, or the discharge may become slightly purulent and persist as a chronic urethritis.

*Subacute urethritis* is characterized by a free muco-purulent discharge with but little redness of the urinary meatus and slight scalding sensation in urination. Its periods of increase, stasis, and decline are sometimes all ill defined or scarcely perceptible. Resolution occurs in from four to five weeks, or the discharge lessens, but persists and becomes chronic.

*Acute urethritis*, as before stated, begins as benign urethritis, which is its first stage, lasting three or four days. After this the discharge becomes purulent and soon thickens into a creamy state, yellowish at first and later greenish from an admixture of blood; the phlegmasic action daily augmenting until about the tenth day, when it reaches its maximum of intensity. During this time there is much scalding in urination, the lips of the meatus are red and pouting, and nocturnal erections of the penis are frequent and painful. This is the second or stage of increase, which has been termed the acute stage of acute urethritis, the adjective acute having already been used to qualify the type of a phlegmasia. The acute type, for instance, has its stages of incubation, of increase, of stasis, and of decline. Then comes the third stage or static period, during which the phlegmasic process neither increases nor diminishes. This period may be short, lasting one or two days, or may last from seven to ten days. It is followed by the fourth or stage of decline, which is the beginning of resolution. The discharge is then thin and pale, ceasing ordinarily between the fourth and sixth week. Among young and healthy subjects the first acute urethritis often resolves within three weeks. In some cases resolution is incomplete and the dis-

charge persists indefinitely. The phlegmasia is then said to have passed into the chronic state.

*Superacute urethritis* is characterized by a superabundant flow of pus mixed with blood, all the other phenomena of acute urethritis being greatly intensified. There is often the complication of balano-posthitis with much œdema of the prepuce; the whole penis is swollen and the larger lymph vessels thereof are inflamed. Nocturnal erections of the penis are almost uncontrollable, extremely painful, and attended by what is commonly called chordee, which is a curvation of the distended penis toward the perinæum. This curvation is caused by a superabundant plastic exudation in the meshes of the submucous tissue and corpus spongiosum. The corpora cavernosa are gorged with blood, but, the corpus spongiosum being blocked by the exudate, complete erection of the penis is impossible. Retention of urine is of frequent occurrence in this type of urethritis. Resolution is generally incomplete, and the exudate becomes imperfectly organized, undergoes sclerosis, and stricture ensues.

*Chronic urethritis* is characterized by a slight mucopurulent discharge, often to the extent of a few drops only each day, but this discharge is persistent, and increases in quantity after a debauch or after sexual excess. Chronic urethritis is consequent upon any of the types to which reference has been made, or begins with the essential characters of chronic phlegmasia. Men suffering from chronic urethritis are much more liable to contract acute urethritis than those whose urethrae are sound.

*The site of the urethritis due to chancre*, mucous patches, or chancroids is the fossa navicularis, but in rare instances it has been discovered in the phallic and even in the perineal region of the urethra.

*Contagious non-infecting urethritis* begins in the fossa navicularis, and there remains stationary ordinarily for several days; then, if it do not speedily resolve, gradually extends itself as far as the sinus of the bulb, there to linger and become chronic, or on the third or even the fourth week may reach the urethro-vesical orifice, without, however, passing this limit—a fact which seems to justify the assertion that acute urethritis is a spreading angeioleucitis, terminating, as it does, abruptly at the neck of the bladder, beyond which no lymphatics have been discovered.

*Simple non-contagious urethritis*, like the contagious, often begins in the fossa navicularis and gradually extends backward, as was so well illustrated by Swedian's experiment. He injected into his own urethra some diluted liquor ammoniæ, and soon thereafter experienced the most excruciating pain, followed by an acute urethritis which behaved very much like acute contagious urethritis and lasted six weeks, beginning in the fossa navicularis and ending at the urethro-vesical orifice.

*As there are many exciting causes, so there are many varieties in the phenomena of urethritis.* The phlegmasia may be mild and transitory, or it may be mild and persistent. It may be violent and transitory, or it may be violent and persistent.

It may begin and end in the balanic and phallic regions,

or in the prostatic and perineal regions, or may invade the whole canal.

Its course may be benign or subacute for ten days or two weeks, and suddenly it may assume the characters of the acute or of the superacute type. As a general rule, this sudden change is provoked by some irregularity, such as a debauch, coition, etc., but sometimes the cause is not apparent.

The discharge throughout an attack of acute urethritis may be purulent and creamy, muco-purulent and glairy, thin and serous, or sanious.

An acute urethritis, at the expiration of four or five weeks, may seem to be cured, and in a week there may be a relapse, all the phlegmasiac phenomena returning. It may then again yield to treatment, and in a week or ten days after the cessation of the discharge a second recrudescence may occur, and this second may be followed by a third relapse. Thus, the phlegmasia may continue several months. In a case observed long ago it lasted one year. The patient, a medical man, from that time suffered with cystitis, of which he was not well fifteen years afterward.

(To be continued.)

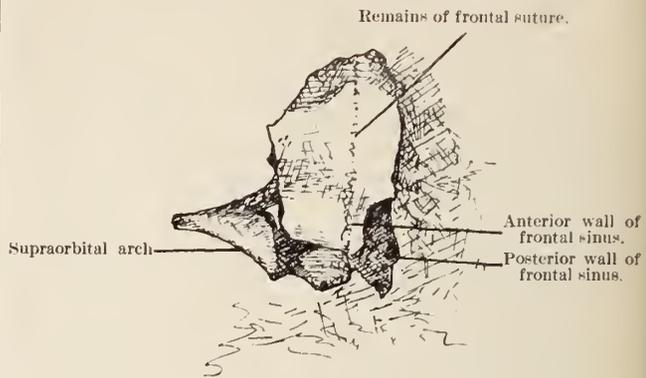
## A CASE OF COMPOUND DEPRESSED FRACTURE OF THE SKULL,

WITH VERY EXTENSIVE LACERATION OF THE BRAIN  
AND HÆMORRHAGE FROM THE SUPERIOR LONGITUDINAL SINUS.

By WALTER BENSEL, M. D.

L. L., aged thirty-eight years. Early in the evening of September 28th, while engaged in a bar-room brawl, patient was struck in the forehead with a heavy beer glass. He lost consciousness for a few moments only, and then recovered sufficiently to walk, unaided, to a police station, and was thence transferred to Bellevue Hospital in an ambulance. On admission to the hospital he seemed to be perfectly conscious, but was very nervous and irritable. His pulse was slow and full, pupils dilated, skin warm and dry, and respiration normal. Bleeding from the nose was slight, but there was such an extensive subconjunctival hæmorrhage on each side that the patient could only with difficulty close the eyelids. A wound about two inches long extended transversely across the middle of the forehead immediately above the supraorbital ridges. At the bottom of the wound could be made out a very extensive depressed fracture. The patient obstinately refused his consent to any operation until the next evening, when the subconjunctival hæmorrhage had become so great that it was impossible for him to close his eyelids over the protruding eyeballs. This caused him such pain and distress that he consented to an operation in the hope of being relieved. His temperature at this time was  $101.2^{\circ}$ , pulse was 78, but beginning to show the effect of the loss of blood from the epistaxis, which had continued steadily all day. As soon as possible after his consent had been obtained I operated, assisted by Dr. Gwathmey, Dr. Berkele, and Dr. Titterington. Anesthesia was obtained by chloroform. The skin in the neighborhood of the wound was thoroughly scrubbed with soap and water and then washed with alcohol, and finally with a solution of bichloride of mercury, 1 in 2,000. The hands of the operator and assistants were cleansed in the same way. The wound was then enlarged

and a careful examination of the fracture made. The depressed portion of bone, which is exceedingly well represented in the drawing (for which I am indebted to Mr. J. A. Bense),



Sketch showing actual size and shape of the depressed portion of bone which was removed.

was found to be almost completely detached from the surrounding bone and depressed for about half an inch, tearing the meninges very extensively. The removal of the detached bone was followed by a tremendous hæmorrhage from the superior longitudinal sinus. The hæmorrhage being too considerable to be controlled in the usual way by packing, I was obliged to think of some other expedient, and it then occurred to me to apply the principle of a lever. For this purpose I used the sliding catch of a Langenbeck artery clamp, which, it will be remembered, is a flat piece of steel about an inch and a half long, half an inch wide, and a sixteenth of an inch thick. One end of this catch I placed under the open end of the superior longitudinal sinus, *beneath* the edge of the opening in the skull; the middle of the catch rested *on* the edge of the opening, which formed the fulcrum of the lever; the other end of the catch, which projected out of the wound, I fastened firmly to the skin by two sutures. This controlled the hæmorrhage perfectly. On examining the frontal lobes of the brain, I found a laceration in the right, an inch and a half deep and half an inch wide, and one in the left nearly half an inch deep. I packed the wound very lightly with bichloride gauze (1 in 5,000) and dressed it with bichloride gauze (1 in 2,000), absorbent cotton, and bandages in the usual way.

At the end of forty-eight hours the dressings were removed. The metal catch had remained in place and checked the hæmorrhage completely. The bulging of the eyes was somewhat lessened, and there had been only slight epistaxis since the operation. The catch was carefully removed, and, no hæmorrhage following, the wound was packed lightly and dressed as before. From that time the patient made an uninterrupted recovery. The exophthalmos and pain in the eyes disappeared in a few days. There was no rise of temperature which amounted to anything during the whole convalescence.

SLOANE MATERNITY HOSPITAL.

**The Maximum Dose of Aconite.**—"It is reported in a recent case of accidental poisoning in Shoreditch that a woman died in four hours from the effects of a nine-minim dose of lin. aconite. This would equal about five grains of the root, or about one thirtieth of a grain of aconitine, which is said to have been the smallest quantity known to be fatal, the maximum dose of the tincture of aconite, B. P., being fifteen minims. Dr. Stevenson calls attention to the fact, and recommends that aconite should not be administered in full doses at less intervals than six hours. He has found that its local and constitutional effects do not disappear till after the lapse of from five to seven hours."—*British and Colonial Druggist.*

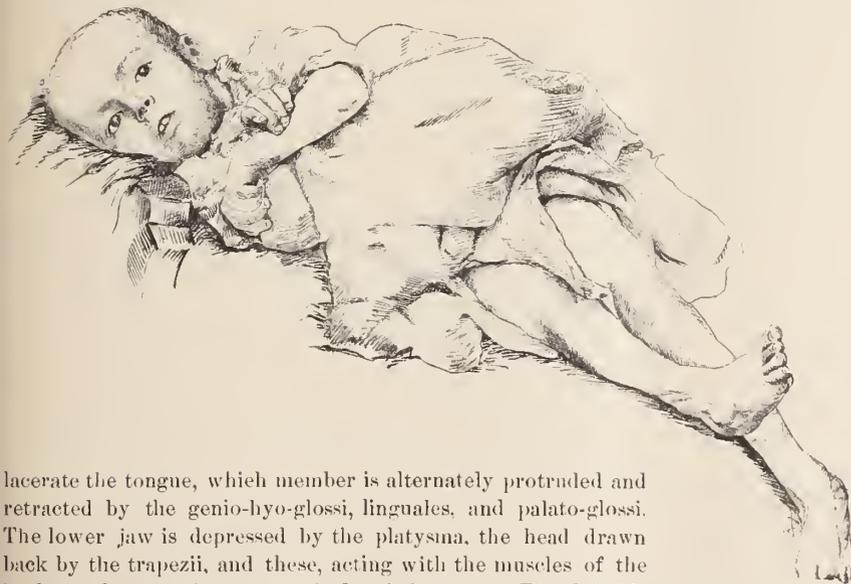
## A CASE OF GENERAL ATHETOSIS.

By HUGH HAGAN, M. D.,  
ATLANTA, GA.

Though authorities differ as to the correctness of designating athetosis a disease *per se*, yet we have sufficient authority so to do until it is otherwise decided. Taking advantage of this condition of affairs, I will, by your kind permission, ask space in your journal for the description of a case now under my care:

F. B. McL., aged four years, was of normal birth and healthy extraction. Up to nine months of age a healthy and well-formed boy. On Friday he was taken ill, and until the following Monday had continued convulsive attacks, marked by high temperature. The fever lasted five weeks, and during convalescence the mother noticed "the child moved constantly in all his joints." Further than this she could not describe his illness. She did not know the diagnosis, as the doctor only stated "the baby had fever." The child was brought to me over two years after the first illness, and having passed successively through the hands of numerous physicians, the most of whom pronounced it a chorea. I thought differently, and, after careful study during the past year, am still of the opinion that the condition is that of a general athetosis. After thorough trial of the bromides, iodides, arsenic, tonics, consisting of quinine, iron, cod-liver oil, cerebral and spinal galvanization, muscular faradization, the *status præsens* is as follows: The boy is in a state of constant motion. The movements are marked by that apparent volition and rhythm so different from the jerky, spasmodic character of the choreic. The eyes, though in a more or less constant state of movement, do not present the rapid vibratory character of a true nystagmus, but are more slowly and irregularly drawn up, down, in or out, as a result of the spasms of the external ocular muscles.

The masseters and temporals close the lower jaw so as to



lacerate the tongue, which member is alternately protruded and retracted by the genio-hyo-glossi, linguales, and palato-glossi. The lower jaw is depressed by the platysma, the head drawn back by the trapezii, and these, acting with the muscles of the back, produce at times a marked opisthotonos. The deltoids will bring the arms at right angles to the trunk. The triceps, biceps of both arms, the flexors, extensors, pronators, and supinators of the forearms, and the interossei and lumbricales of both hands, with their homologues in the thighs, legs, and feet, are at times in a state of extreme or partial contraction.

The laryngeal muscles are also affected, as the child has frequent "fits of holding his breath." The accompanying photo-

graphs give a very modified representation of his condition, as the photographer experienced great difficulty in obtaining even these. Further examination developed the following: After many attempts to examine the eyes, I am satisfied they are normal, especially the discs; further tests than the ophthalmoscope failed to give any evidence of faulty vision. The other special senses are normal.



The reflexes, both superficial and deep, though not as decided as in health, are quite marked, considering the marked muscular atrophy, or rather emaciation, which is due in a great measure to a lack of proper nutrition, as great difficulty is experienced in feeding him, his food being entirely fluid.

The electrical reactions are normal, the muscles responding to both the constant and faradaic currents. The lungs, heart, and abdominal viscera are normal and perform their functions. He had a phimosis which was remedied by circumcision. So great is the muscular inco-ordination that he can not sit or stand unassisted. He is totally ataxic aphasic, but, so far as his education will permit, I think not amnesic. Though not so accomplished as healthy children of his age, he is very intelligent. His cranium is of the brachycephalic type, with very prominent parietal bosses. The scalp is very tight, covered with a very scanty growth of hair, and the veins very prominent. The athetoid movements cease entirely during sleep, which is generally profound. When at rest the parts assume their normal physiological positions, no evidences of contraction or contracture being present.

Now, as to the cause of this condition I am at sea. Cerebral hemorrhage, embolism, abscess, or thrombosis, I think, we can exclude; but whether the boy's sickness was the prime or only the exciting cause I do not know. I am inclined to think, in spite of the pathological conditions generally enumerated—such as abscess or tubercle in the optic thalamus, the corpus striatum, the internal capsule, the cortex, or cerebral sclerosis or infantile cerebral hemi-

plegia—that the condition present is due either to a cerebellar tumor, in spite of the normal discs, or to meningeal adhesions over the motor cortical region, as I see no reason why these conditions could not produce the symptoms as well as those generally found. If the opportunity offers itself for a post-mortem I shall report the results.

211 PEACHTREE STREET.

## A CASE OF TRAUMATIC DEAFNESS.

### RECOVERY.

By W. H. BATES, M. D.

The chief interest of this case was in the recovery from symptoms of nerve deafness.

The patient, aged thirty-two, was the engineer of a construction train carrying a large quantity of dynamite. While traveling at a speed of about eight miles an hour the dynamite exploded. The effect of the explosion was tremendous. Besides wrecking the train, destroying the roadbed of the railroad, and killing many of the employees, houses two miles away had their windows broken, chimneys knocked down, etc. The accident occurred April 19, 1891. The patient was unconscious for a short time. He was able to arouse himself, however, and walk several miles to have his wounds dressed.

Sudden deafness with a bloody discharge from both ears occurred at the time of the accident. He also had a beating noise in both ears. He had a serous discharge from both ears the next day which continued and became slightly purulent. The quantity of discharge was never sufficient to run from the ears in a stream. He also had at times shooting pains through the head which were worse about five days after the accident. There was a scalp wound over the right ear four inches long.

May 28, 1891, began treatment. During the five weeks since the accident nothing had been done for his ears. The deafness had remained the same and the discharge had not decreased. The noise had increased somewhat. Both drum membranes were perforated, and the size of the perforations was about one half of the normal drum membrane. Both perforations were situated in the posterior inferior portion of the drum membrane; the lower end of the malleus handle was uncovered in each ear. The external auditory canals, which were large, were much excoriated. The discharge had a slight offensive odor. The hearing distance for the watch with the right ear was about one inch; for the left ear a little less. The tuning fork was heard better through the air than through the bone, and both aerial and bone conduction were better with the right ear than with the left ear. Aerial and bone conduction were diminished in both ears. Ordinary conversation was heard at about three feet.

After cleansing the middle ear, the deafness and tinnitus were not improved. Inflation improved the hearing for the watch about half an inch in both ears for a short time only; after a few minutes the hearing was the same as before inflation. The tests of the hearing with the tuning fork, together with the history of sudden deafness, seemed to indicate disease of the internal ear.

Treatment was first directed to healing the perforation of the drum membrane; later, such measures were employed as seemed to improve the hearing.

The patient was treated daily for about six weeks and then less frequently. He seemed still suffering from the effects of shock, although more than a month had passed after the accident. He was listless, easily tired, appetite poor, very drowsy all the time, with a dull feeling in his head. The drum mem-

branes showed no disposition to heal or the discharge from the ears to cease. His general condition resembled in some respects the constitutional weakness of diphtheria.

He began taking ten drops of tincture of iron in a goblet of water every half-hour through the day. The dose was increased rapidly and in a few days he was taking a teaspoonful of the strong tincture of iron every half-hour. The iron was well borne by the stomach. His appetite increased and became better than it had been before for years. His head became clearer and his general condition much improved. The drum membranes healed rapidly and the discharge from the ears stopped. These large doses of iron were taken for about a week.

With the improvement in his general condition the iron began to disagree, constipation being the first symptom. At the end of two weeks he could only take ten drops of iron three times daily. The patient also took laxatives when required. Laxatives seemed to lessen the tinnitus.

The local treatment of the drum membranes consisted in gentle syringing with hot water, and the instillation of peroxide of hydrogen into the external and middle ear.

Vaseline applied to the drum membranes seemed to act beneficially in the healing of the perforations and in stopping the discharge.

There was but little or no immediate improvement in the hearing or tinnitus from the use of local remedies in the middle ear; and after the discharge had stopped and the openings in the drum membranes had healed, the hearing was no better. The drum membranes were healed at the end of three weeks' treatment. Cotton worn in the external ears gave the patient great comfort in the presence of loud noises.

June 9, 1891.—The tuning fork was heard better through the bone than through the air. Both bone conduction and aerial conduction had increased, but the gain in bone conduction was much more than the gain in aerial conduction.

The hearing for the watch and conversation had not improved. Inflation produced more improvement in the hearing than at the beginning of treatment. Improvement temporary. Drum membranes still perforated. Discharge less. Tinnitus less.

The Eustachian tubes were open. Nares clear; some congestion. No discharge of mucus from the nose or throat.

Although there was very slight congestion of the nasopharynx, yet treatment to relieve this slight congestion produced very great improvement in the hearing and tinnitus. Cocaine in the nose lessened the noise and improved the hearing temporarily. The cocaine opened the nose more, and the drum membrane on the same side became at once less congested. This action of the cocaine was observed throughout the whole course of the treatment.

Nitrate of silver applied to the vault of the pharynx improved the hearing.

Politzeration during the early period of treatment, when there were symptoms of nerve deafness, produced very slight improvement in the hearing for a few minutes only. At times inflation had no effect.

Later, when the tuning fork was heard better by bone conduction than through the air, inflation produced more decided improvement in the hearing, and this improvement was more permanent. Occasionally inflation lowered the hearing temporarily, or produced no effect in one or both ears.

With increased aerial and bone conduction for the tuning fork, inflation produced the most marked and constant improvement. The hearing was improved more by inflation than by anything else.

June 20th.—The tuning fork was heard better through the air than through the bone. The watch was heard four inches

with either ear; inflation improved the hearing distance to twelve inches.

Several days ago the openings in the drum membranes had closed, the discharge had stopped, and the tinnitus had ceased.

Politzeration and treatment of the vault of the pharynx were continued until the hearing became normal.

August 15th.—Hearing normal for tuning fork, watch, and conversation.

December 1st.—Patient still has normal hearing.

#### Summary.

May 28th.—Symptoms of nerve deafness.

June 9th.—Symptoms of middle-ear deafness.

20th.—Symptoms during recovery from middle-ear deafness.

131 WEST FIFTY-SIXTH STREET.

**An Opportunity for a Medical Missionary.**—Two ladies, Mary and Margaret W. Leitch, who for seven years have been missionaries in Ceylon, have issued the following circular:

We are very desirous of finding a fully qualified physician to go as a medical missionary to Ceylon under the American Board. We would be truly grateful to you if you could direct us to any one who you think would be a suitable candidate. He should have had a good general and thorough medical education with some hospital or private practice. He should be a man of earnest piety who would consecrate his talents to the service of Christ. He should possess sound health and some executive ability, as the work which he will be called to do among 316,000 people in the northern province will be a large and important one. He should be a married man. We are hoping to find one who, with his wife, would be able to go to Ceylon at least by the end of this year. He would be expected to take up and extend the work of the late Samuel F. Green, M. D.—a missionary of the American Board for twenty-two years in Ceylon—who during the last years of his stay in that island treated, with the aid of his native assistants, as many as 10,000 patients a year. The salary of the doctor and his wife (\$1,200 a year, the salary usually paid to missionaries in Ceylon), also the amount required for outfit and passage, have been secured. In Ceylon there is a large, comfortable mission house ready for their use, also a dispensary, and a building for medical students; and the funds are now being pledged for the erection of a large hospital, the American Board having authorized us to secure \$10,000 for that object. There will be an income in the country from fees of paying patients and Government grant which will amount to over \$1,000 a year, which may be used in the conduct of the work. The endowment of ten beds in the hospital and of ten scholarships has been given or promised, also the sum of \$90,000 is promised, in legacies legally executed, toward a general endowment. There are at present eight missionary families in the province working in connection with the American and two English missions. There are about 3,000 native communicants in the churches of these missions and about 15,000 children in their mission schools. There are several higher educational institutions, girls' boarding schools, an industrial school, and a flourishing college. Tamil is the vernacular of the people, but the English language is becoming widely known. The field is an exceptionally attractive one, and the outlook hopeful, as the work has been successful among the higher castes, and it is believed these high-caste converts will take a share in the work of winning India to Christ. The ladies' address is No. 17 Lafayette Place, New York.

**Bequests to Hospitals.**—By the will of the late Mrs. Robert L. Stuart, of New York, the New York Cancer Hospital will receive \$25,000; the Hahnemann Hospital, \$10,000; the New York Ophthalmic Hospital, the Western Dispensary, the Dispensary of the Homœopathic Medical College, the Northern Dispensary, and the Northwestern Dispensary, \$5,000 each; and the Presbyterian Hospital, the New York Eye and Ear Infirmary, the Manhattan Eye and Ear Hospital, the Hospital for the Ruptured and Crippled, and the Woman's Hospital, each a large share from her estate.

THE

## NEW YORK MEDICAL JOURNAL,

*A Weekly Review of Medicine.*

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FRANK P. FOSTER, M. D.

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### ALBUMINURIA AND LIFE INSURANCE.

At a recent meeting of the Hunterian Society of London there was a discussion of the relations of albuminuria to life insurance. The *Medical Press and Circular* for December 9th contains an abstract of the debate. Dr. Hingston Fox opened the proceedings with a paper, which was commented upon by Dr. Pavy, Sir William Roberts, Mr. Clement Lucas, and others. Dr. Fox based his paper on his notes of the uranalysis in the cases of 282 applicants for life policies—all of whom were males except two. Albumin was found in thirty per cent. of the cases. This percentage depended on the fineness of the tests employed; coagulation by boiling was chiefly relied upon. The albuminuria of organic renal mischief was found in only eight cases out of the 86 of albuminous urine. Of another type, called "permanent albuminorrhœa," there were two cases; in one of these albumin was known to have been present at least two years, with apparently no disturbance of the health, while in a second case it was said that albumin had been observed from time to time during a period of seventeen years. The risk in such cases may be accepted under specially arranged terms, if the age is under forty, provided the diagnosis is clearly made out. Under the head of albuminuria from "loaded urine" the proportion of cases was very high, numbering 22 in 86. This might be called an albuminuria of "city life," or "civic albuminuria." Oxalate of calcium and uric acid are not infrequent in these cases, and glycosuria is more rarely an attendant symptom. This disorder is, as a rule, amenable to treatment, and if it passes away the applicant should not be rejected. Of cardiac albuminuria the ratio was as high as 20 in 86. The risk in these cases is to be judged apart from the uranalysis. Dr. Fox includes under this heading, to which he gives the name of "albuminuria of unstable circulation," both the functional and "cyclic" forms of this affection.

Dr. Pavy, who has been officially employed with insurance questions for many years, stated that he was a firm believer in the existence of a functional albuminuria which did not lead up to structural disease. Many cases of cyclic albuminuria were dependent upon the position of the body, and were not improperly styled "postural," the early morning excretion being usually free from albumin, which appeared in the middle of the day and was gone again at bed-time. An alteration in the mode of life will affect the amount of excreted albumin. Dr. Pavy is in the habit of requiring four specimens of urine—one passed at the rising hour, one at noon, one at 6 p. m., and the fourth at bed-time. If the patients are in bed during the day, the character of the urine is changed. As has been shown by Dr. Hingston Fox, these persons are known by their mobile disposition,

quick pulse, and irritable heart, with a sharp, "smacking" impulse. The albuminuric condition may continue long and then gradually wear away. It is bad practice to keep such patients in bed. These applicants are not to be accepted or rejected on the results of a first examination; they require investigation. Dr. Pavy instanced the case of a young collegian who studied his own condition to some profit. When a youth, aged eighteen, he was a good athlete and passed a civil-service examination, but subsequently, albumin having been found in his urine, it caused his rejection. The case was cyclic and he was afterward passed. He then went to Oxford, and from there went up for a final physical examination before going out to India. During this time he had read up the literature of these cyclic cases, and when the examination approached he remained in bed until just before the time, with the result that he was accepted, as there was then a temporary cessation of the albuminuria. Regarding the albuminuria that is associated with glycosuria, Dr. Pavy stated that the prognosis was usually favorable if the glycosuria was amenable to treatment; it did not lead on to Bright's disease, as had been taught by some of our recognized authorities.

Sir William Roberts defended the use of the term "physiological albuminuria." The time had gone by when the presence of albumin in the urine could be regarded as equivalent to a death-warrant. This condition might follow shock or strain, the passage of gravel, or the ingestion of a heavy meal. A child might run a race and come back flushed and with a thumping heart—symptoms that came within a physiological range; so, too, sharp exercise would cause a temporary albuminuria, which was not, in his opinion, outside of the physiological range. The same was true after the application of cold baths. In regard to the risks of these physiological groups of cases, and others that were only occasional and transient, there was no longer any occasion to pronounce a sinister prognosis, but the diagnosis must be definitely made out for the protection of the assurance companies. If the applicant was in early life, the prognosis was, of course, more favorable than in persons who had passed their fourth decade.

Mr. Clement Lucas referred to cases where there seemed to be a family predisposition to show albumin in the urine on slight provocation. These belonged to a non-hazardous class of insurers if properly treated. He had found albuminuria in men who, being about to be married, had applied for insurance, and the excitement incidental to these undertakings appeared to have the power to cause the disorder: in one such case, that of a man of thirty-four years, this symptom had caused the company to reject the application; after his marriage his urine was found to be entirely free from albumin, and he was to all appearances an eligible risk. Another instance of protracted ineligibility from this same cause is related by Dr. Sewill in the above-named journal. The patient is living to-day in his seventy-seventh year, although twenty-six years ago he had been shown to be markedly albuminuric by the late Dr. Sibson, of St. Mary's Hospital. The albumin was present in large quantity, and the causation of the attack was thought to be an un-

due indulgence in sea-bathing in chilly weather. The case was regarded as serious, and a careful regimen was prescribed. The patient, however, was scornful of medical opinion and did not follow directions implicitly. He had a good family history, and had always been healthy, fleshy, indolent, and a large flesh-eater, besides taking alcohol in moderate amount. In the course of four or five temporary illnesses in twenty years, albuminuria had been several times found, but the general health had not been seriously threatened until three years before, when an ascites and an abdominal abscess made their appearance. It was thought impossible that the man could recover, but he did. He is now hearty and scoffs at regimen and the wisdom of the faculty. Nearly all the physicians who at various times gave an unfavorable prognosis regarding the state of his kidneys are already under the sod. Assuming for the moment that this man was a rejected applicant for insurance, we can readily understand that an injury was done both to him and to the insuring corporation in consequence of the true value of his urinary symptoms having been misrated.

In conclusion, we can not do better than quote the following editorial opinion from the November issue of the *Canada Lancet*: "In placing an albuminuria in its proper place as regards ætiology, and in coming to a conclusion as to its probable effect upon the patient's future, the physician must take a wide survey of all the attending circumstances, and keep the patient for some time under close observation lest a serious error be made as to prognosis and treatment. There can be no doubt that hundreds of quite healthy persons are annually rejected by insurance companies because of transient and functional albuminuria, thereby entailing much worry and loss, not only upon the unsuccessful applicants, but also upon their families and friends." A greater amount of labor, care, and responsibility must be entailed upon the medical examiners in order to arrive at the true significance of urinary signs; but the same is true of every department of medicine that is not standing still.

### MINOR PARAGRAPHS.

#### TETANUS CURED WITH THE TETANUS ANTITOXINE.

In the *Centralblatt für Bakteriologie und Parasitenkunde* for December 22d, Dr. Rudolf Schwarz, assistant at the surgical clinic at Padua, gives the history of a case of traumatic tetanus, in a boy fifteen years old, cured by injections of the *antitossina del tetano* prepared by Tizzoni and Cattani from the blood serum of animals rendered proof against tetanus. He refers to another case treated by Gagliardi and, in a postscript, to two others treated by Pacini and Nicoladoni respectively. Tizzoni and Cattani's process is not given by Dr. Schwarz, but it is probably to be found described in their contributions to the *Riforma medica* during the year 1891.

#### THE PHILADELPHIA BOARD OF HEALTH AND LEPROSY.

This body, in conformity with the alarmist position it has maintained for some years past on the subject of leprosy, has adopted resolutions calling on Congress to establish stations for the treatment of persons afflicted with that disease. We do not

believe that Louisiana, that probably has more of such cases than any other State, will co-operate with this demand or perceive its necessity. Moreover, the number of cases of that disease in the United States does not justify such action by the General Government. Furthermore, it might be asked under what provision of our Constitution such patients could be confined in national lazarettos.

#### DISSECTING ROOMS FOR "THE OUTSIDE MAN."

Our vigorous young contemporary, the *New York Journal of Gynecology and Obstetrics*, calls for the renewal of an enterprise once successfully undertaken by the Brooklyn Surgical Society, that of establishing and maintaining rooms where anatomical study may be prosecuted without the necessity of one's enrolling himself as a pupil in any school. The opportunities at the schools and hospitals, says the *Journal*, are excellent, but confined to a favored few. "Give the outside man a chance," it adds. The idea is certainly praiseworthy, and we hope it may be realized.

#### THE ANNALS OF OPHTHALMOLOGY AND OTOTOLOGY.

This is the title of a new quarterly journal devoted to the subjects mentioned in its title, and furthermore, as the supplementary title informs us, to laryngology and rhinology. The *Annals* is edited by Dr. James P. Parker, and published in Kansas City. The first number, dated January, 1892, contains seventy-four octavo pages, devoted mostly to original communications. In its general appearance the *Annals* bears a striking resemblance to the *American Journal of the Medical Sciences*. We wish it as long and creditable a career as that journal has had.

#### PENTAL, A NEW ANÆSTHETIC.

PENTAL,  $C_8H_{10}$ , is a clear, colorless, thin neutral fluid with a peculiar sweetish odor and taste. Mering, according to the *Centralblatt für die gesammte Therapie*, finds that it has a distinct anæsthetic action without unpleasant after-effects. It has no appreciable influence on the pulse or respiration. It is easy of administration, patients coming under its influence in about four minutes without any of the unpleasant sensations produced by either chloroform or ether. For operations taking only a few minutes to perform, the author thinks that this new anæsthetic will fill all requirements.

#### IODOPYRINE.

The *British Medical Journal* for January 2d, referring to an article by Dr. E. Munzer, published in the *Prager medicinische Wochenschrift*, describes iodopyrine as a one-atom iodine substitution compound of antipyrine, occurring in colorless, tasteless, and odorless crystals, slightly soluble in cold water, but readily soluble in hot water. Its action is said to have been studied especially in typhoid fever and in pulmonary tuberculosis, in which it has shown itself an antipyretic of rapid action. In pulmonary tuberculosis it is reported as having caused profuse sweating.

#### THE ACTION OF CHLOROFORM ON BACTERIA.

The *Centralblatt für die gesammte Therapie* for December, 1891, contains an interesting article by von Kirehner on this subject. He has found that chloroform renders the spores of the anthrax, cholera, and typhus bacilli incapable of germinating and that pus germs are rapidly destroyed by this agent. He

thinks that this fact can be put to practical use in the treatment of these diseases, considering the diffusibility of the substance and its appearance in the stools and urine after its administration.

#### HYOSCYAMINE IN LETTUCE.

ACCORDING to the *Lancet*, Mr. T. S. Dymond recently read a paper before the Chemical Society in which he stated that he had found in the presence of hyoscyamine an explanation of the mydriatic action of extract of lettuce. The alkaloid was found in several varieties of the plant, in amounts varying from 0.001 to 0.02 per cent.

#### THE DOCTORS' WEEKLY.

THE first number of a new journal with this title was published on the 2d inst. Each number consists of eight large, four-column pages, containing reading matter and advertisements intermingled. Much of the former is chatty in character. Dr. Ferdinand King, of New York, is both the editor and the publisher.

#### THE MEDICAL FORTNIGHTLY.

This is a new journal published in St. Louis and edited by Dr. Bransford Lewis. The first number, dated January 1, 1892, contains forty-four large pages of reading matter. A novel feature is that a fac-simile of the author's signature is appended to each original communication.

#### THE BACILLUS OF INFLUENZA.

It is stated in the cable reports from Germany that Dr. Pfeiffer has discovered the bacillus of influenza, and has verified his discovery by inoculation experiments in six cases. It has been found both in the sputum and in the blood.

#### ITEMS, ETC.

**The late Surgeon W. H. Long.**—Surgeon W. H. Long, of the United States Marine-Hospital Service, died recently at Cincinnati. He was born in Kentucky in 1842, was educated in Louisville, and practiced his profession in that city until he was appointed an assistant surgeon in the Marine-Hospital Service in 1875; he was promoted to the rank of surgeon in 1878. During his service he was stationed at Louisville, Detroit, Chicago, and Cincinnati. At several of these stations he was connected with the local medical colleges, and was esteemed an able teacher of surgery. Several times he was a member of the examining board for the admission of candidates to the service. In many of the annual reports of the bureau he published professional papers. He was actively interested in the work of his profession, and was always a member of the medical societies of the State and city in which he was stationed, and several times was elected president of these bodies. His death will be regretted both by the officers of his corps and by his many friends in the profession throughout the country.

**The New York Ophthalmological Society.**—At the annual meeting held on Monday, January 11th, the following officers were elected; President, Dr. J. B. Emerson; vice-president, Dr. Gorham Bacon; secretary and treasurer, Dr. Frank N. Lewis; committee on admissions Dr. H. D. Noyes, Dr. A. Mathewson, and Dr. C. E. Hackley.

**The Death of Dr. Horatio S. Hendee**, of Lowville, N. Y., occurred on Tuesday, the 5th inst. He was graduated from the Castleton, Vt., Medical College in 1851, and served as surgeon of volunteers during two years of the civil war.

**The Death of Dr. Colin Mackenzie**, of New York, took place on Wednesday, the 6th inst. He was graduated from the Western Re-

serve University, Medical Department, in 1860, and was in his fifty-third year.

The Death of Dr. Joseph Hilton, of New York, took place on Thursday, the 7th inst. He was a licentiate of the Medical Society of the County of New York.

#### Society Meetings for the Coming Week:

MONDAY, *January 18th*: New York County Medical Association; New York Academy of Medicine (Section in Ophthalmology and Otolaryngology); Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, *January 19th*: New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Medical Societies of the Counties of Franklin (annual), Kings (annual), Otsego (semi-annual—Cooperstown), and Westchester, N. Y.; Ogdensburgh, N. Y., Medical Association; Connecticut River Valley Medical Association (Bellows Falls, Vt.); Baltimore Academy of Medicine.

WEDNESDAY, *January 20th*: Northwestern Medical and Surgical Society of New York (private); New York Academy of Medicine (Section in Public Health and Hygiene); Medico-legal Society; Harlem Medical Association of the City of New York; New Jersey Academy of Medicine (Newark); Philadelphia County Medical Society.

THURSDAY, *January 21st*: New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, *January 22d*: Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, *January 23d*: New York Medical and Surgical Society (private).

#### Answers to Correspondents:

No. 369.—The practice is contrary to the letter of the code of ethics, but it is tolerated in some parts of the country. We should advise you not to adopt it.

## Letters to the Editor.

### QUANTITATIVE TESTS FOR UREA.

BROOKLYN, *January 2, 1892.*

To the Editor of the *New York Medical Journal*:

SIR: In the *Journal* for November 21st, page 571, Dr. J. C. Bierwirth makes some remarks upon a method of estimating urea in urine devised by myself, which I desire space in your columns to correct. He states in one place that the results by this method are too high, and in another he states that he obtained with the solution I employ only 1.65 per cent. of the true amount of urea.

I was surprised to see these remarks in print, as I had pointed out to him the errors in manipulation at the time his paper was read. He did not work according to the directions, because he compressed the air in the tube by forcing into the open end of the tube a tightly fitting cork, and read the height of the column of liquid under this pressure. The second reading he made at the atmospheric pressure. Any one who knows anything of the properties of gases can see that this method can not give the amount of nitrogen evolved during the effervescence. The results will vary with the pressure used in forcing in the cork. In a demonstration of the method of using the apparatus before the meeting, Dr. Bierwirth himself obtained the theoretical amount of nitrogen from a standard solution of urea, after

making allowance for the compression by the cork. His second error of manipulation was in not thoroughly mixing the urine and the reagent. His tests made at the Hoagland Laboratory, with the solution I have proposed, were made with the apparatus of Dr. Doremus, which does not allow of thorough mixing of the urine with the reagent, and consequently the long time required and the incomplete reaction. In regard to the objection to the use of the thumb to close the open end of the ureometer, I have only this to say: I have used the apparatus for about two years and have taught students the use of it, and have not found any such difficulty as he mentions. After repeated trials by myself, my assistants, students, and others, including Professor Van Cott, whom Dr. Bierwirth mentions, I must affirm that this apparatus and solution, when used with reasonable regard for directions, do give as accurate results as any method mentioned in the article in question. It is more rapid, simpler, and more agreeable to operate than any other method with which I am acquainted. It is inexcusable for the author to have published his blunders after having them pointed out to him.

E. H. BARTLEY, M. D.

BROOKLYN, *January 8, 1892.*

To the Editor of the *New York Medical Journal*:

SIR: It is with surprise that I read a statement published November 1, 1891, in your journal, in Dr. Bierwirth's paper on Quantitative Tests for Urea, regarding the use of a solution of potassium bromide in chlorinated soda. The doctor states that with this solution he only gets from a two-per-cent. solution of urea 1.65 per cent.; that "this has been verified by Dr. J. M. Van Cott, Jr., at the Hoagland Laboratory."

I was present at the meeting of the Kings County Medical Association when the doctor read his paper. In the discussion which followed his reading I admitted that this was so, but pointed out the fact that our failure to obtain the theoretical amount of urea was due to failure to thoroughly mix the solutions.

Furthermore, I saw the doctor at this meeting repeat the test with this solution, and obtain the exact theoretical amount of urea after thorough mixing of the liquids. This was accomplished in Dr. Bartley's tube. At the time I suggested that similar results might be obtained with the Doremus bulb if the liquids could be thoroughly mixed; and since then I have verified this supposition by actual experiment.

In view of these facts, the doctor had no authority to use my name as he has in the publication of his paper, and I shall be greatly obliged to you for correcting the matter in your journal.

JOSHUA M. VAN COTT, JR.

### SHALL SUCCESS IN THERAPEUTICS BE IMPERILED BY ETHICAL CONSIDERATIONS?

WASHINGTON, D. C., *January 13, 1892.*

To the Editor of the *New York Medical Journal*:

SIR: I have read and weighed the contents of the letter in your issue of December 19, 1891, on this subject: Shall Success in Therapeutics be imperiled by Ethical Considerations? That certain points in this letter have made a profound impression upon me is the main reason why I now address you, and respectfully ask that my letter be published in the columns of the *Journal* in vindication of the honorable standing to which all good and true practitioners of medicine aspire.

Dr. Dodge states very clearly a point that is now appealing to every progressive physician—that in these days of advancement in the manufacture of pharmaceutical products we should no longer be confined, as were our forefathers, to prescribing drugs in their crude form, since there are to-day thoroughly at-

tested remedies in palatable form which our patients can take without repugnance and with benefit.

Now, while the code of ethics is an admirable exponent of the tenets which are acceptable to the great body of practitioners in our country, yet it is at least a question open to discussion whether there are not some points which in our progressive age might be reconsidered and revised. And I would suggest as one subject for discussion the question of the approbation and recommendation of certain proprietary articles which are in almost daily use by very many of our ablest practitioners.

Why should those preparations be condemned simply because their manufacturers are protected under a registered trademark? Is it not perfectly legitimate for our medical societies to elect competent committees to be judges of the therapeutical value of tried proprietary preparations? And could not their recommendation also be secured by their indorsement—

1. In didactic and clinical lectures and private instruction given to medical students;
2. In original articles acceptable to the editors of recognized medical journals; and
3. In standard medical works?

I address you particularly on this subject for the reason that the readers of your journal have carefully observed the fearless manner in which you and your able associates have detented the worthy against the unworthy and given justice where justice was due. We have also seen that your journal has reviewed and commended works by others than medical writers. I have in mind the fact that the very excellent work on the therapeutical application of coca erythroxyton by Angelo Mariani, of Paris, France, the proprietor of the world-renowned *Vin Mariani*, was favorably reviewed in your journal.

WILLIAM H. HAWKES, M. D.

## Proceedings of Societies.

### NEW YORK ACADEMY OF MEDICINE.

*Meeting of December 3, 1891.*

The President, Dr. ALFRED L. LOOMIS, in the Chair.

**Drainage of the Uterus in Chronic Endometritis and Metritis, with and without Salpingitis.**—Dr. W. M. POLK read a paper with this title. As drainage of the uterus was a surgical procedure that at present was pretty well recognized, the author confined himself to a description of his cases and the details of his method of applying the principle. The operation of vaginal hysterectomy—which, if called for, could be done with impunity—had been the means of inciting him to attempt invasion of the interior of the uterus in the treatment of diseases of that organ. The only class of cases to which the method of drainage was applied were those of chronic conditions, such as fungous or hæmorrhagic endometritis and metritis due to subinvolution. The most obstinate cases were those of endometritis due to flexions. Those cases which yielded most readily to the treatment were metritis consequent upon subinvolution. From his experience he was obliged to differ with previous observers, whose statements were to the effect that salpingitis and circumuterine inflammations precluded intra-uterine treatment. He advised the early treatment of endometritis and metritis by drainage, to prevent the extension of the disease to the tubes. As to the remote and permanent results of the operation, seven months to a year had elapsed since treatment in a large number of cases, and there had been

no return of the trouble. Immediately after the operation there was usually a slight rise of temperature, but it gradually returned to normal, the patient, with this exception, suffering no inconvenience. In some cases where perimetrial masses had existed prior to the operation these were in two or three weeks after treatment found to have become softened and in some instances abolished. In no case was inflammation set up by the manipulation or by the presence of the packing. The author reported in detail the histories of a number of cases to illustrate the success of his method. In four of these, laparotomy had been the primary operation, and, the appendages not requiring removal and endometritis being found present, the author had not hesitated to pack the uterus with gauze at the same sitting. The requirements for the method were as follows: 1. Antiseptics, bichloride solutions (1 to 500 and 1 to 2,000). 2. Strips of sterilized gauze about a quarter of an inch in width and three feet long, from six to eight thicknesses to be used at a time. 3. A large cervical speculum with a plug. 4. Forceps, a volsella, and dressing forceps. 5. A Sims speculum. 6. A good dilator. 7. A sharp curette. 8. A long-handled screw. 9. A fountain syringe and a glass tube. He preferred, as a rule, general anaesthesia, as the operation was more or less painful, although in twenty-five per cent. of cases the os was sufficiently patent to allow of local anaesthesia being used if desired. The next step was to cleanse the parts with soap and water, and finally with the bichloride. After dilating the uterus it was irrigated and the sharp curette thoroughly used. As to the amount of tissue to be removed, one must be governed by the individual conditions of the case. Following the curetting, irrigation was again performed. The gauze was placed in the 1-to-500 bichloride solution, and taken out and rinsed in hot water, the excess of which was squeezed out and the gauze then packed in the uterus by means of the long-handled screw. The patient was then put to bed, to remain there for about a week. At the end of that time the packing was to be removed, if it had not been forced out in the mean time by the contractions of the uterus. The uterus was then irrigated and the patient allowed to go about her usual vocations. As a rule, but one application of the packing was necessary to cure the most obstinate case of chronic endometritis or metritis.

Dr. W. T. LUSK had had no personal experience in the method described by Dr. Polk, but he had been an ardent advocate of the principle of drainage, and intended henceforth to try and carry out some such plan as that brought forward by the author of the paper.

Dr. C. C. LEE had never carried out the plan of Dr. Polk, but had used a method of his own for drainage of the uterus after removal of fibromata and retained placenta. This had consisted of the retention in the uterine canal of a tube which allowed of free drainage. This tube was frequently left *in situ* for ten days and more, and, while giving free exit to discharges, often corrected flexions and cured dysmenorrhœa. Another point was that the speaker never used bichloride solution in the uterus; he preferred hot water for irrigation. He had used his plan in forty-two cases with very satisfactory results.

Dr. W. G. WYLIE said that Dr. Polk must be laboring under a mistake when he referred to drainage of the uterus as a principle only recently recognized. While it might be true that drainage by means of gauze was something new, drainage as a principle had been written about and understood as practicable almost twenty years ago, and for the past eight years had been taught at the New York Polyclinic, and was being carried out by many of the younger gynæcologists. As to the value of Dr. Polk's particular method, the speaker thought that the use of so large a cervical speculum was impracticable in the majority of cases; that, as a rule, in cases of dysmenorrhœa there was imper-

fect development; and dilatation to the extent that would allow of the speculum being admitted and the uterus packed would split that organ. The speaker had found that dilatation of the uterus for half an inch frequently caused rupture. For the purpose of drainage it was his practice to use a hard rubber bulbous tube with the opening one third of its caliber; this was retained securely in the uterus and allowed of free drainage. Where there was pus or inflammation in or around the tubes he considered almost any manipulation within the uterus dangerous. As to curetting, this he would never do in the case of large soft uteri from subinvolution, as perforation of the walls was liable to occur, until he had reduced the uterus with boro-glyceride tampons. In some cases of hardened uteri, with fibrous conditions, it was a difficult matter to say what was the best method of treatment, as he had found, no matter what plan he had pursued, the condition would return sooner or later. As to drainage, he had long been an advocate of the principle.

Dr. G. M. EDEBOILS thought that as a principle all recognized the necessity of drainage in uterine diseases. He was convinced that as yet nothing so practical as Dr. Polk's method had been suggested, and he, for one, would give it a fair trial, although he would confine his cases for such operation to those where disease of the tubes could be excluded. Where the disease was restricted to the endometrium, curetting and drainage were called for. He reported the cure of three cases of pyosalpinx, occurring in young girls, with repeated attacks of pelvic peritonitis, by the introduction and retention for three months of the Outerbridge speculum.

Dr. F. KRUG had often wondered why it was that gynecologists had hesitated to attack the purulent uterus on surgical principles as they would any other pus cavity. It was his practice to use iodoform gauze for intra uterine packing, a method he had had no reason to regret, as his results were uniformly good.

Dr. T. ADDIS EMMET thought that his previous work bore testimony to his early recognition of the principle of drainage in his practice of dilatation of the uterus with sponge tents and irrigation with hot water. Drainage was certainly a good thing where the tubes contained pus, but doubtless Nature cured a good many of these cases. As for the diseases called metritis and endometritis, he would be glad if some one would demonstrate to him what was understood by these terms, as he had never seen a case in the autopsy room. In a woman that was menstruating there was no true mucous membrane lining the uterus, the tissues being in a constant state of transition. If the parts were diseased the trouble was generally confined to the cervix. For the last ten or twelve years he had never introduced a probe into the uterus, as a matter of routine, recognizing the fact that as a rule discharge from that organ was a symptom of disease lying outside of the uterus—such as pelvic inflammations or growths, which could be diagnosed as such. He had never seen a case in all his practice where a woman who had never borne a child required treatment of the interior of the uterus. He thought, however, that Dr. Polk's method had a field, but it must not be forgotten that discharge from the uterus was a symptom and not a disease.

SECTION IN OBSTETRICS AND GYNECOLOGY.

*Meeting of December 16, 1891.*

Dr. EGBERT H. GRANDIN in the Chair.

**Osteoma of the Ovary.**—Dr. H. C. COE presented such a specimen taken from a woman, thirty years of age, who had suffered for years with excruciating pain in the ovary and finally a rise of temperature. On removal, the ovary was found to have undergone bony degeneration, without very much enlargement.

The pressure, however, of the bony mass must have caused the severe pain.

**Angeioma of the Liver.**—Dr. H. T. HANKS related the history of a case in which he had made an exploratory incision into a tumor evidently proceeding from the lower lobe of the liver, but there was an uncertainty as to what the growth really was. The incision revealed what seemed to be a cancerous growth of the entire lower lobe of the liver, which extended quite a distance beyond the median line and reached down to the pelvis. The line of demarcation between the healthy and diseased tissue was distinct, but, as nothing could be done, the wound was closed and the patient allowed to recover from the operation, when a course of electricity was tried. Puncture was performed twice, but the patient seemed not to endure it very well, so that the simple application of the current, with compression with sponges, was continued. It was now several months since the exploration was made, and the patient was in much better health and was able to go about and do her work, the tumor having lessened about two thirds in size.

Several cases of angeioma of the liver had been reported where the patients had got well without treatment, so that he could not be sure that the electricity had been the cause of the improvement. If anything had done good, it was the compression of the sponges, which had been pressed upon the tumor pretty firmly.

Dr. G. M. EDEBOILS was able to report recovery in such a case where he had instituted no electrical treatment. He thought that the compression of the liver in Dr. Hanks's case might have had something to do with the improvement.

**Expectant Treatment of Intraligamentous Rupture of an Ectopic Gestation Sac.**—Dr. G. W. JARMAN read a paper on this subject. He said that, although most writers were agreed as regarded the main points of diagnosis and treatment in such cases, yet not a few seemed to have confusing ideas on the following points: 1. The causation and pathology of rupture. 2. The cause of hæmorrhage after rupture. 3. The diagnosis between intraperitoneal and extraperitoneal rupture. 4. What patients should be operated upon and what only treated otherwise. Pretty much all agreed that the majority of cases occurred either in women who had never previously borne children or else in those who had had quite an interim since the preceding pregnancy. That this was due to a diseased condition of some of the reproductive organs seemed most probable. Recognizing the fact that the mucous membrane of the tube was of the ciliated-columnar variety, with cilia, which in health had a constant waving motion toward the uterine cavity, but were rapidly destroyed by disease, it seemed also probable that the tube, no longer guarded, might become invaded by the spermatozoid and be compelled to domicile it. Added to this, there was the existence of bands of adhesions constricting the caliber of the tube at some point, and we found no slight difficulties which the ovum must overcome if it reached its proper destination. If it should become adherent to the tube wall, it either died or else continued to develop so long as its surroundings would permit. Undoubtedly the torn arteries and veins had a share in the production of the hæmorrhage, but, from the quantity found in this class of cases after rupture, it had seemed most probable that the opened sinuses played the greatest part. The study of the course of the hæmorrhage when it had broken into the broad ligament necessitated the study of the arrangement of the pelvic peritonæum. The diagnosis between an intraperitoneal and extraperitoneal rupture should not present marked difficulties. The fact that in the former the hæmorrhage was into a free cavity, while in the latter it was necessarily limited, should give a marked difference in the degree of symptoms. Another increment to the severity

of the symptoms was due to the shock attending the introduction of a foreign substance into the peritoneal cavity. The tumor which had ruptured into the peritoneal cavity was usually situated in the *cul-de-sac*. In the extraperitoneal rupture, the tense elastic broad ligament could be felt bulging into the vagina and in most instances the uterus would be pushed toward the opposite side. If the hæmorrhage had been extensive, the mass could be palpated through the abdominal wall. The diagnosis between cases of rupture into the broad ligament and those of broad-ligament hæmatoma would offer more difficulties. The question would at once arise, Did such a thing as a simple hæmatoma ever exist, or was it simply a term handed down from the time when but little was known of ectopic gestations and their frequency? Why should the veins of the broad ligament be less susceptible of dilatation than those of other parts of the body? And, above all, why should we not be able to find an occasional rupture in the veins of the pampiniform plexus in the male where we knew the varicose condition was so much more frequent? The expectant treatment, as the term implied, consisted in the readiness on the part of the physician to meet any indications which might arise. Hæmorrhage either had ceased or else would cease as soon as the resistance equaled the propelling force. The author had been unable to find any case reported in which this extraperitoneal hæmorrhage had caused death. If the anæmia became alarming and the life of the patient was in actual jeopardy, then, of course, a laparotomy would be indicated and the bleeding point sought. The patients should be forced to remain in the recumbent posture; aside from this and looking after the general functions, but little could be done. In the after-conduct of the case, should symptoms of sepsis supervene, the most rational treatment would be the early evacuation and drainage of the cavity. In case the life of the fœtus was not destroyed at the time of the rupture, but it continued to develop, another indication for treatment presented itself. The great principle was to operate when it was safest for the mother without regard to fœtal life.

Dr. COE thought that the danger of an extraperitoneal hæmorrhage becoming intraperitoneal was slight. He had seen as much as two or three pints of blood between the broad ligament, where it had dissected up behind the peritonæum, but had never seen a secondary rupture.

Dr. HANKS also doubted if there was any danger of secondary rupture into the peritoneal cavity. He advised the expectant treatment. In a number of cases he had been gratified by good results under the expectant plan. He thought that irregularity in the type of menstruation was a good point in diagnosis. This should always be inquired into. As to the amount of hæmorrhage, it was not surprising that it was so profuse when it was taken into consideration what a vascular organ the uterus was during gestation.

Dr. JARMAN did not think that this reason accounted for the amount of blood which escaped in rupture of an ectopic gestation sac of only a few weeks' growth. He felt satisfied that it came from the sinuses and that it was not arterial blood.

**Suppurative Oophoritis.**—Dr. H. J. BOLDT read a paper with this title. Abscesses within thickened, inflamed, and hyperplastic masses of the pelvic peritonæum, more especially the broad ligament, were by no means rare occurrences. According to our modern view of suppuration, we sought its source in a purulent salpingitis. If the fimbriated extremity allowed the escape of a drop of pus, we comprehended the subsequent localized peritonitis, the purpose of which was to shut off the focus of suppuration from the rest of the pelvic or abdominal cavity by plastic or formative inflammation around the focus. Since we knew that the presence of the staphylococcus, or rather its ptomaine, was a requirement to produce suppuration, we

considered this process an infectious one, the micro-organism being carried from without to the endometrium, from there into the tubes, and thence into the peritoneal cavity. The process known by the term of suppurative oophoritis, leading to a partial or total destruction of one or both ovaries, was not quite so common. Obviously this process in most instances arose from the contact of the ovary with a focus of suppuration in its immediate vicinity, the broad ligament. In cases where the ovary was only partially destroyed we found it, after extirpation or at post-mortem examination, bordering on an abscess cavity, and changed to such an extent that it was often not recognizable to the naked eye. Often there was no difference in the appearance or consistence of the remnants of the ovary. Under these conditions the microscope would have to be brought to bear to ascertain how much of the ovarian tissue was left. The author had come into possession by operation of a number of specimens of suppuration of the ovaries, and of these he had made a thorough microscopical study. According to the different tissues involved, the pathological conditions were described under the following headings: Fibrous connective tissue; inflammatory infiltration of connective and smooth muscle tissue; myxomatous tissue; changes in epithelial tissue. He gave a description of the inflammatory changes of all constituents of the ovaries. To the author's knowledge such had never been previously described, and he thought they would prove of great value in proving that inflammation and suppuration in the ovary were not always based on an immigration of colorless blood-corpuscles, as had been asserted some twenty years ago by Cohnheim. It was the author's conviction, from a very thorough study of the subject, that all constituent tissues of the ovaries participated in an active manner in the production of inflammatory corpuscles, which, being broken asunder, furnished that which we knew by the name of pus-corpuscles. The author gave a description of a number of his cases. They were selected from those that had not derived their source from a uterus containing any septic tissue. In many instances a positive diagnosis could not be made, but constant pain not associated with the menstrual period was suggestive of some ovarian trouble. Where abscess was diagnosed the abdomen should be opened in every instance, as patients in such a condition were in constant danger. If rupture took place into the peritoneal cavity, and the streptococcus and staphylococcus were present, the peritonitis was always rapidly fatal. It was rare for ovarian abscesses to be larger than a hen's egg; in the cases reported where they were of large size the chances were that they were some other condition. The author thought that these cases of ovarian abscess occurred more frequently than was supposed, but that they were confounded with other pathological conditions. Chronic suppurative oophoritis existed where no micro-organisms were present. This should not, however, deter one from operation, as innocuous pus could readily become noxious.

Dr. EDEBOHLS thought with the author of the paper that the ovarian tissue was capable of breaking down into pus cells. One of the factors in the causation of ovarian abscess not mentioned by Dr. Boldt was the gonococcus. These micro-organisms had been demonstrated in ovarian abscess where there was no break in the ovarian tissue. In regard to diagnosing these small abscesses, it was the speaker's practice to pass an exploring needle through the abdominal wall into the tumor and demonstrate the character of its contents. Pus had been frequently found in small tumors where the size and symptoms had not called for operation, but the demonstration of pus had. The frequency of ovarian abscesses varied in different countries. The Germans reported a very inconsiderable number, while in this country the proportion was very large. Out

of thirty cases of operation for diseased ovaries containing muco-pus, etc., fourteen were purely cases of ovarian abscess. The rational therapeutic measure in this class of cases was extirpation. He first emptied thoroughly and then enucleated.

Dr. COE was glad that Dr. Boldt had made a distinction between tubo-ovarian and true ovarian abscess. He was also satisfied that gonococci were a frequent cause, as well as that contamination could take place from the bowels, which cause operated through the lymphatics. One of the very serious complications of pregnancy was an unsuspected ovarian abscess. These ovarian abscesses were usually small, and situated high up, and it was hard to distinguish appendicitis from such. In one case where the author had operated for appendicitis in McBurney's line he had found an ovarian abscess, and in another case where the operation was done for supposed abscess of the ovary appendicitis was found.

Dr. A. H. BUCKMASTER thought that the *Bacterium commune coli* was a more frequent cause of ovarian abscess than was supposed. He did not think it impossible for it to penetrate the wall of the ovary, which was in close connection.

Dr. JARMAN referred to the very characteristic odor of these abscesses, and wondered whether there was any connection between them and the intestinal canal. In one case where he was operating he had been almost sure that he had opened the intestinal canal, from the very foetid odor which came from the parts, but he found that it had come from the ovary.

Dr. HANKS thought that the odor was not surprising, as all old abscesses where the pus had remained encapsulated for a long time had an intolerable odor. It was his practice to aspirate and enucleate in these cases as soon as possible after a diagnosis.

The CHAIRMAN agreed with Dr. Coe that the vagina was not the proper canal for drainage, for the reason that the true ovarian abscess was small and contained only about a drachm of pus, and was also adherent high up.

## New Inventions, etc.

### AN INSTRUMENT FOR THE DETERMINATION OF HETEROPHORIA.

By GEORGE T. STEVENS, M. D.

In the determination of the various tendencies of the ocular muscles, it is often advisable, and even necessary, to bring to our aid as many forms of evidence as can be made subservient to our purpose.

While the phorometer remains pre-eminently the reliable and efficient working instrument in the determination of heterophoria, auxiliary means are often required to confirm or to explain its indications. We sometimes also require an instrument for making provisional examinations, more portable than the phorometer.

As such an auxiliary and provisional instrument I have devised the stenopaic lens, which possesses manifest advantages (Fig. 1, A).

The purpose is to present contrasting images to the two eyes.

With the lens, the image of a candle-flame twenty feet distant, seen through the stenopaic opening, is a large and perfectly defined disc of diffused light.

If, for the purpose of effecting a diffusion, we employ the uncovered convex lens, a very slight movement of the lens, in or out, up or down, gives to it the effect of a prism in those various directions.

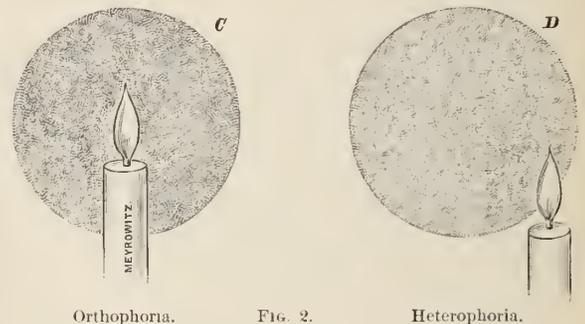
If a convex lens, about 13 D., is covered, except at the optical center, where a circular opening of three millimetres or less diameter acts as a stenopaic window, the small opening serves the double purpose of preventing an adjustment of the lens as a prism and of cutting off the halo in such a manner as to give the impression of an

exact disc of light bordered by a frame. A metal or hard-rubber disc of the size of the lens of the trial-case, perforated by an opening of the required diameter and supplied with a perfectly centered lens, is a convenient form. It may be used with a handle (Fig. 1, B), enabling the patient to hold it in his own hand, or it can be placed in the trial-frame.

In orthophoria the untransformed image should be found exactly in the center of the disc. In heterophoria it will tend toward or beyond the border. If the flame sinks below or rises above the center, while at the same time it deviates laterally, we thereby discover by a single comprehensive view all the elements of a compound deviating tendency, so far, at least, as that tendency is manifest (Fig. 2). In this important respect the stenopaic lens presents a feature both unique and of much significance. While by other methods of inducing diplopia or contrast we may discover, at a distance of some metres, first one and then the other element of a deviating tendency, by this instrument all the collective elements are presented simultaneously to the eye, thus eliminating a very important source of error.



FIG. 1.



Orthophoria.

FIG. 2.

Heterophoria.

In respect that it is simple, cheap, and small enough to be carried in the vest pocket, and that it, more than any of its class, represents the true relation of the visual lines, it is a useful test. Its disadvantages are those common to every instrument held close to the eye when in use in these examinations. This instrument has been manufactured by E. B. Meyrowitz, 295 and 297 Fourth Avenue, New York.

### EDINGER'S DRAWING APPARATUS FOR LOW MAGNIFICATION.\*

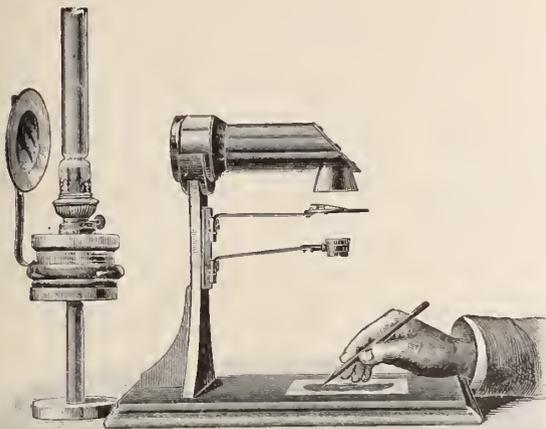
By JOSEPH COLLINS, M. D.

With the permission of Dr. Ludwig Edinger, of Frankfort-on-the-Main, I am permitted to demonstrate to you this evening the drawing apparatus devised by him and presented at the Southwest German Society for Neurology and Psychiatry, June 7, 1891.

The apparatus is based on the projection principle and consists of a

\* Presented before the New York Neurological Society, October 4, 1891.

stand bearing an upright which supports a tube or cylinder parallel to the base and in apposition to a piece of canvas board which cuts off all the rays of light excepting those passing through the cylinder.



The front surface of the upright has a metal groove into which is fitted at its upper part an arm terminating at the other end in a circular plate for the support of the object to be drawn. Beneath this is a second arm, also fitted into the groove, terminating in a small cylinder for the reception of the lens. Both of these arms are movable, but the upper one should remain fixed, while moving the other focuses the rays of light and makes larger or smaller representations of the preparation according to its distance from the object bearer. The light used may be either sunlight or artificial. As a rule, an ordinary lamp, with or without a small reflector, answers all purposes. The light being placed in the proper position, and the preparation to be drawn on the object table, a sharply outlined picture of the preparation will be thrown on a piece of drawing-paper beneath. By regulating the height of the arm bearing the lens, or by changing the lens, any magnification between two and fifteen times can be made.

In this way the outlines of an absolutely true drawing can be made and the details filled in from the microscope, or a precise picture can be made from the apparatus alone, so sharply defined is the representation.

Of course, specimens colored with dark stains give more clearly differentiated pictures than the light ones.

The instrument is made by Meyrowitz, of this city, at my request, and may be had with two or three lenses. Two are all that are necessary ordinarily, but the third is important sometimes when the object to be drawn is very small.

## Miscellany.

**Influenza from a Veterinary Point of View.**—The following paper, by Mathew Wilson, M. R. C. V. S., of Wenona, Ill., appears in the January number of the *Journal of Comparative Medicine and Veterinary Archives*:

Influenza is a disease that has long been known to medical science, both human and veterinary. Its history can be traced back with certainty only to the beginning of the sixteenth century, although as far back as the year 1300 we have accounts of an epidemic among the horses of Italy that seems to-day to be recognized as influenza. With the beginning of the sixteenth century we have accounts of epidemics, the wide distribution of which have been reached by no other acute infectious disease.

Up to the present time a great number of epidemics have been described, which generally extended over whole countries and frequently over several quarters of the globe.

They returned at indefinite periods and affected every season and latitude, advancing, as a rule, in a great wave.

In some cases they appeared to be preceded by sporadic cases, but more commonly a large number of the animals would be affected simultaneously, the disease spreading with great rapidity.

Among the numerous outbreaks, the following are recorded:

In 1648 an epizootic of this disease appeared in Germany, and from there rapidly spread to other parts of Europe, and in 1711 it attacked the horses of the European armies, causing great losses.

In 1732 the disease appeared in London, and later on in the same century in Scotland.

In 1766 we have the first attack on the horses of America, but not making its appearance here in anything like a virulent form until we have the extensive outbreaks of 1870-'72, when it spread over the entire country.

It is to-day an almost permanent disease among the horses of our large cities, where bad ventilation and want of sanitary arrangements about the great majority of stables seem to keep the disease alive, and perhaps predispose fresh animals to it.

*Definition.*—Influenza is a specific febrile disease, dependent upon a specific blood poison and prevailing as an epizootic.

It is essentially characterized by a catarrh of the respiratory and generally also of the digestive organs, by great and rapidly developed weakness, pains in the head and limbs, as well as by serious nervous symptoms and fever of greater or less intensity.

It is confounded generally with simple catarrh, but is distinguished by its wide diffusion, its rapid spread, and the number of cases in the regions in which it occurs.

We can not lay its cause to atmospheric influences, as we have it occurring at all times of the year, during different climatic changes and in countries whose atmospheric surroundings are totally different.

We have it occurring at seasons of the year when climatic changes are such as do not produce catarrh, and aside from this we have those lesions of function peculiar to influenza that can in no way be connected with a simple catarrh.

*Etiology.*—When we think of the numerous opportunities presented by this disease for investigation, and to what extent literature has been published upon it, we are surprised at what few facts have been gathered together concerning its cause and origin.

A great many theories have been advanced as to the aetiology of influenza, such as that of atmospheric influence; others give it a specific origin, but have never been able to isolate and demonstrate its specific cause, while on the other hand there are those who claim it has a spontaneity of origin, due to want of sanitation. This last is, I think, the weakest of all, as we have it occurring where sanitary arrangements are the best, as well as where they are almost entirely wanting.

The theory of its specific origin is, I think, conceded by the majority to be the correct one, although we have as yet been unable to produce conclusive evidence.

It is due to a *living miasm*, capable of being carried onward by the air, but having an independent existence of its own, and which would find in certain places conditions more favorable for its development than in others.

Take, for example, the last outbreaks of influenza in the human family, which seemed to have been developed in Russia and spread in the direction of human intercourse and the prevailing winds from the east to the west.

This living miasm is capable of transmission through the air, of being carried by human beings, or, in fact, by any of the known modes of infection.

Influenza has been described as the sum of a series of catarrhal manifestations, which have developed under common epidemic influences, and the intimate association of the various local affections allows us to give them a common specific origin.

Many acute local affections, such as acute catarrh, laryngitis, etc., present very much the same symptoms locally as in this disease, but there is wanting the sudden and general seizure, the severe nervous depression, and the extent to which the mucous membranes are involved; all these seem in favor of a general cause which has a specific effect upon the whole body.

These symptoms are much more severe than in the local affections, while they remind us more of analogous symptoms in other acute infectious diseases, and for these reasons I think we are justified in classing it under the same group.

There is a close analogy between the first symptoms of influenza and measles in the human subject.

Before the eruption occurs on the skin in measles there is found to be a catarrhal affection of the mucous membranes lining the air-passages, and also of the conjunctiva. This catarrh is so constant a manifestation that it has been considered a pathognomonic symptom, especially in those cases where the eruption can not be seen. Here it is, as in influenza, one of the earliest and most constant symptoms.

In canine distemper we have another disease whose early symptoms coincide with those of influenza.

Here we have the disease ushered in with chills, a dry, irritated condition of the mucous membranes, where the discharge soon becomes more copious, great debility, and in some cases an extension of the inflammation along the respiratory tract to the lungs and pleura.

In these diseases we have two that are recognized as being due to a specific organism, presenting characteristic symptoms that almost coincide with those of influenza; and what more probable to assume from this, that in influenza we also have a disease whose ravages are due to a similar cause?

*Pathology.*—The pathological changes in the body are due to the absorption of the morbid material by the blood. The alteration occurs in the blood, where we have a rapid destruction of the red corpuscles. The absorption by the tissues of these disintegrated corpuscles gives them a yellowish tint and a congested appearance. The first sign of this is seen in the early discoloration of the mucous membranes.

Along with this we always have more or less congestion of the various organs of the body.

Other pathological changes are due to complications; as, if the lungs are affected, we have the changes due to pneumonia or pleurisy. If enteritis or congestion of the liver is the complication, we have the changes taking place in them.

*Symptoms.*—The development of the symptoms of this disease, after a period of incubation varying from four to eight days, may result in a very mild attack, or they may be very intense.

In a mild attack we have the disease running its course as a specific fever, with only the alterations in the blood; but if the attack is severe, we may have it complicated with inflammatory diseases of the various organs, aggravated by the already weakened state of the body and the alterations in the blood, which have a tendency to favor a fatal termination of these complications.

The first symptoms are those of great indisposition, rapidly developing fever, which may become intense, chills of the body, staring coat, loss of appetite, and a dry, irritated condition of the mucous membrane.

The pulse becomes increased in number, varying from 60 to 80 and even 100; it may be at first moderate in volume, but becomes weak.

The discharge from the mucous membranes at first is thin and acrid, but as the disease advances it becomes more copious and thicker.

In the condition that is known as pink-eye we have the discolored pink condition of the mucous membrane lining the nasal and buccal cavities and the eyelids, tumefaction of the limbs and eyelids, great stupor, and the animal very weak.

The fever may run up as high as 105° F. or 106° F., and generally lasts from three to four days.

At the end of this time, if the disease runs a favorable course, the fever begins to abate, the appetite returns, the various organs take on their natural function, the pulse falls in number and becomes stronger, and we have the animal left convalescent in a weakened condition.

Death in these cases may be the result of an excessive fever, with failure of the heart's action, asphyxia from a rapid congestion of the lungs, or from the poisonous effect of the morbid matter due to disintegration of the blood-corpuscles.

*Complications.*—The complications, as we have before mentioned,

are generally of an inflammatory nature. As a result of the primary lesion, we have a congestion of the various tissues.

This, along with a distended state of the blood-vessels, a weak heart's action, and an improper aeration of the blood, is very prone to be followed by an inflammation, due to the slightest irritating cause.

During some outbreaks we have the majority of cases complicated with an inflammatory condition of the lungs; in others we have the complications arising in the bowels or liver. Why this should be we can not determine, unless it is that local climatic changes or atmospheric influences may be the exciting cause of these local lesions, the animal becoming more predisposed, due to the pre-existing disease.

To enumerate the symptoms of the various complications would be to go into those of pneumonia, pleurisy, enteritis, etc., which I do not think would throw any light upon our subject, and which could only be thoroughly discussed under their respective heads.

*Treatment.*—Treatment must, of course, depend upon the symptoms exhibited by each particular case; but there are some measures that will equally apply to all.

Great care must be taken to keep the animal free from exposure to draughts, and at the same time have ventilation sufficient to provide him with plenty of fresh air.

He should be well covered with sufficient blankets to keep up external heat, the legs hand-rubbed and bandaged, and his surroundings kept clean.

Antipyretics are indicated from the first. Of these we have a great variety, and selection must depend upon the practitioner.

I have found a combination of digitalis and nitrate of potash a good remedy, giving it twice a day.

In this we have not only a febrifuge action, but we strengthen the heart, lower its pulsations, and have a diuretic effect.

If the fever remains high, two or three doses of acetanilide, combined with digitalis, sometimes have a good effect.

If the attack is mild, generally all that is needed is good nursing and salines dissolved in the drinking-water.

If there is a tendency to constipation, a powder of sulphur and nitrate of potash each day will generally relieve it, along with warm bran drinks or linseed tea.

The treatment in complications must, of course, depend upon the accompanying disease, remembering at the same time the weakened state of the animal, and let our treatment be such as will keep up our patient's strength.

**On the Use of the Newer Antipyretics in Influenza.**—Little progress seems to have been made, says the *University Medical Magazine*, in the treatment of this malady. This is but what would be expected, however, owing to the obscure nature of the aetiology and pathology of the disease. Although there is every indication that the affection is caused by a specific micro-organism, the particular one remains to be demonstrated.

As the manifestations of the epidemic influenza are not the same in different epidemics, or, in fact, in the same epidemic, and as at present we do not know of any specific, a large field for experimental therapeutics has been offered by the more or less constant prevalence of the disease during the past two years. This has not resulted in the discovery of any new remedies, but we have learned what *not* to use.

During the past few years the chemical laboratory has furnished us with many new drugs, an important series of which possess remarkable antipyretic properties, and, as ascertained later, some of them are analgesics as well. These qualities seemed to indicate particularly their use to combat the fever, as well as the local or general pains so frequently complained of in the present epidemic.

Disappointment, however, often followed this method of treatment, and some of the deaths which occurred in the early part of the epidemic are charged to the use of these drugs. Evidence has been accumulating that these new antipyretic drugs are capable of acting as cardiac depressants. This is, perhaps, particularly the case when the heart is already weakened from other causes. Bearing in mind the profound prostration in many cases of influenza, it will be apparent that the drugs in question are dangerous weapons.

It seems that any one of the various systems of the body—the re-

spiratory, the nervous, the vascular, or the digestive—may be particularly affected by the disease under consideration. This may be explained by the theory of a *locus minoris resistentiæ*. When the violence of the disease falls upon the circulatory system, it is very important to avoid all cardiac depressants. This becomes of even greater significance if the heart or vessels be already diseased. The same caution should be observed in the case of children and the aged, among whom the disease numbers the majority of its victims.

It is to be recommended, therefore, that in this disease the new chemical antipyretics be used very cautiously, or not at all. It must be remembered that during the prevalence of influenza all diseases are apt to have an increased mortality, so that the same caution is to be borne in mind. It is, perhaps, superfluous to remark that the same argument holds good in the cases of the other cardiac depressants.

**Some Mooted Points concerning the Vomiting of Pregnancy.**—At a meeting of the Philadelphia County Medical Society, held on December 23, 1891, Dr. T. Ridgway Barker read the following paper:

In discussing the ætiology, symptomatology, and prognosis of the digestive disturbance associated with gestation known as morning sickness, or the vomiting of pregnancy, it becomes necessary at the very outset of a comprehensive study of the subject to exclude those forms of gastric trouble which, while often accompanying this purely physiological process, are nevertheless not dependent upon it for their existence, but upon some pre-existing morbid condition which is simply aggravated by the changes incident to gestation.

From a failure to appreciate and differentiate between these forms of gastric disturbance is largely due the confusion and misconception which is so general, hence the existence of such a multitude of views as to the cause and gravity of the vomiting of pregnancy.

It becomes necessary, therefore, that we state clearly that when we speak of morning sickness we do not include the so-called vomiting *in* pregnancy, but confine our remarks solely to the vomiting of pregnancy. Without further explanatory remarks, let us proceed to a consideration of the subject from a scientific standpoint, ever mindful, however, how easy it is to advance a theory and how difficult to find evidence to support it. That the occurrence of vomiting without apparent cause in females who have exposed themselves to the risk of conception is a sign of much importance is generally admitted, since it so quickly follows cessation of menstruation, and therefore further tends to confirm the presumptive evidence of pregnancy. With reference to its ætiology, one finds as many views as there are stars in the sky, each differing from the other in magnitude and brilliancy even as these distant orbs of light. Let us then turn away from such a merry-go-round of medical opinion and seek to discover the truth in the realms of anatomy and physiology rather than in the domain of idle speculation.

Coincident with conception we find a general rise in the intrapelvic blood-pressure resulting in increased activity on the part of all the viscera therein contained which are concerned in the process of reproduction. Cells heretofore carrying on a passive existence now spring into a high state of activity. Likewise there occurs hyperplasia and hypertrophy of tissue which is especially rapid in the uterine muscular elements. Nerves, which in the unimpregnated condition possess but a low grade of sensibility, now become highly sensitive and transmit readily to their respective centers slight disturbances, which, under other circumstances, would fail to throw them into a state of activity. What relation, one may very properly ask, exists between the vomiting of pregnancy and this exaltation of the nervous system? A causal one, most assuredly!

Can one fail to realize that this is a symptom of pregnancy due to the change in the nervous equilibrium induced by the process of gestation? Surely not. Rather are the nausea and vomiting expressions of a reflex irritation having its origin at the end-organs of the uterine nerves, which, as we have seen, are in a hyperæsthetic state. As the growing ovum demands, day by day, an increased space for its development, these end-organs are subjected to a varying degree of irritation which is transmitted to the centers and thence reflected out along the nerve-filaments distributed to the stomach. Why this affection is of more frequent occurrence and of greater severity in the first than in

subsequent pregnancies one can readily understand by comparing the cavities of the primiparous and multiparous organs.

We find in the former that the uterine muscular walls are convex and nearly, if not quite, in apposition, hence the capacity of the organ in these females is relatively less. Not so the multiparous uterus, for its walls are concave, and the capacity is further increased in length by half an inch owing to incomplete involution on the part of Nature after the first pregnancy. Need we seek for more conclusive evidence than this to support our position? Is it not plain to be seen that the resistance in the primiparous organ will be greater and the nervous disturbance more pronounced than where the cavity is larger, thus allowing the ovum to undergo its development without interference? Further, the period when nausea and vomiting are most apt to occur is in the second month, at a time when the growth of the uterus is principally lateral and the villi of the chorion are thrusting themselves into the serotine or placental decidua. As to the character of its onset, it is usually gradual and disappears in a similar manner as the uterus rises out of the true pelvic cavity, thus having quite ceased by the end of the fourth month.

Concerning the symptomatology of this affection, it has not a few well-defined characteristics. The primary nausea and oppression experienced over the epigastrium soon gives place to vomiting, not, however, preceded or accompanied by any degree of nervous depression as is the case with emesis under all other circumstances. The food, if any is present in the stomach, is expelled, not violently or with any amount of retching, but almost as if it were regurgitated. Should the stomach be empty, then simply a little clear, normal gastric mucus is raised, which, as it usually occurs early in the morning, has given rise to the popular appellation of morning sickness. Further, if the matter vomited be food, it will not be found on examination to be sour or to have undergone decomposition, but in a more or less perfectly digested state, depending upon the length of time since its ingestion. As to the subsequent amount of nervous depression, in most instances it is practically *nil*, even when the vomiting is frequent and of long duration. This fact is very noticeable in some cases; the pregnant female may have just finished a hearty meal—for impairment of the appetite is rather the exception than the rule—when almost immediately afterward she will be obliged to evacuate the stomach, only to turn to the piano and find consolation for her lost breakfast. Rarely does one meet with a case of vomiting of pregnancy where the female's health has materially suffered, and this is what one would reasonably expect from a study of the symptomatology of the affection.

That this digestive disturbance is a purely sympathetic one is proved by the fact that by a strong effort of the will the female can not infrequently ward off an attack.

Should she, for instance, have accepted an invitation out to dine during this period of gestation, she can control the nervous irritability by a firm determination not to betray her condition to the assembled guests. It has been repeatedly asked, How can a woman suffer from morning sickness at one period of gestation and not at another? In other words, How is it that the attacks vary in severity in different pregnancies? Moreover, Why is it that one pregnant woman has morning sickness and another does not? Can this be explained on the hypothesis of reflex nervous irritability? Most assuredly.

The variability in the duration and severity of the affection is due to two factors: Greater or less irritation, and greater or less irritability. The question may here be asked, Is vomiting of pregnancy a physiological or a pathological process?

It has been stated that among women of a strong, robust type, vomiting of pregnancy is exceptional rather than the rule, as is the case in Europe and America. But this fact has no direct bearing on the case; it goes without saying that the stronger and less sensitive the nervous system, the less general and severe will be the sympathetic disturbance. One certainly is not warranted in stating that the vomiting of pregnancy is a pathological process, for it is due to a purely physiological cause. There exists no morbid alteration in structure or function of the nerves. The irritability is not pathological but physiological, depending upon the degree of sensibility of the nervous apparatus. Yet it has been claimed by some investigators that this very exaltation is evidence of some pathological lesion. Surely not. It

were, it seems to me, as reasonable to declare a person's brain diseased because he is irritated by Wagner's music, in which he finds no harmony, as to declare that the sympathetic disturbance excited by pregnancy is due to some morbid process.

Again, if we select two galvanometers, one registering the weakest electric current, the other equally well constructed but less sensitive, we can not say that the former is any more perfect than the latter; they differ simply in the degree of their sensibility. Difference in sensibility within certain prescribed limits is a physiological, not a pathological fact. While vomiting, as Austin Flint points out, is not, strictly speaking, a physiological process, yet under these circumstances it is far from pathological; rather let us say it is the pathological expression of a physiological process. The vomiting of pregnancy, unless complicated by some morbid process, never gives rise to alarming symptoms or threatens life. If prolonged beyond the period of quickening, its continuance may be accepted as positive evidence of some complication which a decided alteration in the character of the vomited matter will usually indicate.

Cases of pernicious vomiting call for diligent search for organic lesions in the nervous system or structural changes in some of the generative or associated organs. That the vomiting of pregnancy occurs in healthy, strong women almost as frequently as in their less robust sisters, though in a milder form and of shorter duration, only confirms the view as to its physiological nature. The view advanced, that the difficulties of parturition are proportionate to the severity and length of the morning sickness, one is scarcely prepared to accept. The gravity of the digestive disturbance is to be estimated by the amount of nervous irritability, while the difficulties attending parturition may be classified under two heads—maternal and fetal. The former including uterine inertia, pelvic deformity, and rigidity of the soft parts; the latter, abnormal size of the fœtus and malpositions of the fœtus. Surely no such conclusions are justified, for the reports from the large lying-in hospitals of both America and Europe unmistakably prove that no such relation exists. Females who have suffered great annoyance from morning sickness have frequently as easy and sometimes more rapid labors than those who have almost wholly escaped this unpleasant early indication of pregnancy. Therefore, in conclusion, it would appear, from a study of this affection: 1. That the vomiting of pregnancy is due to a reflex irritation produced by the developing ovum acting upon an exalted nervous system. 2. That it is not an affection of great gravity and need occasion no anxiety or alarm. 3. That active treatment is rarely demanded, as it is only a disturbance of a few weeks at the most. 4. That the severity of the gastric trouble is no indication of the character of the subsequent labor. 5. That where the affection persists beyond the period of quickening, it is due to pathological causes which must be discovered and treated accordingly.

**The late Dr. William H. Van Wyck.**—The following is from the minutes of a meeting of the medical board of Charity Hospital, held on January 2, 1892:

The medical board of Charity Hospital has heard with profound sorrow of the death of their colleague, Dr. William H. Van Wyck, which occurred on the 16th day of November, 1891.

Dr. Van Wyck was one of our oldest members, and was endeared to us all by his geniality and kindness of heart. He was an esteemed member by reason of his broad knowledge of medicine and of surgery, and of his rare talents in practical therapeutics.

The members of the board therefore hereby express their great grief at the removal of their esteemed colleague by death, and extend their sincere sympathy to the widow, relatives, and friends of the deceased, with the assurance that they will ever cherish his memory.

Committee. { ROBERT W. TAYLOR,  
HENRY GOLDTHWAITE,  
THOMAS H. BURCHARD.

**The Association of Military Surgeons of the National Guard of the United States.**—The second annual session will be held in St. Louis, on April 19, 20, and 21, 1892. An interesting programme of addresses by prominent surgeons of the National Guard and the United States Army has been arranged, papers on military and accidental surgery will be read and discussed, and all matters pertaining to the health, useful-

ness, and welfare of the civilian soldiers will receive attention. The afternoon of one day will be set apart for an object lesson from the *Manual of Drill* by hospital corps of the United States Army detailed for this purpose. The evenings will be given up to entertainments, receptions, and banquets, for which the medical profession and generous citizens of St. Louis have pledged \$10,000. It is very important for the committee to ascertain as early as possible who will attend this meeting, and they ask for the name, rank, and address of those intending to be present, how many will form the party, and what hotel accommodations are desired. The fatigue uniform will be worn during the day and full dress at all evening entertainments. Full dress is not compulsory. Those intending to read papers are asked to send the title to Colonel E. Chancellor, 515 Olive Street, St. Louis, by March 1st. Transportation will be satisfactorily reduced on all railroads and steamboats to and from this meeting, and all hotels have given a low and uniform rate. It is expected that not fewer than five hundred surgeons and assistant surgeons of the National Guard of the United States and their families will be in attendance, to all of whom the committee of arrangements extend a most cordial welcome. Lieutenant Ralph Chandler, 135 Grand Avenue, Milwaukee, is the corresponding secretary.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

Original Communications.

TARDY HEREDITARY SYPHILIS OF THE BONES.\*

By G. G. DAVIS, M. D., M. R. C. S. Eng.,  
 PHILADELPHIA,  
 SURGEON TO ST. JOSEPH'S HOSPITAL;  
 ASSISTANT SURGEON TO THE ORTHOPÆDIC HOSPITAL.

FOUR cases of this not very common affection have recently come under my notice. As its true nature is quite likely to pass unrecognized and mistakes in treatment made, and as these cases happen to be so typical, I have thought them of sufficient interest to be presented to the consideration of the fellows of the college:

CASE 1 is that of R. B. D., a boy aged fifteen years. He presented himself at the Orthopædic Hospital with an enlargement of the left tibia, accompanied by considerable pain. His history is as follows: He is one of a family of fourteen children, nine of whom died in infancy. One of these nine died of hydrocephalus; the causes of death of the others are unknown. One of the five children left—a girl—lived to the age of eleven years, and had a similar affection of the legs as is presented by this patient. She was also at one time deaf and blind, but these troubles improved under treatment. She is said to have died of membranous croup. The rest of the surviving children appear to be healthy.

The mother has had five miscarriages, and the father confesses to having had syphilis, but states that it was contracted after the birth of the other affected child. There is a history both of a primary sore and skin eruptions. About eight years

ago, and the pain still troubles him. He has been rubbing the leg with liniments, but has never been treated by a physician.

On examination, the left tibia is found much enlarged, particularly forward, and bent to a slight extent inward. The thickening begins above the ankle and extends to near the tuberosity. There is a superficial ulcer on the front of the leg half way up to the knee. The left extremity, as a whole, appears to be two inches longer than the right one. The inner side of the left tibia measures over two inches more than the right, and its anterior surface is two inches and a half longer than that of the tibia of the opposite leg. The fibula does not appear to be at all affected. This increased length of the left leg has caused the pelvis to be tilted, and produced a curvature of the lumbar spine with the convexity toward the right and a compensatory one in the dorsal region with the convexity toward the left. The left knee is bent inward in a genu-valgum position and the foot is markedly abducted, or in a state of valgus. Three years ago he was struck by a stone on the right leg



FIG. 2.

above the external malleolus. The injured part began to pain and swell, and the fibula of the right side is now enlarged for the space of six inches above the ankle joint. The enlargement, however, is not so marked as that of the tibia of the opposite leg. No other bones are affected, and the teeth are neither pegged nor notched, although somewhat uneven. The boy is



FIG. 1.



FIG. 3.



FIG. 4.

ago, when the patient was seven years of age, he was kicked on the left shin by a boy. The leg then began to swell and pain him, particularly at night. This swelling has gone on increas-

thin, illy nourished, and somewhat nervous. The deformity of the left leg of this patient is shown in Fig. 1.

A marked feature of the case was its high and irregular temperature, varying at times as much as five degrees in twelve hours. The boy was treated with syrup of the iodide of iron, and then bichloride of mercury and iodide of potassium. He

\* Read before the College of Physicians of Philadelphia, November 4, 1891.

improved at times, but eventually left the hospital not much better than when he entered.

CASE II.—William P., a boy aged thirteen years, was admitted into the hospital under Dr. Goodman's care. When eight years of age, during the summer time, he began to have pain in one of his wrists. He denied having injured the part, and there was no change in its external appearance. In a week's time he had pains all over him. These pains continued all that fall and winter. They were present more or less all the time, but were worse from four o'clock in the afternoon on. He was also chilly and wanted to be near the fire. The affection was supposed to be rheumatism, but treatment for that condition gave no relief. In the following summer the pains ceased and both tibias began to enlarge. The ankles and knees at this time were also thought to be affected. The bones of the left forearm, too, began to get larger. Since then he has had pain off and on; it is worse before and after wet weather. He has never, at any time in his life, had any eruptions on his body or any trouble with his eyes or ears. His teeth are good, strong, and even.

His mother gave the following family history: She has had fourteen children, the patient being the seventh; of these, ten are living; the other children are all healthy. Of the four who are dead, one was killed by a gunshot wound at the age of three years, and another died of some disease of the stomach at the age of five. The remaining two died at the age of two and four days, respectively. The physician in attendance said that there was something wrong with their hearts. A year and a half ago the mother had a miscarriage at five months. She does not know of any cause for it, and it is the only one she has ever had. The father is a strong and hearty man. He has never had any eruption of the skin, and the only illness he has experienced

enlargement, as shown in Fig. 2; both legs were likewise enlarged, as seen in Fig. 3, of the left leg. The foot of this leg also showed some valgus. Before he entered the hospital he fell and hurt himself, and a purple spot showed itself above the right ankle. He remained in the hospital four or five weeks, and, after leaving, this spot broke down, and his physician, Dr. Miller, removed a large sequestrum, after which the limb was left as seen in Fig. 4. A year and a half later the swollen part



FIG. 7.

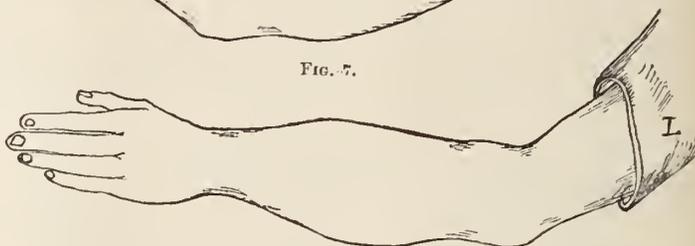


FIG. 8.



FIG. 5.

FIG. 6.

was six years ago, when he was very sick for four weeks. He was very hoarse, and the attack was thought to be bronchitis. The children did not suffer in infancy from snuffles or eruptions of any kind, nor from sore eyes.

On the admission of the patient into the Orthopædic Hospital both bones of the left forearm were the seat of a fusiform

below the knee of the right leg got quite red and painful and looked as if it was about to suppurate. While in the hospital this patient was treated with iodide of potassium and phenacetine and salicylate of soda at times for his fever. On leaving the hospital his acute symptoms had somewhat subsided, but otherwise he was about the same.

CASE III.—Willie S., a boy, aged eleven years, had been ailing for five years. He has had pains in his arms and legs, particularly the latter. These were thought to be rheumatic. He has been steadily getting worse, and now his legs are very much deformed, as are also his forearms. He has limped for the past two years. There is a valgoid condition of both feet, the left being the more marked. He complained while under treatment of a cold in the nose and throat. The cervical glands enlarged enormously, but after three or four weeks again subsided. Later on a large node appeared in the course of a single week on the left fibula just above the external malleolus, but immediately began to subside. The father admits having had gonorrhœa when young, but denies ever having had any symptoms of syphilis.

The mother states that there are two other children, now aged fourteen and sixteen years; they are and have been perfectly healthy. She has had three other children; two of these died of "water on the brain"—one at the age of three months and the other at seven weeks; the third was still-born. The head of this last child was also said to have been larger than was natural. She has had no miscarriages. Her husband has never had any trouble excepting rheumatism, from which he is getting better. The patient has a lupoid scar under the right eye, said to be from an abscess, and another on the side of the head measuring three quarters by an inch and a half. His legs increased gradually in size until they presented the appearance shown in Figs. 5 and 6. His forearms are shown in Figs. 7 and 8. The legs are the only parts that now pain him. He was never affected with snuffles in infancy, nor had he any eruption.

This patient was placed on the use of syrup of iodide of iron, twenty drops three times a day, and later was given iodide of potassium, five grains, and bichloride of mercury, one thirty-second of a grain after meals, and compound syrup of the hypophosphites, U. S. P., before meals. Improvement has been

marked and satisfactory. The arms have been reduced nearly to their normal size, and the size of the legs has also decreased. Febrile disturbances have never been marked in his case. Lately, however, a new node made its appearance on his left fibula, as already described, but has decreased much in size.

CASE IV.—William W., a boy aged thirteen. He was well until four years ago, when he was under treatment at one of our hospitals for disease of the right ankle. (See Figs. 9 and 10.) One year later the left began to swell (see Fig. 11), pain was severe, and he walked with great difficulty; at times he could not walk at all. He has also had pains in the left knee and hip, both in winter and summer. There is one scar on the outer side of the left tibia and two on its inner posterior surface. These were discharging eight months ago. The inner side of the right tibia is three eighths of an inch longer than that of the left tibia, causing the foot to assume a position of extreme valgus. (See Fig. 9.) His mother has had eight children, our patient being the fourth. Six are living, one died of scarlet fever, and one was still-born. No syphilitic history could be traced in either parent. The patient was placed on the use of iodide of potassium, and in about six weeks the left tibia was reduced to its normal size, and all pain in it



FIG. 9.

Later on one thirty-second of a grain of bichloride of mercury was given in addition to the iodide of potassium.

These cases are well-marked examples of an hereditary syphilitic taint which is tardy in its manifestations. The affection is to be distinguished from ordinary inherited syphilis because in it the manifestations of the disease occur usually during the first three months after birth, while



FIG. 11.

ceased. The right tibia, however, soon after suppurated and discharged three or four minute granules of bone, and still later an ulcer appeared on the right heel, near the tendo Achillis.

in tardy hereditary syphilis the symptoms may show themselves in childhood, youth, or even early adult age. In these cases the signs first showed themselves at the ages of seven, eight, six, and nine years, respectively. Fournier (*Syphilis héréditaire tardive*) describes one case, that of a young man who was attacked at the age of twenty-six years. Of course tardy hereditary syphilis can manifest itself by affecting other tissues than the bones, but they are the second most frequently affected. Eye troubles are the most common, embracing nearly half of all the cases, while the bones, according to Fournier, are affected in thirty-eight per cent.

The tibia is the bone most commonly attacked, and was affected in all the four cases here given.

In cases in which a syphilitic taint is suspected we naturally turn to the previous history of the patient if he is an adult, and to that of the parents if a child. The tardy or late manifestations of syphilis appear to be the last evidences that can be definitely attributed to the syphilitic infection. When it is attempted to attribute such lesions as are commonly regarded as serofulous or rachitic as being the result of a hereditary syphilitic taint, then we simply wander about in a speculative region about which nothing definite is known. It is, I think, a recognized fact that, as the duration of a disease is extended, so does the efficacy of purely specific remedies diminish, and certain it is that purely antisiphilitic treatment has not demonstrated its value in serofulous or rachitic affections.



FIG. 10.

While the peculiarity of the manifestations of the disease in the patient may establish the diagnosis positively, it still often occurs that a typical syphilitic history can not be traced in the parents. This is only to be expected, because we should remember that we are dealing with the manifestations of a disease that is on the point of losing its specific characteristics, and therefore does not exist in a virulent form. As the disease varies in intensity in different individuals, so we are apt to find the history to be a more or less typical one. In some, the more we search, the more numerous do we find the evidences of the syphilitic taint, and in nearly all some corroborative facts can be discovered. In the first case we find nine out of fourteen children dying in infancy; in the second, two out of fourteen; in the third, three out of six; and in the fourth, only one out of eight. A large infant mortality is characteristic of syphilitic parents, and in the first case this is markedly shown, but not so in the others, although three out of six in the third case is certainly suspicious.

Examining into the causes of death of these eleven infants, we find that, of the first five, one died of hydrocephalus, while the causes of the death of the other four are unknown. Of the second case, we find that the attending physician said the two infants died of heart trouble; they lived to the ages of two and four days, respectively. Of the three children of the third case, two died of water on the brain, and the third was still-born. Of the last case, the one that was lost was still-born. Haase (*Allg. med. Annal.*, February, 1829) and Lanceraux (*Syd. Soc. Transl.*, vol. ii, p. 162) state that hydrocephalus is occasionally associated with hereditary syphilis, and here we find three out of eleven children dying of it, and even one of the still-born children had a head larger than normal. It suggests the possibility of some of the cases of hydrocephalus which live much longer than these did as being due to a similar specific poison, although perhaps in a more attenuated and less virulent form.

Miscarriages are also symptomatic of the affection. We find that the mother of the first patient had five; of the second, one; and each of the other two had one child still-born. A clear syphilitic history of primary sore and skin eruption was obtained from the father of the first patient; but he claims they appeared after the birth of a sister of our patient, who was similarly affected, but he is probably mistaken. There was no syphilitic history on the mother's side. In the second case there was no specific history on either side, the father's only ailment having been an attack of what was supposed to be bronchitis, which disabled him for four weeks. It is possible that this may have been a specific sore throat. The parents of the third child deny all specific symptoms, the father admitting only that he had had while young an attack of gonorrhœa. No evidences of a syphilitic history could be obtained from the parents of the fourth child. The occurrence of osseous lesions such as are present in these cases has so frequently been observed in connection with other manifestations of the disease, and in cases in which the whole chain of evidence is complete, that there can not be the slightest doubt as to their cause. Such cases are given by Fournier, Hutchinson,

and others, and that of the first patient here presented is also one of that character. I have lately had referred to me a young married woman, aged twenty-seven, who, at the age of ten years, had an undoubted syphilitic ulceration of the throat, the soft palate being destroyed. This was followed later by syphilitic disease of the eyes, and from the age of twelve she has had trouble with one of her shins. It is tender and roughened even yet, and has probably been the seat of a syphilitic node.

The pain which exists in these cases is an important symptom. It begins when the patient goes to bed, and is less or altogether absent when he is up and about. It is said to be caused by the warmth of the bed-clothes, and that if the patient sleeps in the daytime he will have the pains at that time, instead of during the night. In Case II the pains began to get worse from four o'clock in the afternoon. The pains usually precede the enlargement of the bones, and at this stage the disease is very apt to be considered as being rheumatic. This occurred in some of these cases. The disease may either affect the bones near the epiphyseal cartilage or else the shaft. When the neighborhood of the cartilage is affected, the growth of new though not healthy bone is rapid—in fact, so rapid as to produce very marked deformities. The tibia being often affected while the fibula remains healthy, causes the foot to be thrown into a position of valgus. This was markedly the case with the left foot of patient one, the left foot of patient two, the left foot of patient three, and particularly the right foot of patient four. Mr. Hutchinson (*Med. Times and Gazette*, March, 1879, p. 348) details the case of a girl, aged seventeen, who had an enlargement of the middle of the femur which caused lengthening of the member. This shows that the increase in the length of the limb in these cases is not due to an increased activity of growth solely at the region of the epiphyseal cartilage, but that it likewise takes place in the diaphysis. Spontaneous fracture of the bone occurred in this case.

It is natural to look for other evidences of syphilis in the patient, such as notching of the teeth, but one should not necessarily expect to find them. Of course, some cases occur in which there has been a variety of lesions. Thus, the sister of our first patient had had both ocular and aural affections in addition to the bony lesions; also, in the case I have already mentioned, there were lesions of the throat, nose, and eye, in addition to the trouble with the tibia, but this is not commonly the case, and we are not apt to find the teeth affected. None of these four cases showed it.

A valuable diagnostic point is the multiplicity of the lesions, these being often symmetrical. In the first case the tibia of one extremity and the fibula of another were affected; in the second, the ulna and radius of one arm and both tibiæ; in the third, both tibiæ and one fibula and the ulna and radius of each arm; and in the fourth case, both tibiæ.

The pathological processes occurring in the bones is usually chronic, but at times it presents exacerbations, with marked sthenic symptoms. Severe pains, tenderness on pressure, increase in size of the part, redness, œdema, high

fever, and even suppuration followed by necrosis—all may occur.

The first patient, a boy aged fifteen years, had all these symptoms, and his fever was both high and irregular, varying from two to five degrees on an average. The second patient also, a boy aged eleven years, had marked febrile disturbances, the daily variation being from two to four and four fifths degrees. The third and fourth cases pursued a more chronic course, with very little febrile disturbance.

The nodes appear sometimes to be started by an injury as occurred in the first case, but this is not a usual occurrence. The disease affects both the periosteum and the bone itself. The rapid appearance of some nodes, as seen in the one occurring on the fibula of the third patient, and those shown by the unevenness of the crest of the tibia in some of the others, demonstrates the fact that the periosteum is markedly enlarged together with the superficial layers of bone. The body of the bone itself is also often affected. This at first is the seat of a rarefying osteitis; the bone becomes softened, and may even, as in Mr. Hutchinson's case above mentioned, break spontaneously. The skin is not unfrequently discolored, and large blue veins can be seen wending their way beneath it. (See Figs. 5 and 6.) As the activity of the disease ceases, if the bony changes have not been too marked, much of the deformity may disappear. The forearms of the third boy mentioned have almost, if not quite, returned to their normal condition, and his legs likewise have much improved, but the bones of the forearm of the second case retain their deformed condition; the disease, however, was still at times active. Later on a condition of sclerosis of the bones may occur, and further change in their form will only be such as is due to their subsequent growth.

When suppuration occurs, it may either take place with considerable or little disturbance. If the first is the case, the swelling is apt to occur quickly, the skin becomes red, fluctuation occurs, and spontaneous opening takes place with not much discharge of pus; the bone quickly becomes bare and exfoliation of a superficial scale is apt to be rapid, although, if the bone is deeply involved, the necrosed piece may long remain attached at one of its extremities. If, on the other hand, the process is more chronic, a regular cold abscess forms with a scanty amount of pus, spontaneous perforation soon occurs, and small granules of bone are discharged, as in the fourth case mentioned, and healing soon takes place, leaving a scar. The process differs considerably in its course from that of tuberculous or strumous disease. In the latter, the course of the carious or necrotic disease is much slower and a larger, thicker mass of bone is involved, and the sequestrum comes more from the body of the bone. The sinus may also keep discharging for months, and even years, the disease remaining apparently *in statu quo*. In these syphilitic affections, however, the course, both in its onset and decline, is more abrupt. Of course, as mentioned above, exceptional cases do occur where, from the depth to which the bone is affected, separation of the sequestrum is much slower than is ordinarily the case. There is a difference also in the appearance of the two patients. The syphilitic ones are usually thin, pale,

ill-nourished subjects, while those with ordinary necrosis are often in quite good general health, and certainly have a much better appearance than that of the marasmic-looking subjects of hereditary syphilis.

In regard to the treatment of the affection, mercury and iodide of potassium are certainly the most useful medicines. The rapidity with which the bone troubles of acquired syphilis respond to the administration of iodide of potassium has caused it to be looked on with deserved favor, and, if one were to estimate its value in the hereditary form solely by that fact and what Fournier says of it, one would expect no trouble in the treatment of these affections after they had once been properly diagnosed. It remains true, nevertheless, that in many cases the readiness with which an affection responds to treatment is inversely proportional to the amount of time that has elapsed since its acquirement, and, as might be expected, these cases of tardy hereditary syphilis are not so readily curable as the affections caused by the acquired form are. Mr. Hutchinson recognized this when he said (*Illustr. of Clinical Surg.*, vol. i, 1875, p. 47) of the nodes of hereditary syphilis that they were not very definitely influenced by the iodide of potassium. The first two cases here detailed both received at some time antisyphilitic treatment, but I was unable to keep sufficient trace of them to definitely determine its value. The first patient was not much improved, while the second was, after a few weeks, bettered to the extent that his acute symptoms subsided, only to reappear later on. In the last two cases antisyphilitic treatment has been more continuous and more satisfactory; both patients have markedly improved, although neither is by any means cured. Mr. Hutchinson says that these nodes, after having lasted a while, may disappear spontaneously, and therefore one should not be too ready to attribute any favorable change that may occur to the action of our remedies. Antisyphilitic treatment certainly offers the best hopes of cure, and the physician should pursue it faithfully. Personally, I like to give the bichloride of mercury in tincture of chloride of iron with some syrup, and iodide of potassium in solution of the strength of a grain to the drop. Syrup of iodide of iron, syrup of the hypophosphites, and tonics may also be found of service in the intervals when it is desired to suspend the administration of the more specific drugs. I hardly think the treatment should be solely and continuously an antisyphilitic one, but rather combined with one suitable for strumous affections. Macnamara (*Diseases of the Bones and Joints*, p. 151) holds that, while the iodides tend to relieve the pains in the bones, they are not curative, and therefore he orders iodide of potassium and bichloride of mercury together in some syrup. He also advises surgical intervention at times. He states that a subcutaneous incision into a painful node is frequently attended with the greatest relief to the patient, and, when the pains in the bones persist in spite of treatment, he advises exposing them and making a linear incision with a Hey's saw. I did not have an opportunity of trying this in the first two cases, where it would almost certainly have been of service, and in the last two the symptoms improved under treatment to such an extent as to render it unnecessary.

## SOME MOOT POINTS IN ECTOPIC GESTATION.\*

BY X. O. WERDER, M. D.,  
PITTSBURGH, PA.

ON the 16th of May of this year there came under my care at Mercy Hospital, Mrs. R., aged thirty-eight years, married seventeen years, mother of five children, the youngest over four years of age. She also had four miscarriages, the last one two years ago. Her menses were somewhat irregular, sometimes appearing every three weeks, sometimes going over time, also more profuse and of longer duration than previous to the birth of her last child. She always had good health until three months ago, since which time she was subject to irregular pains referred to the lower part of her abdomen and over to the right iliac fossa, of a bearing-down nature, like labor pains. April 16th, just a month ago, she had a very severe attack of these pains accompanied with a feeling of faintness, so that she was compelled to go to bed. In two or three days she had improved sufficiently to be able to go about, but she had repetitions of these paroxysms at irregular intervals of a less severe character. During the last four weeks she was compelled to spend half of her time in bed, and was unable, when up, to attend to her ordinary household duties. For the last six weeks she has had a constant bloody discharge, never profuse, and at no time were there any shreds of decidua passed, as far as she was able to observe.

Mrs. R. is of medium height, well nourished, but rather pallid and anæmic. She complains of some pain in the lower part of her abdomen, extending over toward her right side, with bearing-down sensations. There is some tenderness on pressure over this region. Vaginal examination reveals a marked bilateral laceration of the cervix with erosions and cervicitis. Pushing my finger up toward the fornix vaginae, it encountered a mass filling up Douglas's pouch, causing the latter to bulge down somewhat, which I at first mistook for a retroflexed gravid uterus, but, on making a more careful bimanual examination, I discovered the fundus uteri pushed out of its median position over to the left side of the pelvis by this mass, which was very closely connected—in fact, almost continuous—with it on its right side, but the fundus was found projecting over it. The uterus was considerably enlarged and slightly movable; moving it also imparted some very slight motion to the tumor. The mass was situated in Douglas's *cul-de-sac* and extending over toward the right side, but was not attached to the right pelvic wall; in fact, my finger could easily be pushed up between it and the pelvis. It was soft, almost giving the sensation of fluctuation, at least at its upper surface, and seemed almost immovable; it was of the size of a large orange and slightly tender.

A positive diagnosis was not made. It seemed most probable that this tumor was either an ovarian cyst with firm adhesions to the posterior pelvic wall, or an intraligamentous or broad-ligament cyst. The possibility of extra-uterine pregnancy was also considered, the symptoms pointing to it being the menstrual discharge keeping up for six weeks and the paroxysms of pain.

Laparotomy was performed on May 23d. After pushing up the intestines and omentum, which covered the tumor and had formed loose and soft adhesions with it, dark blood appeared in the incision and my hand filled up with a soft, friable substance, which when brought to the surface was found to be semi-organized blood coagula. Several handfuls were emptied out and then the tube was brought up, which was dilated and ruptured and filled

with blood-clots and the, at least at one place, firmly adherent placenta. The fetus was not found. This blood tumor was situated principally in Douglas's *cul-de-sac* and partly also to the right of it, but did not fill up the whole right side of the pelvis. It was bounded in front by the right broad ligament and the uterus (which also formed the boundary line on the left side), above by intestines, and posteriorly by pelvic wall. There was no membrane surrounding it which presented the least resistance to the finger; after separating the intestines it broke right into the mass. The abdominal cavity itself, before the ruptured mass had been broken into, was entirely free from blood. Neither was there any sign of inflammation, the only abnormal condition being a marked congestion of the peritoneal lining of intestines and abdominal walls. The abdomen was washed out with distilled water, a drainage-tube inserted which was left forty-eight hours, and the abdominal wound closed. The patient made an ideal recovery and is now in excellent health.

This case is of great interest, because it proves to my mind the fact that not all cases of tubal pregnancy are fatal. Rupture in this case undoubtedly had occurred on April 16th, almost six weeks before operation; the hæmorrhage evidently was not very profuse, probably a slow oozing, because the symptoms at no time were of an alarming nature. The bloody serum in the abdominal cavity became absorbed, the coagula by the natural law of gravitation found their way to the lowest portion of the peritoneal cavity, the Douglas's pouch, when the protecting hand of Nature surrounded them by lymph, encysting them there and shutting this foreign body out from the general peritoneal cavity. That Nature's conservative efforts would have succeeded in restoring the patient's health in time is more than probable.

Simple as this matter seems, some of our best and experienced operators in this field doubt or even deny the possibility of this occurrence. Tait says that "intra-peritoneal ruptures seem to be almost uniformly fatal." "I have never seen a case of suspected rupture, or one in which we suspected intra-peritoneal effusion of blood, recover if left alone."\* Joseph Price, whose experience with ectopic gestation has been equaled only by Tait himself, seems to share this opinion. Their teaching seems to be that the only hope of recovery is in an operation. The only cases of tubal pregnancy which, according to Tait, recover spontaneously, are those rupturing between the folds of the broad ligaments, and such cases he regards apparently as quite common—so common that he has been able to see from fifty to eighty cases of this condition.

Price's experience differs from Tait's in this regard: in his opinion, rupture into the broad ligaments is extremely rare. He says: "Mr. Tait's position in regard to hæmorrhage into the broad ligaments differs from the rest of the world. I have operated fifty-four times for ectopic pregnancy, and I have failed to find hæmorrhage between the leaflets of the broad ligaments." †

The opinions of these two men should, by means of their unexcelled experience, be regarded as authoritative, but they disagree in a matter pathologically of great importance. There is no doubt that Tait's singular experience in regard

\* Read before the American Association of Obstetricians and Gynecologists, New York, September 18, 1891.

\* Tait on *Diseases of Women and Abdominal Surgery*.

† *Transactions of the Philadelphia Obstetrical Society*, February 5, 1891.

to intraligamentous rupture of tubal pregnancy has not been verified by other observers, nor can his statement in regard to the uniform fatality of intraperitoneal hæmorrhage be borne out by facts. I am of the opinion that many of these cases recover, and in this I am supported by Olshausen, Veit, and other authorities. My own experience, which, it is true, covers only six cases, has proved this to my own satisfaction. In addition to the case with which I introduced this paper, I have seen two other cases in consultation in which there could be no reasonable doubt about the existence of ectopic gestation with rupture into the peritoneal cavity, in which operation was refused and still the patients recovered. The first patient when seen by me was profoundly collapsed and exsanguinated and seemed to be on the verge of death. Both the attending physician, Dr. J. J. Buchanan, and myself urged laparotomy as the only hope of recovery, but this the patient refused. As this patient was very thin and the abdomen not tender, the examination was very easy. The fluid in the abdominal cavity could distinctly be made out. Bimanual examination discovered the uterus of but little more than normal size, movable, and pushed to the right by a boggy mass in the position of the left Fallopian tube. This mass was of about the size of a large orange, but somewhat more elongated. The sac of Douglas was filled with a doughy mass. The patient gradually rallied and improved, but very slowly, and her recovery was very tedious. Three months afterward I had an opportunity to examine her and found a mass in her pelvis of the size of a large lemon, and even then she was unable to attend to her household duties.\*

The history of the third case is almost identical with the one just narrated, with this exception, however, that her condition had never become extremely alarming and threatening as the other. She also recovered without operation; but though rupture occurred last April, her family physician, Dr. J. J. Buchanan, reported to me a few days ago that there was still a mass in her pelvis and that she was so very tender that examination could only be made with great difficulty. It is needless to say that though over five months have elapsed since her intraperitoneal hæmorrhage, she is still suffering from its effects.

Of the four cases in which I performed laparotomy, in one case reported in this paper the operation was made almost six weeks after rupture, when the patient was slowly recovering from an intraperitoneal hæmatocele; in two others rupture had occurred five days previous to operation; both patients were rallying from their condition of collapse and there were no signs of any renewal of hæmorrhage, and as the fetus in both cases had escaped from the tube into the abdominal cavity, it is at least probable that recovery would have taken place without operation. We have, therefore, five cases out of a total of six in which there is a strong probability of recovery, though undoubted rupture into the peritoneal cavity had occurred. Ordinarily we could hardly expect such favorable results, but I feel confident that the percentage of recovery is much larger than

we have been led to believe. Granted, then, that this be the case, should we change the method of treatment of this affection now generally advocated—namely, laparotomy as soon as this condition is recognized? I would say emphatically, No! There is too much uncertainty in this matter, and while undoubtedly many would recover without operation, there is a very large percentage which only prompt operation can save; unfortunately, we have no means of knowing which are the fortunate cases that would escape a fatal termination. Within a year I have had an opportunity to see two specimens of tubal pregnancy removed post mortem from cases unknown to me, which probably could have been saved by prompt operation. One of these, whose ovisac was not larger than a raspberry, died in a little over five hours. Promptness in operating should, therefore, be our rule; trusting in Nature to avert the fatal termination is illusory and is apt to be disappointing. I would advise, therefore, with Dr. Charles A. L. Reed,\* to operate—1. Before rupture as soon as the condition can be presumptively diagnosed. 2. In cases after rupture, as soon as evidences of internal hæmorrhage become apparent.

I think we all subscribe to this treatment, with the exception of those, perhaps, who still pin their faith to electricity. We are probably not so unanimous in the cases which have passed the most critical period, danger of death from hæmorrhage—*i. e.*, cases in which the hæmorrhage has ceased and the patients begin to rally and improve. Most authorities, I believe, counsel conservatism and advise against operation, but I doubt whether such a course would serve the best interests of our patients. On the one hand we have the danger of recurring hæmorrhage (cases in which bleeding returned at intervals of days and weeks have been reported by Veit, Olshausen, Price, Tait, and others) and an accumulation of blood in the abdominal cavity, which, in spite of the well-known digestive properties of the peritonæum, is liable to produce sepsis and peritonitis. Even if the hæmatocele has formed, there is still danger of sepsis and suppuration. If the patient survive all these dangers, her convalescence will be slow and tedious, as has been shown in the two cases referred to in this paper, and the tube which was the seat of the rupture will not only be a useless organ, but it may prove a source of ill health and possible danger to life at some future period. On the other hand, laparotomy should be, and has proved to be, a perfectly safe operation in skilled hands, especially in these cases, as they have already recovered from their collapsed condition; by it we are able to remove all present and future danger. In none of my abdominal work have I seen such ideal recoveries and such rapid convalescence as in the four cases in which I operated. The patients gained strength during the two weeks they spent in bed. One, in whom the pulse had been from 120 to 160 during the five days previous to operation, had a pulse of 90 the morning after operation. I would therefore, in the interest of the patient, advise laparotomy, though all present hæmorrhage had ceased and even if an intraperitoneal hæmatocele had

\* Reported in *Pittsburgh Medical Review*, 1891.

\* *Indications for Operation in Ectopic Pregnancy.*

formed, provided, of course, the operator has the necessary skill and the surroundings are favorable for an aseptic operation.

In closing this already too lengthy paper, permit me a few words in regard to a danger referred to by Olshausen,\* Reed,† and others, which patients with ectopic gestation are liable to encounter—namely, a recurrence of such an accident in the other tube. To avoid this danger it has been suggested to remove both tubes in operating for tubal pregnancy, justifying this course by the assumption that ectopic pregnancy is almost invariably due to salpingitis, which, in the large majority of cases, is bilateral. It is not my purpose at present to go into the ætiology of this affection, but to simply look at this matter in its practical bearings. Where the tube not the seat of fetation is seriously diseased, its removal is plainly indicated; but where no such marked disease is present, such a course, in my opinion, would hardly be rational. Of my four cases, in two the tube and ovary were perfectly normal; in one (the case reported in this paper), the left ovary was slightly adherent but the tube and ovary otherwise normal; in one only was the removal of the other tube indicated for disease. The result of this conservative course of treatment was pregnancy in two cases; one patient has been delivered of two living children since, and the other is in her seventh month of pregnancy.

## DISEASES OF THE URINARY APPARATUS.

BY JOHN W. S. GOULEY, M. D.,

SURGEON TO BELLEVUE HOSPITAL.

(Continued from page 70.)

### PART I.—PHLEGMATIC AFFECTIONS.

#### SECTION II.—SPECIAL CONSIDERATIONS.

##### IX.

#### TREATMENT OF THE ACUTE TYPES OF URETHRITIS.

URETHRITIS, liable to divers accidents, complications, and consequences, may be regarded as a stricture *in posse*, the germ of a stricture—in other words, urethritis and the consequent stricture may be considered as a continuous process whose evolution begins at the inception of the phlegmatic action and ends with the confirmed stricture. Therefore the general indications of treatment of urethritis are—1, to remedy the phlegmasia; 2, to guard against accidents and complications; 3, to prevent the formation of stricture; and 4, to minister promptly to other consequences of this phlegmasia. The special indications vary with the types, stages, and complications of the affection, with the peculiarities and general condition of the individual, and with his hygienic environment.

ABORTIVE TREATMENT.—The treatment of acute urethritis was for a long time based upon erroneous notions of its nature, and directed to the substitution, as it was believed, of a simple, inoffensive, for a specific phlegmasia.

\* *Extrauterinschwangerschaft mit besonderer Berücksichtigung der zweiten Hälfte der Schwangerschaft.*

† *Indications for Operation in Ectopic Pregnancy.*

This treatment, suggested in 1780 by Simmons, and afterward largely employed by Ricord, Diday, and others, consisted of urethral injections of nitrate-of-silver solution (ten, fifteen, or twenty grains to the ounce), and was named the abortive, to distinguish it from the methodical treatment. This supposed quick way was as delusive as it was alluring, alike to patients and to physicians, for it seldom cut short the attack of urethritis, and besides the great distress it caused, was often productive of grave effects upon the urethra and adjacent parts, the first effect being a super-acute urethritis, then peri-urethritis, lymphangitis, sometimes prostatitis, trachelocystitis, gonocystitis, orchitis, etc. Inasmuch as this too heroic treatment is still, though very rarely, recommended, it was thought necessary to give this note of warning to younger members of the profession against the employment of means which not only fail to remedy but serve to aggravate the affection.

Two other modes of abortive treatment were afterward employed: 1. The administration of balsamics alone. 2. The balsamics and urethral injections combined. They also have proved worse than useless. The balsamics alone were much used by Cullerier, who gave them in very large doses. He prescribed from twenty to fifty grammes of powdered cubebs each day, alternating with copaiba balsam, of which he gave from fifteen to twenty grammes a day in divided doses. Such doses may for a few days be tolerated by some stomachs, but how fatal they must prove to the faithful kidneys which distill the active principles of these drugs that, through the urine, they may act upon the diseased urethra!

The association of astringent injections with balsamics was extolled by Ricord when nitrate of silver failed. The substances used for these injections were sulphate of zinc and acetate of lead, or the two together, three and five grains to the ounce, repeated three times daily.

Urethral injections with copaiba-balsam emulsion have also been used, but soon abandoned on account of the great ensuing irritation. Then were vaunted many "infallible remedies," used by mouth or applied by injection or through soluble bougies, all of which have done infinite mischief. These panaceas were generally prescribed without regard to the particular stage of the phlegmasia.

A complete list of the drugs given for, and the modes of treatment of, urethritis that have been used and failed or caused serious harm would more than fill a large and thick quarto volume printed in small type.

METHODICAL TREATMENT.—To treat urethritis rationally and methodically, it is necessary first to ascertain the nature, cause, type, and precise stage of the phlegmatic attack, and the general condition of the sufferer.

*Hygienic Precautions.*—From the beginning to the end of this treatment the most rigid hygienic precautions should be taken, if only as prophylactic of accidents and consequences. Among the enjoinders are continency and avoidance of all manner of sexual excitation during the treatment and for a month after the cure, and abstinence from foodstuffs that may be trying to the digestive process or that are likely to act injuriously through the urine, which

is one of the most important factors both for ill and for good in urethritis. For ill, when it is excessively acid and charged with acid phosphates or with uric acid, or when it is excessively alkaline and loaded with triple phosphates. For good, when it can be kept bland and when it can be made the carrier of medicinal agents. Therefore the physician should keep a close watch over the urine throughout the treatment of urethritis. The diet should not otherwise be restricted, except in quantity, which may be a little less than in health, but not so decreased as to reduce the vital powers. An already feeble patient is benefited by a generous diet, with even a moderate allowance of wine, and is thus placed in a condition to recover from his urethritis much sooner than he would under insufficient alimentation.

The most scrupulous cleanliness should be observed. The glans penis should be bathed twice or thrice daily in a solution of mercuric chloride (one to ten thousand), and the patient cautioned against carrying his hand to the face or near the eye after touching the genitals, and to burn all cloths that may be impregnated with pus. The reason for these precautions should be fully explained to him, for they are among the most essential of the hygienic observances, without which virulent ophthalmia is almost certain to ensue.

The bed on which he sleeps should not be too soft, the covering should be as light as the state of the weather permits, and the room as little heated as possible. This, in a measure, tends to prevent erections.

Much walking or any prolonged exertion should be avoided, as either is conducive to complications and consequences, such as œdema of the prepuce, phimosis, lymphangitis, orchitis, etc.

*General Treatment.*—The first stage of urethritis or, as it is called, benign urethritis, which is the period of incubation of acute urethritis, should be treated with a view of favoring its early deliquescence. When a patient presents himself three or four days after a sexual debauch, complaining of a little ardor in urination, and has a slight clear mucous urethral discharge and some congestion of the mucous membrane at and within the meatus, the physician—after inquiring into the circumstances of the debauch, particularly if the culprits had both indulged freely in beer, wine, or spirit, and what was the degree of sexual erethism in both—is ready to pass judgment upon the question as to whether this is or is not the beginning of an acute urethritis. If he has a doubt, he should give the patient the benefit of that doubt by treating the case as if it were going to be acute urethritis. The treatment should first be directed toward rendering the urine as inoffensive as possible. If the urine contains a great excess of uric acid, four or five doses of ten grains each of sodium salicylate, largely diluted, should be given during the first day only. Afterward twenty grains of sodium bicarbonate, also largely diluted, should be given four times daily, adding the juice of half a fresh lemon to each dose, thus making a citrate of sodium, which is better tolerated by the stomach than the salicylate. The depletion produced by a brisk saline cathartic (an ounce of sulphate of sodium) is of much service in this stage of the

phlegmasia. Rest at this period is of much consequence, and may in the end be a great saving of time.

*The local treatment of the first stage of urethritis* consists of two daily irrigations of the phallic region of the canal with a solution of mercuric chloride (one to ten thousand, or even one to twenty thousand). The quantity for each irrigation should not be less than a pint of water at a temperature of 102° to 105° F. The greatest care should be taken against bruising or in any way irritating the urethra during these irrigations. A smooth, hollow bougie of gum or glass, not over four inches long, acorn-shaped at its vesical extremity, not larger than No. 10 English, with three or four perforations at the base of the acorn, may be used for the purpose. The bougie, fastened to the long India-rubber tube of a fountain syringe, is then gently passed into the phallic region of the urethra for about two inches and a half and the irrigation begun, the retrograde current washing all that part of the urethra anterior to the acorn, and running out into a vessel placed between the thighs of the patient, who should then be sitting upon the edge of his bed or chair. If the irrigations are well tolerated by the urethra, and if the urethral congestion is decreased in the course of two days, the treatment should be continued several more days to insure deliquescence of the phlegmasia. But if, on the contrary, the discharge increases and becomes opaque, showing the advent of the second stage, the irrigations should at once be stopped, as otherwise they would be likely to cause superacute urethritis and its consequences.

If, when a patient first applies for treatment, the discharge, instead of being clear mucus, is already opaque, it indicates the presence of pus and the beginning of the second stage. In such a case the local treatment by irrigations should not be employed. The first part of the treatment—*i. e.*, the citrate of sodium, etc.—should constitute the principal remedial means.

Patients very rarely apply for treatment until the second stage of urethritis is fully established. It is then that meddlesome treatment and polypharmacy are so often carried to the greatest excess, partly through the solicitation of the anxious patient, partly owing to misinterpretation of the phenomena of urethritis, and to the vain search for a specific, and it is then that the misguided employ blindly those heroic means which so surely lead to serious consequences.

*Subacute urethritis*, whose characters in its second stage are generally a free purulent discharge with little exfoliation of epithelium, comparatively little pain, very little scalding in urination, and no nocturnal erections, notwithstanding its mildness, is persistent and requires careful management lest it become acute or superacute. In the second stage of subacute urethritis the same hygienic precautions should be taken as in the other types, and the same diluent beverages as those used in the first stage, only it is wise to vary the drink every few days, substituting uva-ursi, buchu, or dog-grass tea for the citrate of sodium, and finally returning to the sodium citrate. In the subacute, like the other types, balsamics should not be used for several weeks, or not until the stage of decline, and should not be given in as large

doses; nor should irrigations be employed until very near the close of the period of decline, when the discharge has decreased to a few drops each day.

*The second or stage of increase*, of greatest activity, of the acute type of urethritis, during which it is steadily extending backward, attended as it is with much pain in urination, owing to extensive exfoliation of the urethral epithelium, and with painful nocturnal erections of the penis, demands an antiphlogistic medication. During this stage balsamics and injections are worse than useless, and provocative of complications and consequences which not only retard the cure but are in themselves of grave import. They should therefore under no circumstances be administered during that period. The amount of food should for a few days be lessened; a saline laxative, two drachms of sulphate of sodium in six ounces of hot water, should be given every morning; thirty grains of citrate of sodium four times daily for three or four days; a full bath of half an hour at a temperature of 102° during these four days, after which a nightly hot hip bath of five minutes is substituted; and absolute rest. Four or five times during the day the penis should be dipped, for cleansing and for urination, into a small vessel of warm mercuric chloride solution (one to five thousand). To combat the nocturnal erections of the penis, ten grains of camphor and one grain of hyoscyamus extract may be given at bed-time and once repeated during the night if necessary. For a fidgety algophobic patient a dose of thirty grains of sodium bromide largely diluted may be given instead of the camphor and hyoscyamus.

In this second stage superacute urethritis is similarly treated. To relieve the excessive pain during erection and chordee the penis should be immersed in a vessel of iced water, wherein the patient may then urinate much to his relief. A full dose of opium during the day and a rectal suppository of a grain of opium and half a grain of belladonna extract at night may be necessary to relieve pain and induce sleep. The application of ten or twelve leeches to the perinæum often has the effect of relieving extreme pain and of shortening the period of increase. This of course is advisable only in the case of strong and robust subjects.

*During the third stage*, or static period, this active antiphlogistic treatment is discontinued. The five-minute hot hip baths are, however, continued. The quantity of diluents is diminished or their constituents changed, and the case is otherwise treated in accordance with such new indications as may arise. The static period is generally of short duration, and if there be no complications or consequences, such as will be described later, the fourth stage soon begins.

*The fourth stage*, or period of decline, is ordinarily the beginning of resolution, which may be rapid and complete in two or three weeks, or slow and last four or five weeks, or incomplete and indefinite and merge into chronic urethritis. During this period of decline the phlegmasic phenomena are absent, and there is only the purulent discharge, which is less in quantity and very perceptibly altered in quality. It is no longer creamy and contains more mucus and less epithelium. There are no painful erections of the penis, and the urine has ceased to cause scalding pain. It

is at this time that the diluents should be suspended and that the balsamics may safely be administered, but not in the large doses so commonly given, such as three drachms daily of copaiba balsam or one ounce of cubeb powder. Both of these drugs, thus given, within three or four days become so nauseating that the most willing patients reject them. In moderate doses they are longer tolerated, but finally disturb the digestive process and have to be abandoned. About twenty-five years ago sandal-wood oil was suggested by Henderson as preferable to copaiba. Since then experience has demonstrated this superiority, and the sandal oil is now much more extensively used than copaiba, whose properties it possesses without its disadvantages. But even this oil should not be given in large doses. Two capsules, containing each ten minims of sandal-wood oil, may be taken four times daily for a week, then three times daily for another week, and during the third week the dose should be decreased until the patient shall have taken only one capsule, when the drug is discontinued. There are patients that can not bear even this comparatively mild treatment. Their troubles last longer, but after all get well without it.

*Not until the stage of decline is far advanced should urethral injections be used*, and then only if after the use of the balsamics there is still a slight discharge. Before this time even mild injections are liable to cause lymphangitis or peri-urethritis. Strong astringents should be particularly avoided. The ignorant believe that to cure a urethritis the urethral mucous membrane must be practically tanned. Injections, to be effective, should be used in large quantity, but in weak, unirritating solution, and only once daily during this stage of urethritis. The small urethral syringe containing an ounce of fluid, used three or four times daily, does more harm than good, for each introduction of its nozzle is a hurt to the urethra. Among the most efficient agents for urethral irrigation in these cases are the corrosive chloride of mercury (1 to 10,000) and the sulphate and chloride of zinc. Of a solution of sulphate of zinc, half a grain to a grain to the ounce of water, a pint is to be used at night or in the morning by means of the simple apparatus and fountain syringe already described, except that the hollow bougie should be about nine inches long in order that it may be carried as far as the sinus of the urethral bulb or farther if necessary, so that the whole urethra may be washed. The chloride of zinc, the other precious agent for urethral irrigation, should be used in even weaker solution than the sulphate—from a quarter to half a grain to the ounce. In some cases a solution of boric acid, two grains to the ounce, suffices to cleanse the urethra and arrest the discharge.

In the majority of cases this simple treatment, which can be applied by the patient himself, answers well, and the urethritis is cured in five or six weeks. Other cases, whether complicated or uncomplicated, are refractory to treatment and linger many months or years. These are principally cases of secondary urethritis, the patients having suffered from the phlegmasia once or twice before, or possibly being affected with granular urethritis or already with stricture, or perchance with urethral mucous patches

or tuberculosis. The special treatment required by these cases will appear in its appropriate place.

Among the medicinal agents that have been used in Bellevue Hospital for injections in urethritis may be mentioned solutions of the violet methylaniline, of permanganate of potassium, of permanganate of zinc, of phenol, of hydrastis, and many others, mostly with unsatisfactory results.

As a general rule, when uncomplicated urethritis is well cured there are no sequelæ. Some patients, however, suffer for many months after the cure from oversensitiveness of the urethra, unduly frequent urination, or a superabundant mucous secretion, due generally to hyperlithuria, and demanding a treatment appropriate to that condition. In other cases a very slight opalescent urethral discharge persists. In these cases the careful introduction of a bulbous bougie reveals one, two, or three tender spots along the urethra. These tender spots are places where there has been a greater degree of epithelial exfoliation than elsewhere in the canal, and the denuded spots, though afterward covered with granulation tissue, are oversensitive even to the passage of urine, and it is from them that issues the slight discharge. The treatment required is an occasional urethral irrigation and the introduction, twice a week for two or three months, of a steel sound to dilate the canal moderately, to restore its suppleness, to destroy the granulation tissue, to relieve the sensitiveness, and to prevent the formation of stricture.

*Conclusions.*—The study of the nature of urethritis and of the many modes of treatment proposed for its cure has led to the following conclusions:

1. There is no specific for urethritis, notwithstanding the popular belief in its existence.
2. Urethritis can not rationally be dealt with as a single phlegmasia entity, no matter what may be its cause.
3. The nature, course, and pathic properties of the different stages of the acute types of urethritis indicate that an exclusive method of treatment can not be carried out in all cases with a reasonable prospect of success.
4. The treatment that is suited to one type or stage of urethritis is often hurtful in another type or stage of the affection.
5. The same therapeutic agent, applicable to a particular type or stage of the phlegmasia, is not suitable to all individuals.
6. Balsamics are contra-indicated during the first three stages of urethritis, and should not be administered until the fourth or stage of decline is fully established.
7. Urethral injections are contra-indicated during the second and third stages of urethritis, but may be used in the first stage and toward the close of the fourth stage.
8. Injections of strong solutions of nitrate of silver, or of strong solutions of any kind, are contra-indicated in all the stages of urethritis.
9. Urethritis is ordinarily too much and too vigorously treated. The more heroic and meddlesome the treatment, the greater the liability to accidents and complications, and the longer the duration of the phlegmasia.
10. Confirmed acute contagious urethritis, under the

most favorable circumstances and the most judicious treatment, rarely gets well in less than four weeks, except of course in the first attack in young and otherwise healthy men who are not overtreated. In the last-named cases it sometimes gets well in ten days or two weeks without medicinal treatment.

11. Proper hygienic management is all-important in the treatment of urethritis; unless it is rigorously carried out, the medicinal and local treatments inevitably fail.

## OPTIC NEURITIS AS A FORM OF PERIPHERAL NEURITIS.\*

By ALVIN A. HUBBELL, M. D.,

BUFFALO, N. Y.,  
PROFESSOR OF OPHTHALMOLOGY AND OTOLGY  
IN THE MEDICAL DEPARTMENT OF NIAGARA UNIVERSITY.

PERIPHERAL neuritis, both clinically and pathologically, has assumed a recognized position in medicine to-day.

The attention of physicians in the past has frequently been directed to manifold sensory, motor, and trophic affections, but until recently the conjectured lesion has been located in the spinal cord or brain, or the disease has been regarded as merely functional. It was in 1866 that Duménil † first established by autopsy and microscopical examination the existence of extensive disease in the peripheral nerves as the cause of such manifestations, although Graves, of Dublin, had, nearly twenty years before, expressed his belief that the spinal cord or brain was not the seat of such lesions. Ten years after Duménil made the first demonstration, Eiehorst ‡ recorded a case in which a post-mortem examination showed the spinal cord to be perfectly sound, but several peripheral nerves presented evidences, both grossly and microscopically, of interstitial inflammation. Then followed Joffroy \* in 1879, Leyden †† in 1880, and Grainger Stewart ^ in 1881, with similar reports. During the past decade the pathological study of peripheral nerves has been pursued with commendable zeal, and upon inflammation of them or its results are now known to depend many forms of paralysis, especially localized ones, numerous sensory disturbances, and various trophic changes in the skin, bones, muscles, and other tissues whose description in detail I must withhold from this paper.

Investigators have also shown that such inflammations and degenerations follow upon certain diseases or certain agencies with a frequency that justifies the regarding of the latter as aetiological factors in the production of the former. Among those which thus act as causes may be mentioned diphtheria, scarlet fever, measles, small-pox, typhus, typhoid, and malarial fevers, *la grippe*, syphilis, tuberculosis, leprosy, diabetes, rheumatism, locomotor ataxy, beri-beri, etc., and such substances as lead, arsenic, alcohol, bisulphide of

\* Read before the New York State Medical Association at its eighth annual meeting.

† *Gazette hebdom. de méd. et de chirurg.*, 1866.

‡ *Virchow's Arch.*, lxi, 1876.

\* *Arch. d. phys. norm. et path.*, 1879.

†† *Zeitschr. für klin. Med.*, 1880.

^ *Edinburgh Medical Journal*, 1881.

carbon, etc. There is also idiopathic peripheral neuritis whose cause is not apparent, which expresses itself in such diseases as herpes zoster, Raynaud's disease, circumscribed sclerodermia (Hutchinson), sciatica, so-called rheumatic paralysis, such as that of the facial, abducens, etc. Again, it may occur from traumatism and pressure. The relation which peripheral neuritis is thus shown to hold to other diseases, both as an effect and as a cause, gives it a far-reaching importance to the diagnostician, therapist, and pathologist.

I desire at this time not only to emphasize this importance, but to indicate also that this disease is not confined to the nerves of motion and general sensation, as is generally understood by the profession, but includes inflammations of nerves of special sense as well, having the same known general causes, as well as arising idiopathically or from unknown causes, and the symptoms of which correspond in character and magnitude with the functions involved. I might with propriety consider inflammations of the olfactory and gustatory nerves, and point out how they may be the sequence of influences not started or found in their end-organs or in the brain, but arising from the same causes as inflammations of other nerves. It is only thus that many affections of smell and taste can be accounted for. So, also, with the nerve of hearing. Certain forms of deafness, tinnitus, and vertigo are undoubtedly induced by typhus and typhoid fevers, measles, scarlet fever, small-pox, mumps, and syphilis, through a peripheral neuritis of the auditory nerve. I will, however, limit this part of my discussion to inflammations of the optic nerve.

The pathology and pathological anatomy underlying many forms of visual disturbances are subjects of comparatively recent study. Before the discovery of the ophthalmoscope the fundus of the eye was clinically an impenetrable region. With this instrument the practitioner has been enabled to reach and study it, and by post-mortem examination has verified the diagnosis of such forms of neuritis as express themselves at the intra-ocular extremity of the optic nerve—the optic disc—by swelling, cloudiness, and change of color. But there are some cases which present the subjective symptoms and clinical history of optic neuritis, but the ophthalmoscope does not show the disc-picture formerly believed to be a necessary accompaniment. As early, however, as 1866, von Graefe,\* of Berlin, whose clear insight and acuteness of observation have never been excelled, suspected that such subjective symptoms were not due to amaurosis (amaurosis was then, as now, a cloak-word for pathological ignorance) or to brain disease, but rather to inflammation of the optic nerve situated behind the ball and showing very little change within the eye, and therefore out of sight of the ophthalmoscopist. He described cases in which vision became clouded and within a few hours or days absolute blindness ensued, and yet the ophthalmoscopic signs were almost negative. Both eyes were symmetrically affected, and the blindness was temporary in some and permanent in others. To this form of disease, acute in character, he gave the name retro-bulbar or retro-

ocular optic neuritis. The diagnosis of the lesion was afterward verified by post-mortem examinations. Later, Leber,\* in 1869, expressed the belief that the symptoms in certain cases of amblyopia with central scotoma, but without any marked changes in the fundus of the eye, were due to a form of chronic inflammation in the orbital portion of the optic nerve. These conjectures were subsequently entertained by other investigators, but it was not till Samelsohn,† of Cologne, in 1880, and Nettleship and Edmunds,‡ of London, in 1881, made the initial post-mortem examinations of cases of central amblyopia that demonstration was actually made of an inflammatory and resulting degenerative process in the course of the optic nerve. In each of these cases there was found "a tract of chronic interstitial inflammation and degeneration extending from the optic foramen, where it was central, to the eyeball, where it occupied the outer part of the optic nerve."§ Similar results were obtained by Vossius,|| of Königsberg, in 1882; Bunge,^ of Halle, in 1884; Uthoff,∞ of Berlin, who made seven autopsies, in 1884 to 1886; and Sæhs,∫ of Innsbrück, in 1887.

Thus it has been conclusively proved that optic neuritis may exist both with and without objective ophthalmoscopic signs and with varying subjective symptoms from mild to aggravated, and in its progress it may be rapid or slow. These symptoms, objective or subjective, I need not detail here. They are clearly before the profession.

In diagnosis, however, proper exclusions should be made in cases where impairment of vision can not be readily accounted for by the ophthalmoscope or other means of examination. Thus, there are various lesions within the encephalon that affect vision without involving the optic nerve—for example, disease of the occipital lobe of the brain. Quinine produces in sufficient doses such disturbance of the circulation of blood in the optic nerve by vaso-motor irritation as to greatly contract the field and diminish the acuteness of vision, either temporarily or permanently. Experimental research by De Schweinitz,∫ of Philadelphia, made during the present year on animals, goes to show that it does not produce neuritis. Atrophy of the optic nerve may undoubtedly take place without a preceding neuritis by some mechanical or vaso-motor arrest or diminution of blood-supply to the nerve.

As causes of optic-nerve inflammation there are many that are common to this and other forms of neuritis. Thus it may be caused by injury, and injury will produce neuritis elsewhere. Contiguous inflammations, such as orbital cellu-

\* *Archiv für Ophthalm.*, xv, 1869, p. 65.

† *Contrib. f. d. med. Wissensch.*, Berlin, xviii, 1880, p. 418; also, *Archiv für Ophthalm.*, xxviii, 1882, p. 1.

‡ *Trans. of the Ophthalm. Soc. of the United Kingdom*, i, 1881, p. 124.

§ *Nettleship. Trans. of the Ophthalm. Soc. of the United Kingdom*, i, 1881, p. 128.

|| *Archiv für Ophthalm.*, xxviii, 1882, p. 201.

^ *Ueber Gesichtsfeld*, etc. (Field of Vision and Course of the Fibers in the Optical Conducting Apparatus), Halle, 1884.

∞ *Contrib. für prakt. Augenheilk.*, 1884, p. 43; and *Archiv für Ophthalm.*, xxxii, 1888, p. 95, and xxxiii, 1887, p. 257.

∫ *Archiv für Augenheilk.*, xviii, 1887, p. 21 (translated in Knapp's *Archives of Ophthalmology*, 1889, p. 133).

∫ *Ophthalmic Review*, London, x, 1891, p. 49.

\* *Arch. für Ophthalm.*, xii, 1866, p. 114.

litis or meningitis, may cause it. So may other nerves become involved in the inflammatory processes of surrounding tissues. Pressure from growths or foreign bodies causes inflammation of both the optic and other nerves.

It is well proved and generally admitted that certain substances and poisons produce an inflammation of certain peripheral nerves (peripheral neuritis), prominent among which are alcohol, lead, arsenic, and bisulphide of carbon. These substances, too, produce some form of optic neuritis. To fortify this statement I will cite some authorities. Uthoff,\* of Berlin, has clearly shown that alcohol develops axial or chronic retrobulbar optic neuritis. Hutchinson, † of London, and Allbutt, ‡ of Leeds, are among several who have reported cases of optic neuritis and subsequent optic-nerve atrophy, as shown by the ophthalmoscope, caused by lead within the system. Among those who have seen optic neuritis in chronic arsenic poisoning are Da Costa, § of Philadelphia, and C. L. Dana, || of New York; Nettleship, ^ of London, Fuchs, ¶ of Liege, Galezowski, †† of Paris, and others have seen "axial" optic neuritis (central amblyopia) in persons exposed to the fumes of bisulphide of carbon in the manufacture of certain rubber materials.

Diseases which cause peripheral neuritis also cause optic neuritis. Hulke, ‡ of London, as early as 1868, recorded cases of optic neuritis after diphtheria, and Allbutt † and others have made similar observations. Wadsworth,\*\* of Boston, and others have seen optic neuritis after measles. Macnamara, †† of London, has reported cases in which optic neuritis developed in rheumatism and intermittent fever. He has also seen this disease in *la grippe*, ††† and so also have Weeks, ††† of New York, and others. The history of the recent epidemics of *la grippe* furnishes many examples of "peripheral palsies." Typhoid and typhus fevers, smallpox, scarlet fever, syphilis, tabes, tuberculosis, and diabetes stand out more or less prominently in their ætiological relations to peripheral neuritis. Optic neuritis also is found in each of them in corresponding frequency. Lastly, both peripheral and optic neuritis occur alike idiopathically without any assignable cause.

I might multiply illustrations showing the common origin of both so-called peripheral neuritis and optic neuritis in some of their varieties, but it seems to me that the evidence already adduced is sufficient to place beyond doubt the claim that certain ætiological influences and pathological

results are common to both, the symptoms varying only in correspondence to difference of function of the nerve or nerves affected.

We can not, perhaps, understand why alcohol, bisulphide of carbon, tobacco, or diabetes should induce axial or chronic retro-bulbar neuritis, while lead, arsenic, diphtheria, tabes, *la grippe*, or measles should develop a neuritis more generally interstitial, often acute, and showing ophthalmoscopic signs. Neither can we offer satisfactory explanation why lead pre-eminently affects the nerves supplying the extensor muscles of the extremities and the muscles of the intestine, or why tobacco has a special affinity for the nerves going to the heart, or why diphtheria conspicuously leaves its impress upon the cranial motor nerves and some of the spinal. Yet such facts remain, and the lesson which they teach us to-day is that inflammation may attack all classes of peripheral nerves alike, those of special sense as well as those of general sensation and motion, that the cause is wide-spread and common, and that the principles of treatment are identical.

Peripheral neuritis in its broadest sense, therefore, becomes of intense interest and far-reaching importance to both the general practitioner and specialist.

## VERTIGO.\*

By EDWIN R. MAXSON, M. D., A. M., LL. D.,  
SYRACUSE, N. Y.

VERTIGO—from *verto*, I turn—implies giddiness, dizziness, swimming of the head, and may be produced by a variety of causes, operating through different parts of the system. And hence we have it as a consequence of gastric, epileptic, migrainous, and gouty affections; organic, brain, and spinal disease; and certain affections of the eye and ear.

*Gastric* vertigo, being very common, may generally be recognized, depending, as it does, upon various forms of indigestion.

*Nervous* vertigo usually attends nervous exhaustion, and generally is, or may be, caused by anxiety, sexual excesses, tobacco, and tea or coffee.

*Epileptic* vertigo may occur in a fit of epilepsy, or even take the place of it; quite frequently preceding. Hence it is easily recognized and traceable to the causes operating to produce that disease.

*Migrainous* vertigo, usually constituting one of the phenomena of migraine, either attending or following the development of the headache, or even sometimes replacing it, may readily be understood.

*Gouty* vertigo occasionally occurs in gouty persons, disappearing, perhaps, when there is the supervention of gouty arthritis, by which it may readily be recognized through whatever part it may directly operate.

*Brain* and *spinal* vertigo, of an organic character, may arise from tumors, sclerosis, or other changes of the brain, cerebrum or cerebellum, or spinal cord. It is generally

\* *Archiv für Ophthalm.*, xxxii, 1886, p. 95, and xxxiii, 1887, p. 257.

† *Royal London Oph. Hospital Reports*, Part 1, vol. vii, 1871, p. 6.

‡ *Use of the Ophthalmoscope*, London, 1871, p. 265. See, more recently, Oliver, Gulstouian Lectures on Lead Poisoning. *British Med. Jour.*, Mar. 21, 1891, p. 633.

§ *Medical Times*, Philadelphia, March, 1881.

|| *Brain*, London, ix, 1886, p. 546.

^ *Trans. of the Oph. Soc. of the Un. Kingdom*, v, 1885, p. 149.

¶ *Ibid.*, p. 152.

†† *Rec. d'Ophthalm.*, 1887, p. 30.

††† *Royal London Ophthalm. Hosp. Rep.*, vi, p. 108.

†††† *Use of the Ophthalmoscope*, 1871.

\*\* *Trans. of the Am. Ophthalm. Soc.*, 1880, p. 125.

††††† *British Med. Journal*, March 8 and May 3, 1890, pp. 540 and 100.

†††††† *Ibid.*, Aug. 1, 1891, p. 251.

††††††† *New York Medical Journal*, Aug. 8, 1891, p. 143.

\* Read before the Syracuse Medical Society, December 1, 1891.

attended by symptoms pointing to the seat of the disease, cephalic or spinal.

*Ocular vertigo*, depending, as it may, upon a paralysis or weakness of one or more of the recti muscles, etc., causes an incorrect notion of objects. And hence a sense of confusion and giddiness occurs, rendering a fairly plain indication of the seat of the disease.

*Aural vertigo*, however, may not be as readily recognized. It has been variously named labyrinthine, apoplectic, and Ménière's disease—this last from his description of it in 1861. Under these headings have been classed cases in which vertigo, with various other symptoms, is caused by disease of the labyrinth directly, as congestion, inflammation, or "hæmorrhage; or indirectly by disease of the middle ear, Eustachian obstruction, spasm of the tensor tympani, or paralysis of the stapedius, or irritation or obstruction of the external meatus, and pressure on the membrana tympani, as by cerumen, foreign bodies, or by syringing the ears, especially when the membranes are perforated" (Stephen Mackenzie).

Thus the labyrinthine affection may be either primary or secondary, "irritative or destructive."

It has been stated by Farrier that the dizziness tends to falling, in cases not primarily labyrinthine, in one direction; and in the primarily labyrinthine in the opposite. But in all cases the cochlea and semicircular canals are involved, attended with vertigo, tinnitus, and vomiting, with some degree of deafness in most cases of primary labyrinthine origin. And in these cases the vertigo is related to the change in the position of the head, being aggravated by one position and relieved by another, according to the canal more especially affected. And, in the primary cases, there may be more generally falling and obstinate vomiting.

In all cases of Ménière's disease there is more or less secondary visceral disturbance, such as pallor, faintness, nausea and vomiting, syncope, etc. This is doubtless owing to the proximity of origin of the auditory nerve (a branch of which, the *vestibular*, supplies the semicircular canals) to the *pneumogastric*. And, further, the blood supply of the labyrinth from the vertebral artery comes from the subclavian, near the inferior cervical ganglion of the sympathetic, by which ganglion not only the vestibular artery is thus supplied, but it also "sends communicating branches to the pneumogastric and branches to the heart," thus connecting, in sympathy, the labyrinth with the heart, stomach, "and other organs," accounting for the nausea, vomiting, faintness, or syncope, etc., as well as tinnitus and dizziness, characteristic of Ménière's disease, as suggested by Mackenzie.

*Symptoms*.—This disease may come on quite suddenly, perhaps with a noise in the ear, but not invariably.

In one case, that of a gentleman of sixty, he had formerly suffered from some aural disease; and though apparently in about his usual health (which was habitually feeble), he may have had a slight congestive chill, perhaps, or incipient influenza (*la grippe*). At any rate, he suddenly became unable to stand with his head erect, and, being up a flight of stairs, he had to come down with his head bowed down; and to walk with his head thus bowed or else lie down, as

he assured me when I saw him three weeks later, being out of the city. He, as is usual with the dizziness, on raising his head, had some nausea and vomiting, and he could not stand erect with stability.

The *noise*, if heard, is in one ear; and the apparent or real movements of the body are in a direction opposite to the affected ear, as I have witnessed; the falling, when it takes place, being "more frequently forward, or to one side," according to Mackenzie.

In another case the patient, a young lady of eighteen, who had formerly suffered from some slight aural affection, while having the mumps, being engaged in hard study, sleeping in, or adjoining to, a recently plastered room, not entirely dry—having also some symptoms of influenza (*la grippe*), without any appreciable noise in the ear—became unable to raise her head without producing vertigo, nausea, and vomiting, necessitating the recumbent posture, there being no stability in standing.

Some secondary cases of this disease may be transient, lasting only a short time. But the vertigo may persist, with or without the vomiting, or it may recur.

In cases in which the labyrinthine disease is primary, however, it may continue for many months, reducing the patient almost to a skeleton, as occurred in one case that fell under my observation away from this city. The case had been treated in the main, I believe, as of gastric origin. I doubt if the patient recovers, from the last accounts, though he may.

In another case, early diagnosticated and properly treated, the patient has recovered and remains in excellent health, though apparently more severe than the one above referred to.

And still another of several months' standing, the primary symptoms having apparently been quite obscure, the sympathetic neurotic predominating, terminated fatally, probably by an extension of the labyrinthine disease to the brain.

The three cases were evidently primary labyrinthine disease.

The symptoms of secondary Ménière's disease usually subside, as the Eustachian, tympanic, and other primary aural affections and obstructions are relieved and removed, as they may generally be, one of which I have recently seen in this city.

*Diagnosis*.—The diagnosis of Ménière's disease from the gastric, nervous, epileptiform, gouty, organic brain and spinal disease, and ocular affections also attended with vertigo, is not very difficult. For, in addition to the symptoms in common, labyrinthine affections in Ménière's disease have "the vertigo in relation to change in the position of the head," as claimed by Mackenzie, and as I have witnessed in several cases.

To distinguish between a primary and secondary labyrinthine case, the absence of any tympanic, Eustachian, or external auditory disease or obstruction may generally lead to a correct conclusion (von Tröltzsch).

It may be well to remember that deafness and tinnitus without vertigo, or vertigo and tinnitus without deafness, may be due to affections of the middle ear, while vertigo,

tinnitus, and deafness indicate an affection of the labyrinth (Maekenzie).

*Pathology.*—As it has now become quite well established by experimental observations and research in disease, by “Flourens, Cyon, Crum Brown, and others” (*Quain*), “that the semicircular canals take an important share in normal equilibration, injury and disease of these parts occasioning locomotive inco-ordination,” it is evidently from this disturbance that the vertigo exists.

There is also in primary cases congestion, inflammation, or hæmorrhage involving the labyrinth, while in secondary cases there is irritation, at least, from sympathy with disease of the tympanum, meatus, Eustachian tube, or other labyrinthine auricular parts or structures.

The vertigo may be caused directly by “variations in the blood-pressure,” as held by Maekenzie, and, together with all the symptoms of this disease, may be owing to consequent variations in the tension of the membranous semicircular canals, changes in the pressure of the endolymph and perilymph, transmitting an influence through the auditory and sympathetic nerves to the cerebro-spinal and ganglionic systems, thus accounting for all the phenomena of this disease, primary and sympathetic.

The membranous vestibule and cochlea doubtless aid through the same systems of nerves in developing the local and sympathetic symptoms of this disease, but perhaps in a less degree, so far as relates to the dizziness.

*Prognosis.*—In cases in which the labyrinthine affection is not primary, but owing to some remediable defect in the tympanum, external meatus, or Eustachian tube, a recovery may generally be expected under judicious treatment directed to the primary disease.

In primary labyrinthine cases the disease, under judicious treatment, may be greatly relieved, if not cured, though a degree of deafness and tinnitus may remain in some cases, or recur. But, if neglected or improperly treated, suppuration in the labyrinthine membranes may extend along the vestibular “tubular prolongation” and *cul-de-sac* of the *aqueductus vestibuli*, through the posterior petrous wall or otherwise, to the cranial cavity, and dangerously involve the brain, as I suspected did occur in one case that fell under my observation.

*Treatment.*—The treatment of *gastric* vertigo involves a strict regulation of the diet and habits of the patient to favor digestion. Proper food, with strict regularity and suitable drinks, must be enjoined, as well as avoidance of all trash. Tonics to aid digestion may be required, and, in some rare cases, counter-irritants.

*Nervous* vertigo calls for prudence in sexual and other indulgences; avoidance of alcohol, opium, and tobacco; and a strict observance of the laws of health in every respect. Regular hours for sleep must be strictly enjoined and observed. It requires also good substantial food to be taken with strict regularity, and may require the substitution of hot water instead of tea and coffee in some cases.

*Epileptoid* vertigo requires the general treatment proper for epilepsy, which consists in regulating all the habits and administering blood and nerve tonics, the most effectual of which, according to my observation, are oxide of zinc, car-

bonate of iron, and rhubarb, two grains of each for an adult, three times a day. And if the epilepsy or tendency to it is cured, the vertigo disappears.

For *migrainous* vertigo a regulated diet, tonics, and an occasional dose of magnesia when there are approaching symptoms, may do best. Correction of imperfect ocular action may be attended to if indicated.

In *gouty* vertigo, colchicum, guaiac, and iodide of potassium may be indicated, and moderation in eating and drinking insisted upon.

In cases depending upon *organic, brain, or spinal* disease—as tumors, sclerosis, etc.—a regulated diet and iodide of potassium, in full doses, may do best. Wet cups may be indicated to the back of the neck, and blisters back of the ears, and later to the back of the neck, should be persevered in to the last. Mercurials may become necessary in some cases. If so, I prefer the bichloride in solution with the iodide of potassium, about eight grains of the iodide and a twelfth of a grain of the mercurial, well diluted when taken—forming, of course, an iodide of mercury.

For *ocular* cases, in addition to correcting all the habits, suitable treatment should be addressed to whatever defect there may be in the eye, or its muscles or appendages. Cups to the back of the neck and blisters back of the ears and to the temples, electricity, and possibly the adjustment of glasses, may be required.

The indications in the treatment of *aural* vertigo (*Ménière's disease*), in which the labyrinthine affection is not primary, depending upon disease of the tympanum or external meatus, or obstruction of the Eustachian tube, should be adapted to the condition in each particular case.

It may involve cups or blisters to the back of the neck, leeches or blisters back of the ears and to the temples, syringing the external meatus to remove wax, or using the Eustachian catheter to clear that tube, and possibly the dropping into the external meatus a solution of twenty grains of boric acid to the ounce of equal parts of glycerin and water, daily, for catarrh of the meatus, and electricity for paralysis of the stapedius muscle.

The treatment of *primary* labyrinthine disease includes several indications. Cups should be applied early to the back of the neck, and repeated, if necessary; and at first leeches to the mastoid process and temples. Later, blisters may be substituted and repeated, if necessary, while the vertigo, nausea, or vomiting remains. The ammoniated citrate of bismuth, in one-grain or two-grain doses, may be given three times a day, to allay sympathetic gastric derangement. And, to favor digestion, two drops of the tincture of *nux vomica* may be required.

In anæmic, congestive, or malarious cases, two or three grains (*not more*) of cinchonidine may be required every six hours, alternating with the bismuth and *nux vomica*, and possibly bromide of potassium at evening.

The feet should be set in warm water daily, and magnesia may be given each morning to avoid constipation and as an antacid; and, if the tongue is coated, an improved cathartic or leptandrin pill at evening till it becomes clean. Toast and egg may be allowed at meal time, and

hot toast-water and milk given for drink at all hours if desired.

The worst case I have seen was, under this treatment, quite well in about four weeks, and has remained so, having gained ten pounds of flesh in a few weeks, and is enduring close study.

Another case which was at first, as I learned, regarded as gastric, and later as "neurasthenia," really an effect of the un cured aural disease, has now been suffering for several months, with little prospect, I fear, of a cure or even much improvement, as nearly as I can learn, emaciation and debility having become extreme, evidently from the non-removal of the original labyrinthine affection, the aural disease and sympathetic visceral derangements having evidently seriously impaired digestion, thus in a large degree cutting off nutrition.

Still another case of longer duration, having been regarded and treated as ocular, epileptiform, and organic brain disease, which it doubtless at length became—suppuration occurring in the labyrinthine membranes and extending to the brain eventually led to a fatal termination.

The auricular disease early appears to have been rather obscure, and in the latter stages, as is usual, very much obscured by the consecutive brain disease and sympathetic visceral derangements; and, while a clear diagnosis was not made, it was the expressed opinion of the last attendant from the first that there might be an obscure organic brain disease, and that, if so, it would terminate fatally. And this was, I believe, concurred in by others at the last, though opinions may have differed as to the character of the organic brain disease somewhat.

It may not be improper to add, in conclusion, that since writing this I have received from a lady of sixty, at a distance, an account of her having been taken, two years ago, with "dizziness, some vomiting, finally had to give up, was in bed several weeks," etc. She adds that since, there is a "buzzing" (*tinnitus*) "in the left side of the head, followed by a whirling, dizzy feeling; has to stop and hold on to something and shut her eyes till it passes off, perhaps twenty times a day."

She further stated that she had not got anything to help her head, that she "feels weak and trembles all the time," etc. She closed by expressing a hope that I could help her. A later examination confirmed the suspicions her letter had produced of labyrinthine disease. And I further learned that it may have originated in influenza (*la grippe*), constituting the fourth case I have been able to trace to that disease, more or less directly, of late.

818 MADISON STREET.

**Influenza Colds.**—"Few remedies are more reliable, and act better as a preventive, or lessen the distressing symptoms of an influenza cold, than the following mixture:

℞ Sodii salicylas..... ʒ jss.;  
 Liq. ammon. acet..... ʒ ij;  
 Aq. camph..... ad ʒ vj.

Misce. Capt.: ʒ ss. omnis 3tiis horis.

If this be taken every two or three hours when the first symptoms of cold come on, it will usually ward off the attack."—*British and Colonial Druggist*.

THE

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FLOATING KIDNEY AND NEPHRYDROSIS.

In the September, October, and December numbers of the *Revue de chirurgie* there is to be found an exhaustive article on intermittent nephrydrosis (*hydronéphrose intermittente*) by M. Félix Terrier and M. Marcel Baudouin. There exists, say these authors, a variety of nephrydrosis, not well understood until within recent years, that seems to be commoner than has been supposed; it is an intermittent nephrydrosis. Very often it is the first stage of a confirmed nephrydrosis. It is due to lesions of various sorts; in the great majority of cases it occurs as a complication of renal displacements, wherefore it is observed oftener in women than in men. In the former it is met with especially on the right side; in the latter, on the left. More rarely it may be the consequence of a calculus in the pelvis of the kidney or of temporary compression or obliteration of the lower end of the ureter. In some cases it is of congenital origin.

When it is a complication of floating kidney it is produced in the following way, as shown by experiment and by post-mortem appearances: An abrupt bending of the ureter occurs, with or without torsion, at the same time with renal displacement; there is a temporary arrest of the flow of urine, with the progressive development of a nephrydrotic sac, which empties itself as soon as the kidney resumes its place; irritation arises around the renal pelvis, either from embarrassment of the circulation or from infection of the mucous membrane of the pelvis; and fibrous adhesions unite the sac to the upper part of the ureter, and finally lead to the transformation of the intermittent into a confirmed nephrydrosis. These alternations of distention and evacuation of the renal pelvis, consequent on temporary obliteration of the ureter, are manifested clinically by attacks of pain that are well-nigh characteristic, occurring in the course of a state of health more or less deranged, about once a month and sometimes oftener. These attacks, which present three stages—the onset, the acme, and the decline—are constituted by extremely intense pains, sometimes absolutely intolerable, coinciding with the appearance of a liquid tumor, rarely fluctuating, seated most commonly in the right flank, and with a notable decrease of the amount of urine voided. They are the result of a sharp bend in the ureter in consequence of the displacement of a movable kidney. The attack lasts for a number of hours, and ceases suddenly when the kidney resumes its normal situation. The tumor disappears with the pains, and a considerable discharge of urine ensues—the pelvis of the kidney empties itself.

At the last meeting of the British Medical Association, before the Section in Surgery, Mr. R. Clement Lucas made

remarks to much the same purpose. Mr. Lucas's remarks are published in the *British Medical Journal* for December 26th. His conclusions are as follows: Movable kidney is a condition that during displacement may, and often does, lead to nephrydrotic destruction, owing to twisting of the pedicle or to pressure of the organ upon its duet; to avoid such danger and to relieve the patient from pain, all such cases should be treated by nephrorrhaphy, which is a simple and safe operation; even when nephrydrosis has already advanced, cases in which it is clearly due to the mobility may be cured by nephrorrhaphy, and the remains of the organ saved from further degeneration.

#### DRUNKENNESS SUCCESSFULLY COMBATED IN NORTHERN EUROPE.

A FAIR measure of success has crowned the temperance legislation of Sweden and Norway. These northern peoples have been the pioneers in the successful management of that threatening visitant leprosy, which by governmental effort has been shorn of some of its harmful powers. They are now showing the way in which the baneful drink-habit may be checked, which has prevailed to an alarming extent among all classes. The larger towns have been led to put "local option" in force, and their efforts have been even more successful than was expected. The Earl of Meath, says the *Medical Press and Circular* for December 16th, has lately returned from a visit to the Scandinavian peninsula, and reports that "the maximum of good to the community has already been effected with the minimum of inconvenience to all classes." The system known by the name of the "Gothenburg system" was first experimented with, but it was attended with so much friction and ill-will that it soon gave place to other methods, one of which is the municipal "trading society" licensing method.

The municipal council decrees the number of licenses that is equal to the reasonable requirements of the population. A monopoly is then given to a society formed by the trading community, and for a definite term of years. The council retains full control of the operations of the society. No private person is allowed to retail spirituous liquors. The retailing of beer and wine is permitted under a special license. A certain proportion of the profits is applied to pay the shareholders of the society their preferential interest, after which the surplus must be assigned to charitable societies and institutions. Last year there were fifty of these societies in operation. In nearly all of these localities the same general restrictions exist as to hours of sale and persons who may buy; all licensed houses must shut down from 8 P. M. on Saturday until 8 A. M. on Monday, and no person under sixteen years of age may be served with alcoholic drink, no person under intoxication may be served, and no female bar-tenders are permitted. The society of the city of Bergen in Norway has been enabled to show a net profit of fully one hundred and twenty-five per cent., which is an indirect gain to the public in its charitable work and in the repression of inebriety that is found to be incalculable. Brawls,

and wounds, and deaths by violence have been reduced, while the resources for the hospital treatment of the deserving poor have been increased.

#### MINOR PARAGRAPHS.

##### A BALL OF HAIR IN THE HUMAN STOMACH.

VON BOLLINGER reports a case in one of the September numbers of the *Deutsche Medicinal-Zeitung* which presents some peculiar features. The patient, a girl sixteen years of age, had been for three or four years a sufferer from severe pain in the stomach, with vomiting. These symptoms increased in intensity until nutrition was so materially interfered with that life could not be prolonged. Before death a firm tumor in the region of the stomach could be demonstrated, and a diagnosis of malignant growth in that organ was made. The autopsy revealed the stomach and duodenum very much enlarged, measuring about twenty inches in length and ten in circumference, and apparently filled with some hard substance. On opening the stomach, it was found to be packed with hair, which extended down into the duodenum for three or four inches, the entire mass being so firmly wedged into the parts that it was with difficulty removed in its entirety. The mucous surface of the stomach was much softened and covered with a thick grayish fluid which contained fat crystals, sarcinae, spores and mycelium of mold fungus, and also some starch granules. Inquiry into the history of the case failed to elicit anything that would point to the patient's having swallowed hair at any time. Schönborn, in 1883, reported a similar case in which he did a laparotomy and opened the stomach of a girl fifteen years of age and removed a quantity of hair.

##### THE DIGESTIBILITY OF CHEESE.

It is the general opinion of the laity that the eating of cheese after taking food is an assistance to digestion. This view seems not to be in accord with the result of experiments made by von Klenze, as recorded in the *Allgemeine medicinische Central-Zeitung*, No. 18, 1891. He made very thorough tests of the various forms of cheese found in the dietary lists. For the experiments he used an artificial digestive fluid, to which were added 50 c. c. of fresh gastric juice and 3 c. c. of hydrochloric acid. Into this he placed a gramme of the cheese to be examined. Eighteen varieties were tested, and the following deductions made: Chester and Roquefort cheese took four hours to digest; genuine Emmenthaler, Gorgonzoler, and Neufchatel, eight hours; Romadour, nine hours; and Kottenberger, Brie, Swiss, and the remaining varieties, ten hours. Considering that in a healthy stomach digestion after an ordinary meal is complete in from four to five hours, it would seem from von Klenze's studies, that Chester and Roquefort cheese were the only kinds that were likely to be digested within this length of time, and that the other varieties, some of which are largely in use, not only did not assist digestion, but actually retarded it.

##### PAGET'S DISEASE OF THE GLANS PENIS.

PROFESSOR PICK, in the *Medicinisch-chirurgische Rundschau* for December, 1891, reports the case of a patient who came to him suffering from the following symptoms: For eighteen months there had been an obstinate eczema of the glans penis. There was also a tendency to proliferation of the epithelium and to nodular formation around the glans. An operation for phimosis was called for, and this resulted in temporary improvement of the eczematous condition. The nodular infiltration, however,

returned in a short time. Microscopical examination of a portion of the growth showed it to contain cancer cells and numerous psorosperms. With the exception of the presence of the psorosperms, the whole course of the disease, from the initial obstinate eczema to the cancerous degeneration, was one of typical Paget's disease, such as has been described as occurring in the breasts, the only difference in this case being in the seat of the disease. What part the micro-organisms played in the disease it was difficult to say, but the author thought that they should be looked for in other suspicious cases of the sort.

HELENIN IN THE TREATMENT OF LEUCORRHOEA.

In the *Archives de toxicologie et de gynécologie* for December M. Hamonic relates his experience with helenin as a remedy. He has found it worse than useless in gonorrhœa, but capable of curing cervical leucorrhœa, even without topical treatment. He prescribes the following formula: Crude helenin, inulin, each, 15 grains; sugar of milk, q. s. Mix, divide into 100 pills. From two to four to be taken daily. The inulin is said to have no remedial power, and to be replaceable by powdered licorice or conserve of roses. Used as an injection, inulin simply irritates the vagina.

IN HONOR OF ANTONIO SCARPA.

SCARPA's place in history has been apparently neglected. But, according to the *Medical Press* for January 6th, the people of Pavia have awakened to the propriety of constructing some permanent public memorial of their great Antonio Scarpa. The citizens' committees will receive contributions from foreign anatomists and others, to the end that Scarpa's space at Pavia may be appropriately adorned.

THE INTERNATIONAL MEDICAL MAGAZINE.

A new monthly journal of this name has been announced to appear in January, published by the Lippincott Company, of Philadelphia. Forensic medicine is to be made one of its special departments.

ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending January 19, 1892:

DISEASES.	Week ending Jan. 12.		Week ending Jan. 19.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	9	2	9	6
Scarlet fever	223	33	242	33
Cerebro-spinal meningitis	1	3	4	2
Measles	132	12	152	9
Diphtheria	128	46	115	46
Small-pox	0	0	0	0
Erysipelas	2	0	2	0
Varicella	16	0	9	0
Pertussis	0	8	0	2
Mumps	0	0	0	0

**The New York County Medical Association.**—At the recent annual meeting officers for the ensuing year were elected as follows: President, Dr. S. B. Wylie McLeod; vice-president, Dr. William T. White; recording secretary, Dr. P. Brynberg Porter; corresponding and statistical secretary, Dr. Augustus D. Ruggles; treasurer, Dr. John H. Hinton; member of the executive committee, Dr. Beverhout Thompon. The association now has a membership of over seven hundred.

**The Alvarenga Prize of the College of Physicians of Philadelphia.**—The college announces that the next award of the Alvarenga prize, being the income for one year of the bequest of the late Señor Alva-

renga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1892. Essays intended for competition may be upon any subject in medicine, and must be received by the secretary of the college on or before May 1, 1892. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college.

**The New York Pathological Society.**—At the next meeting, on Wednesday evening, the 27th inst., Dr. Francis Delafield will illustrate the lesions of the different forms of Bright's disease by photomicrographs projected on the screen.

**The New York Surgical Society.**—At the next meeting, on Wednesday evening, the 27th inst., Dr. Wyeth will read a paper on Ether Narcosis as induced by the Ormsby Inhaler.

**A Misquotation.**—An esteemed correspondent calls our attention to the fact that, in an article published in the *Journal* for January 9th, on page 42, the expression *facilis descensus Averni* was incorrectly printed "facile descensus Averno."

**New Remedy for Phthisis.**—The latest remedy for phthisis is monochlorophenol. It is described as a powerful antiseptic, free from the disagreeable odor and from the caustic and irritant action of its related compound, trichlorophenol. It has been introduced by Tæchini, a chemist of Pavia, and successfully tried by several Italian doctors. It is recommended as an inhalation in various affections of the respiratory passages, and especially in pulmonary tuberculosis. Monochlorophenol is very volatile, giving off heavy vapors on heating, which are antagonistic to bacilli.—*British and Colonial Druggist.*

**The Death of Dr. Henry Ingersoll Bowditch, of Boston,** took place at his home, in that city, on Thursday, the 14th inst. The deceased was in his eighty-fourth year. For many years, as a teacher, as a practitioner, and as a participant in matters pertaining to the welfare of the profession as a body, he had been a prominent figure. Perhaps he was best known for his active part in perfecting and popularizing the operation of paracentesis thoracis and for his elaborate researches on telluric conditions as factors in the ætiology of pulmonary consumption. Nobody in the American profession was more highly esteemed than Dr. Bowditch.

**The Death of Dr. Daniel Ayres, of Brooklyn,** in his sixty-ninth year, occurred on the 18th inst., after an illness of two weeks. As a surgeon and pathologist, Dr. Ayres held a high rank. He took a lively interest in the City Hospital and in the Long Island College Hospital at the time of their inception. He was a liberal donor to the Hoagland Laboratory and the Wesleyan University, the latter institution receiving from him gifts of lands and money valued at nearly \$375,000. He was honored with the degree of LL. D. by that institution in 1865. He was a frequent contributor to the journals, and was a clear and cogent teacher of surgery and surgical pathology.

**The Death of Dr. Charles Martin, of the Navy,** a medical director on the retired list, took place in New York on Thursday, the 14th inst. He had been a medical officer of the navy since 1848.

**The Death of Dr. Colin Mackenzie,** on Saturday of last week, deprived the New York profession of one of its most estimable members. Dr. Mackenzie was a graduate of the Cleveland Medical College, of the class of 1860, but most of his professional life had been spent in New York.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from January 3 to January 16, 1892:*

GLENNAN, JAMES D., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month on surgeon's certificate of disability, with permission to go beyond the limits of the department.

KEAN, JEFFERSON R., Captain and Assistant Surgeon. The leave of absence granted on surgeon's certificate of disability is extended three months on account of sickness.

PATZKI, JULIUS H., Major and Surgeon, and BURTON, HENRY G., Captain and Assistant Surgeon, having been found incapacitated for active

service by the Army Retiring Board, will proceed to their homes, and on arrival there report by letter to the Adjutant-General of the army.

KIMBALL, JAMES P., Major and Surgeon, is granted leave of absence for six months, with permission to go beyond the sea, to take effect on or about January 27, 1892.

O'REILLY, ROBERT M., Major and Surgeon, Fort Logan, Colorado, is granted leave of absence for twenty-one days.

KILBOURNE, HENRY S., Captain and Assistant Surgeon, is relieved from duty at Willett's Point, New York, and will report in person to the Superintendent of the U. S. Military Academy, West Point, New York, for duty at that station, relieving W. Fitzhugh Carter, Captain and Assistant Surgeon. Upon being relieved by Captain Kilbourne, Captain Carter will report in person to the commanding officer, Willett's Point, for duty at that station.

PATZKI, JULIUS H., Major and Surgeon, having been found, by the Army Retiring Board, incapacitated for active service on account of disability incident to the service, is, by the direction of the President, retired from active service, to take effect January 9, 1892, under the provisions of Sec. 1251, Revised Statutes.

FISHER, WALTER W. R., Captain and Assistant Surgeon, is granted leave of absence for one month.

WOOD, MARSHALL W., Captain and Assistant Surgeon, now on leave of absence, will report to the commanding officer, Fort Columbus, New York, for temporary duty at that post during the absence of Captain W. W. R. Fisher.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending January 16, 1892:*

PIGOTT, M. R., Assistant Surgeon. Detached from the Naval Hospital, Mare Island, Cal., and ordered to the U. S. Steamer Baltimore.

STITT, E. R., Assistant Surgeon. Detached from the U. S. Steamer Baltimore, ordered home, and two months' leave of absence granted.

GUEST, M. S., Assistant Surgeon. Ordered to the Navy Yard, Norfolk, Va.

WHITE, C. H., Medical Inspector. Detached from the U. S. Steamer Charleston, to proceed home, and two months' leave granted.

PARKER, J. B., Surgeon. Ordered to the U. S. Steamer Charleston.

PARKER, J., Surgeon. Ordered to the U. S. Steamer Charleston.

WHITE, C. H., Medical Inspector. Detached from the U. S. Steamer Charleston and ordered home.

LUNG, GEORGE A., Assistant Surgeon. Ordered to examination for promotion.

BRYANT, PATRICK H., Assistant Surgeon. Ordered to examination for promotion.

VON WEDEKIND, LUTHER L., Assistant Surgeon. Ordered to examination for promotion.

#### Society Meetings for the Coming Week:

MONDAY, *January 25th*: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, *January 26th*: New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society (private); Buffalo Obstetrical Society; Medical Societies of the Counties of Onondaga (semi annual—Syracuse) and Putnam (semi-annual), N. Y.; Boston Society of Medical Sciences (private).

WEDNESDAY, *January 27th*: New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Medical Society of the County of Albany, N. Y.; Auburn, N. Y., City Medical Association; Berkshire, Mass. (Pittsfield), and Middlesex, Mass., North (Lowell) District Medical Societies; Gloucester, N. J. (quarterly), County Medical Society.

THURSDAY, *January 28th*: New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopaedic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

## Letters to the Editor.

### QUANTITATIVE TESTS FOR UREA.

BROOKLYN, *January 18, 1892.*

*To the Editor of the New York Medical Journal:*

SIR: Permit me a few words in reply to the letters of Dr. E. H. Bartley and Dr. J. M. Van Cott, Jr., published in the *Journal* of January 16th, and referring to my paper on Quantitative Tests for Urea.

Dr. Bartley's criticism of my employing a cork in the use of his apparatus instead of the thumb, as he directs, is a just one, and I admit that he is right, the readings being too high by just so much of the scale as is taken up by the cork. I fully intended to make this correction later in connection with a further paper on ureametry, which I have not had the time as yet to write, and I regret the unintentional injustice done to the doctor's apparatus. The doctor omitted to state in his letter that the reason why I found the pressure in the tube too great to withstand was because the tube was two or three inches shorter than it should be and than the ones he is in the habit of using. I obtained the tube from the original makers, Eimer & Amend.

His further statement that I only obtained 1.65 per cent. of urea from a two-per-cent. solution by employing his solution is erroneous, as this has reference only to the use of a solution of one ounce of bromide of potassium to three of chlorinated soda in Doremus's apparatus and not in his. The paragraph in my paper which contains this statement occurs in the course of the description of Doremus's apparatus, and has no reference to Bartley's apparatus.

The criticism of Dr. Van Cott is partly answered with the last explanation. I only used his name as authority for the statement that the use of a solution of one ounce of bromide of potassium in three of chlorinated soda in Doremus's apparatus yielded 1.65 per cent. of urea of a two-per-cent. solution employed, and this he admits is correct.

The other points which he mentions are not a criticism on my paper, but they should have been offered as an improvement on the method employed by Doremus. The solution of bromide of potassium can not be used in Doremus's apparatus under the instructions as given by its inventor. If Dr. Van Cott's suggestion, as stated at the meeting where my paper was read, to fill the bulb of the apparatus with water after the first evolution of gas has ceased, and then close its opening with the thumb and thoroughly agitate the fluids in the long arm, proves to be correct, then this is an improvement and an addition to my statements, but it is not properly a criticism on my paper.

J. C. BIERWIRTH, M. D.

## Proceedings of Societies.

### HARLEM MEDICAL ASSOCIATION.

*Meeting of October 7, 1891.*

The President, Dr. M. C. O'BRIEN, in the Chair.

(*Dr. Arthur H. Leary, Secretary.*)

**Longevity of the Tubercle Bacillus; a Convenient and Rapid Method of coloring the Organism.**—Dr. HENRY HEIMAN read a paper on this subject. (To be published.)

Dr. R. VAN SANTVOORD said that there was an evident necessity of thoroughly mixing the antiseptic fluid, such as the bi-chloride, with the expectorated material from a phthisical pa-

tient. The tubercle was often inclosed in hard and tenacious masses, which were often with difficulty attacked by the disinfecting material. An alkaline solution was of benefit to help disseminate the masses. He was in the habit of employing a process in staining the *Bacillus tuberculosis* with a fuchsin solution containing five per cent. of carbolic acid, decolorizing and staining it simultaneously with a thirty-three-per-cent. solution of sulphuric acid and methylene blue.

The PRESIDENT said that it was his opinion that all tubercular glands found in scrofulous children should be extirpated and the parts thoroughly cleansed with disinfecting solutions. This procedure might prevent general phthisis later in life. He advised patients suffering from phthisis to employ powders or tablets of bichloride to make solutions themselves to disinfect the sputum. It was a noteworthy fact that a large number of internes of the large hospitals died of phthisis. While he was in Bellevue Hospital it was a custom of some of the young doctors to employ hypodermics of ether, etc., in patients in the third stage of phthisis, and then wait to see how long it took to detect the odor in the breath. They thereby had run great risks of contracting the disease. Three of the young men with him in the hospital at that time had died of phthisis a few years later.

Dr. E. L. COCKS said that he frequently pressed the cheesy material between two slides, so as to distribute it evenly and the more readily discover the *Bacillus tuberculosis*. Considering the ease and rapidity with which this bacillus might be stained and demonstrated, physicians were placed in very responsible positions toward their patients. It was their duty to examine the sputum in doubtful or suspected cases. A child seven years old had come under his observation with very few symptoms except gastric disturbance. She had been able to play around the room as usual. Within a few hours, however, strabismus had developed, the head had been thrown backward, followed by convulsions and death. The post-mortem had shown acute tuberculosis throughout all the serous membranes. In the lungs there had been a number of cheesy masses.

Dr. HEIMAN said, in reply to Dr. Martin, as to whether he had found the *Bacillus tuberculosis* present in any case where there were no physical signs, that he had so found the bacillus in these cases. He then made mention of a case in which pulmonary hæmorrhage had been the first premonition of trouble; here a careful search had revealed the bacillus.

Dr. E. MAYER said that he would like to mention an interesting case. A middle-aged woman had complained of hoarseness and slight cough, fever, and general malaise. There had been no positive subjective symptoms of phthisis. The pharyngeal wall had been very pale, a condition frequently noted in phthisis, and was said to be almost pathognomonic. The arytenoid cartilage had been thickened and œdematous, and in one place an ulcerated condition had existed. The sputum had been examined and bacilli had been found. The physical examination of the lungs had been negative.

Dr. F. VON RAITZ said that a case had come under his observation where there had been slight cough and hectic, but absolutely no physical signs of phthisis could be found. But bacilli had been found in the sputum and the patient had died four months later of pulmonary tuberculosis.

Dr. W. F. MARTIN remarked that it was his belief that boiling water placed in the cuspidor of phthisical patients would answer a very beneficent purpose. This would disinfect the mass and keep the particles from being disseminated about the room.

Dr. E. L. COCKS said that a patient of his had gone under the Koch treatment for lupus vulgaris. The growth had been reduced in size, but the bacilli could still be scraped off and

demonstrated under the microscope. The case was now in as bad a state as before the treatment.

The PRESIDENT said that he also had had a patient who had a very severe lupus of the face and who had taken the Koch treatment and had died the next day.

Dr. MAYER said that a case recently under his treatment would further illustrate the value of microscopic examination of sputum in doubtful cases. A man, aged forty-four years, of previous good health, was rather pale and not rugged. He had been treated for naso-pharyngitis. Examination had revealed a small cheesy mass in the tonsillar region, beneath which was a raw ulcerated surface. It had been considered to be either a case of syphilis or one of lupus. Antisyphilitic treatment had been employed, but to no purpose, as the ulcerated condition had spread rapidly. Various physicians who had also seen the case had likewise suspected syphilis, but no history of that disease could be obtained, either past or present. Now for the first time the sputum was examined and the bacilli were found in large numbers. The patient had died three months later with general tuberculosis.

Dr. M. EINHORN remarked that in manipulating sputum for examination it was advisable to heat the mass and pour off the liquid which would rise to the top. The solid material would sink to the bottom and would contain the bacilli. We little realized the virulence and extreme vitality of this bacillus. Successful inoculation had been practiced on rabbits after keeping the bacillus eight years.

Dr. HEIMAN said that it had been found to be a fact that a large number of patients had been attacked with tubercular meningitis a short time after the extirpation of tubercular glands.

The method of preparing the specimen for examination was so rapid and simple that it could be done in a few minutes, almost while the patient was dressing after a physical examination. It had been stated that ten per cent. of the internes of the large hospitals died of phthisis a short time after leaving them.

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## Book Notices.

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*A Practical Treatise on the Diseases of Women.* By T. GAILLARD THOMAS, M. D., LL. D., Professor Emeritus of Diseases of Women in the College of Physicians and Surgeons, New York; Consulting Surgeon to the New York State Woman's Hospital, etc. Sixth Edition, enlarged and thoroughly revised by PAUL F. MUNDÉ, M. D., Professor of Gynecology at the New York Polyclinic and at Dartmouth College; Gynecologist to Mount Sinai Hospital, etc. Containing Three Hundred and Forty-seven Engravings on Wood. Philadelphia: Lea Brothers & Co., 1891.

WHEN the popularity of Dr. Thomas's book is recalled, and it is remembered that it has been translated into all the continental and into some Oriental languages, it seems strange that since 1880 no new edition of it should have appeared. Clinical teachers become, through their writings and instruction, to a large extent the molders of professional opinion in the branches of medicine to which they devote themselves. Especially is this true in the department of gynecology, where repeated clinical observation becomes the source of knowledge. The readers of medical literature will therefore appreciate the reappearance, in handsome form, of Dr. Thomas's book, revised by so careful an observer and so facile a writer as Dr. Mundé. In his preface Dr. Mundé states that it was at the request of the author of the book that he undertook the revision, not without misgivings, as the task involved a labor equal to the writing of an original

book; and because he might find it impossible to subordinate his views to those of Dr. Thomas. The latter difficulty has been obviated in the text by placing the initials of either writer in brackets where individual opinions clash. Considering the delicacy of his task, Dr. Mundé can felicitate himself upon his achievement. Indeed, so thorough is his revision and so numerous are his interpolations that the book might almost be called his own.

It is impossible in so short a space to review the work according to its deserts. Only the most important points can be touched upon. Dr. Mundé has brought the description and classification of gynecological diseases up to the most approved pathology of the day, and the treatment advocated is of the same standard. For instance, a new chapter is included in the book on electricity as a therapeutic agent in gynecology, in which a middle ground is taken by the writer. He advocates the use of the galvanic or faradaic current in some cases, but seems to prefer the knife where electricity is sometimes indicated. The chapter on congenital malformations has been rewritten and much new and valuable material added. Dr. Thomas's belief that the perineal body represents "the inverted keystone of an arch" is corrected in this edition. New operations are described for the repair of the lacerated perinæum, for cystocele, and for proctocele. The use of pessaries is recommended with the same fervor as in previous editions, the author and reviser holding a middle ground here again. In the discussion of uterine displacements, however, the reader familiar with Dr. Thomas's former works will find marked changes. Dr. Mundé says, for example, in opposition to the views of the author: "At the present day ante flexion is generally considered to be, in its minor stages, a physiological (even congenital) condition, only productive of evil under accidental complications, and retro flexion is usually looked upon as a sequel to or companion of retroversion, and of no special consequence in itself." Dr. Mundé, in the discussion following, attributes the pathological effects of displaced uteri to backward displacements rather than to forward displacements. This is a different view from the one Dr. Thomas takes, as is Dr. Mundé's belief that retro flexions, apart from retroversions, have no distinct pathological and clinical aspects.

Much original work has been expended upon the diseases of the ovaries, and newly recognized diseases have been included. The last chapter in the book is entirely new and is devoted to the discussion of diseases of the mammæ. A new form of dressing after the operation for mastitis—the "sponge dressing," not generally known—is described at length.

Typographically, the book presents a fine appearance; most of the cuts are new and well executed. The work is an important addition to American medical literature, and will prove indispensable to the student and physician.

*Deafness and Discharge from the Ear.* The Modern Treatment for the Radical Cure of Deafness, Otorrhœa, Noises in the Head, Vertigo, and Distress in the Ear. By SAMUEL SEXTON, M. D., assisted by ALEXANDER DUANE, M. D. New York: J. H. Vail & Co., 1891. Pp. 12-13 to 89.

This little volume, which has afforded us so much gratification in its perusal, is practically an embodiment of the author's well-known papers on the excision of the drum-head and ossicles which have appeared from time to time in different medical periodicals. It presents what has long been a necessity—namely, a practical, concise, and careful review of the work done in this direction of modern aural surgery. A short sketch of surgical attempts for the relief of deafness from the earliest times is given, and our attention is called to the success of mod-

ern operators in this line in Germany and America, as regards both the permanency of the benefit secured and the satisfactory character of the immediate effects themselves. Failure in the final result among operators in former times was largely due to regeneration of the drum-head, owing to which the good effects following their operative procedures usually disappeared. The operation devised and performed by Sexton is more successful than those formerly practiced, since regeneration of the drum-head is, as a rule, completely prevented. Should this take place, a secondary operation is readily performed, resulting almost invariably in complete success. In most cases, however, there seems to be very little or no tendency to regeneration. Attention is called to the great importance of avoiding every manipulation tending to injure or irritate the drum, both during the operation and afterward, and neglect of this undoubtedly caused many of the failures in former operative procedures. Dr. Sexton's operation for the removal of the drum-head and ossicles is now more or less well known in its details and needs not to be reviewed here. If conducted with care and skill, the operation yields highly satisfactory results, and offers to the patient in its performance very little that is formidable. A rest of a day or so will see him again able to attend to his daily occupation. For the surgeon, however, the operation is one which makes considerable demands on his skill, steadiness, and knowledge—reasons enough, we presume, why it has obtained but little currency even among otologists.

The operation is held to be indicated in all cases of chronic catarrhal otitis media which display a progressive tendency and in which the subjective symptoms are referable mainly to the obstruction existing in the middle ear, and not to any marked implication of the labyrinth. Since the longer the disease is allowed to run its course, the greater the damage resulting to the parts, the obvious deduction is that the operation should be done as early as possible.

A number of instructive histories of cases are given as examples of the gratifying results of this operation in chronic catarrh and chronic purulency of the middle ear, a perusal of which will be found of great interest. Great emphasis is laid on one point in connection with the after-treatment—namely, that one should *refrain from all meddling interference with the ear*. Simple cleansing of the parts when necessary is all that is advisable. The volume closes with a short summary and general outline of the author's conclusions in regard to the operation.

*Human Monstrosities.* By BARTON COOKE HURST, M. D., Professor of Obstetrics in the University of Pennsylvania, and GEORGE A. PIERSON, M. D., Professor of Histology and Embryology in the University of Pennsylvania. Part I. Illustrated with Seven Photographic Reproductions and Eighteen Woodcuts. Philadelphia: Lea Brothers & Co., 1891.

As the authors state, there is no English work on teratology that is comparable to those of Geoffroy Saint-Hilaire, of Förster, or of Ahlfeld, and, as those works are comparatively rare and inaccessible, aside from the disadvantage of an alien tongue, there is every reason to believe that these volumes will find an audience more extensive than one composed of anatomists and embryologists solely.

It seems to us that the authors have been wise in accepting in general the classification and nomenclature employed by Saint-Hilaire, thus avoiding the further confusion that would arise from yielding to the temptation to originate a new classification and introduce new and not necessarily better terms. Klebs's classification of hermaphrodites and Förster's classification of double autositic monsters are substituted for Saint-Hilaire's.

The production of malformations is by variations in growth, by defective union, by fission, or by artificial means. Regarding the first cause, the authors believe that arrested development has its origin in a more deeply seated cause than merely mechanical apposition; the insufficient primary growth in the second cause seems also due to some deeply seated central cause profoundly influencing development; so with fission, a local cause is insufficient to explain the variation; while experiment has shown that "violent agitation, marked variations in temperature, and disturbance of the normal respiratory interchange, are all forces which, when acting on the early embryonic trace, are capable of producing profound alterations in the developmental processes."

The evident care that has been bestowed upon the preparation and production of this work foreshadows a second part of no less interest, and it is to be hoped that the authors will receive the professional support that they will undoubtedly deserve.

*The Surgical Treatment of Wounds and Obstruction of the Intestines.* By EDWARD MARTIN, M. D., Instructor in Operative Surgery, University of Pennsylvania, etc., and H. A. HARE, M. D., Professor of Therapeutics, Jefferson Medical College. Philadelphia: W. B. Saunders, 1891. [Fiske Prize Fund Dissertation, No. xl. Price, \$2.]

This essay was awarded the Fiske Prize of the Rhode Island Medical Society in 1890, and the authors state that their conclusions are based upon the results of two years' original research in the laboratory. The various chapters treat of congenital malformations; intussusception; internal strangulation; volvulus; obstruction from foreign bodies; intestinal paralysis; chronic obstruction; peritonitis; the diagnosis and general, special, and surgical treatment of obstruction; and wounds and rupture of the intestines.

The special treatment of intestinal obstruction is very carefully worked out, the authors urging rectal feeding only with whisky, beef peptoids, eggs and milk, and hot water to relieve the thirst, hypodermic injections of morphine and atropine to relieve the pain, and gastric lavage to remove all decomposing substances in the stomach. On account of the patulous condition of the pylorus, if the water used for lavage has boric or salicylic acid added, intestinal antiseptics may be furthered. They advocate injections of warm saline solutions at a pressure of two to eight pounds in obstruction, though urging great caution on account of the number of ruptures that have been reported as resulting from the employment of this procedure. In paralytic obstruction they have had good results from a powerful faradaic current. Gaseous or aerial insufflation they believe to be secondary in value to the use of warm water.

One very important feature they urge that is too often ignored, not only by writers of text-books on abdominal surgery, but by the surgeons themselves, is the preservation of heat during operations. Referring first to Brunton's and their own experiments showing that lethal doses of chloral are not fatal if the bodily heat is kept up, and to a number of thermometric observations taken in the axilla and in the rectum of patients before and after anesthesia, showing an average fall of temperature of 2.5° F., they urge that hot-water cans be placed about the patient during the operation, or, better, that he be placed on a hot-water bath.

They have made further experiments, showing that the water should have a temperature, both in the water bath and in enemata, of from 105° to 108°, as a higher temperature may produce heat dyspnoea.

The surgical treatment of these intestinal disorders and wounds is carefully considered; and the table of cases of cœli-

otomy for gunshot wounds of the abdomen is the most complete one with which we are acquainted.

The book will prove very valuable to any one interested in this branch of surgery, and the authors are to be complimented upon the conciseness with which they have treated their theme.

*A Manual of Venereal Diseases.* Being an Epitome of the most Approved Treatment. By EVERETT M. CULVER, A. M., M. D., Pathologist and Assistant Surgeon, Manhattan Hospital, of New York City, Member of the American Association of Andrology and Syphilology, and late of the Department of Venereal Diseases of the Vanderbilt Clinic; and JAMES R. HAYDEN, M. D., Lecturer on Venereal Diseases, University of Vermont, Chief of Clinic, Venereal Department of Vanderbilt Clinic, College of Physicians and Surgeons, New York. With Illustrations. Philadelphia: Lea Brothers & Co., 1891.

In this little volume the authors have attempted to give the student and practitioner an epitome of our knowledge of the venereal diseases. They have succeeded admirably. The book contains nothing foreign to the subjects to be treated, and abounds in hints and suggestions of practical value. From their opportunities of observation the authors have had a wide range of experience, and that they have cultivated these opportunities a perusal of their work will testify. It is not too much to say that the book is one of the best of the manuals of its kind for the busy physician and for the student who has not the time to go more deeply into the subject.

*On the Pathology and Treatment of Glaucoma,* being a Revised Publication, with Additions, of the Erasmus Wilson Lectures, delivered at the Royal College of Surgeons of England in March, 1889. By PRIESTLY SMITH, Ophthalmic Surgeon and Clinical Lecturer on Diseases of the Eye, Queen's Hospital, Birmingham. With Sixty-four Illustrations by the Author, and Twelve Photo-zincographs. London: J. & A. Churchill, 1891. Pp. xi-198.

SINCE the lectures of which this volume is a revised publication were delivered, in 1889, several parts of the subject of glaucoma have been more fully worked out, and the results obtained have been incorporated with the original text. The additions have chiefly been with regard to the causes of glaucomatous complications after operations for cataract, the connection between primary glaucoma and certain dimensional variations in the eye, the condition of the vortex veins in glaucoma, a description of the secondary changes produced by high pressure in the eye, and a more complete consideration of the treatment. The work now furnishes us with a very valuable compendium of what is at present known with regard to this disease.

*Quain's Elements of Anatomy.* Edited by EDWARD ALBERT SCHÄFER, F. R. S., Professor of Physiology and Histology in University College, London, and GEORGE DANCER THANE, Professor of Anatomy in University College, London. In Three Volumes. Vol. I. Part ii. General Anatomy or Histology, by Professor Schäfer. Illustrated by nearly 500 Engravings, many of which are Colored. Tenth Edition. London: Longmans, Green, & Co., 1891.

QUAIN'S *Anatomy* does not need any introduction to the medical fraternity of this country. It has been considered one of our most reliable as well as most popular text-books for many years, and there are few among us who will not welcome it as an old and tried friend.

The subdivision of each volume of this edition into parts commends itself as making the work less cumbersome and mor-

easy of access. The part at present before us gives a more thorough exposition of histology than was given in the previous editions. It is written clearly and pleasantly, and forms by itself a really valuable work on this subject. It is profusely and well illustrated and creditably got up.

*A Text-book of Physiology.* By M. FOSTER, M. A., M. D., LL. D., F. R. S., Professor of Physiology in the University of Cambridge, etc. Fourth American, from the Fifth English Edition, thoroughly revised, with Notes, Additions, and Two Hundred and Eighty-two Illustrations. Philadelphia: Lea Brothers & Co., 1891.

THE fact that since this edition has been going through the American press a sixth English edition has been published sufficiently attests the deservedly high reputation enjoyed by this work.

In the present volume the author has added some histological data in order that they may be fresh in the student's mind in entering upon the consideration of physiological questions; and he has incorporated into the text those discoveries in physiology that have been made since his former revision.

The work is fully abreast of the times, and will continue to hold the position that it has won.

#### BOOKS, ETC., RECEIVED.

*Treatise on Gynæcology, Medical and Surgical.* By S. Pozzi, M. D., Professeur agrégé à la Faculté de médecine, etc. Translated from the French Edition under the Supervision of and with Additions by Brooks H. Wells, M. D., Lecturer on Gynæcology at the New York Polyclinic, etc. Vol. I. With Three Hundred and Five Wood Engravings and Six Full-page Plates in Color. New York: William Wood & Co., 1891. Pp. xxii-581.

*Physical Diagnosis: a Guide to Methods of Clinical Investigation.* By G. A. Gibson, M. D., D. Sc., F. R. C. P. Ed., Lecturer on the Principles and Practice of Medicine in the Edinburgh Medical School, and William Russell, M. D., F. R. C. P. Ed., Pathologist to the Royal Infirmary of Edinburgh. With One Hundred and One Illustrations. New York: D. Appleton & Co., 1891. Pp. xiii-376. [Price, \$2.50.] [The Students' Series.]

*Botany: a Concise Manual for Students of Medicine and Science.* By Alex. Johnstone, F. G. S., Lecturer on Botany, School of Medicine, Edinburgh. With One Hundred and Sixty-four Illustrations and a Series of Floral Diagrams. New York: D. Appleton & Co., 1891. Pp. xiv-260. [Price, \$1.75.] [The Students' Series.]

*Surgical Anatomy for Students.* By A. Marmaduke Shield, M. B. (Cantab.), F. R. C. S., Senior Assistant Surgeon, Aural Surgeon, and Teacher of Operative Surgery, Charing Cross Hospital. New York: D. Appleton & Co., 1891. Pp. x-226. [Price, \$1.75.] [The Students' Series.]

*Tubercular Peritonitis.* By A. Vander Veer, M. D., Albany, N. Y. [Reprinted from the *Virginia Medical Monthly*.]

*Report of a Case of Hæmatophilia, or a Family of Bleeders.* By A. Vander Veer, M. D., Albany, N. Y. [Reprinted from the *Archives of Pediatrics*.]

*Report of Cases of Cholecystotomy, with Special Reference to the Treatment of Calculus lodging in the Common Duct.* By A. Vander Veer, M. D., Albany, N. Y. [Reprinted from the *Transactions of the Association of American Obstetricians and Gynecologists*.]

*Concealed Pregnancy: its Relation to Abdominal Surgery.* By A. Vander Veer, M. D., Albany, N. Y. [Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children*.]

*Retro-peritoneal Tumors: their Anatomical Relations, Pathology, Diagnosis, and Treatment. With a Report of Cases.* By A. Vander Veer, M. D., Albany, N. Y. [Reprinted from the *American Journal of the Medical Sciences*.]

*Deafness and Discharge from the Ear. The Modern Treatment for the Radical Cure of Deafness, Otorrhœa, Noises in the Head, Vertigo,*

*and Distress in the Ear.* By Samuel Sexton, M. D., assisted by Alexander Duane, M. D. New York: J. H. Vail & Company, 1891. Pp. 12-13 to 89.

*Sixteenth Year Book, containing the Annual Report of the Board of Managers of the New York State Reformatory at Elmira.* For the Year ending September 30, 1891.

*The Hydratic Treatment of Typhoid Fever according to Brand, Tripiet and Bouveret, and Vogl.* By Chr. Siler, M. D., Ph. D., Professor of Histology in the Medical Department of the Western Reserve University, Cleveland, Ohio. Published by Chr. Siler. Pp. 340.

*A Practical Résumé of Modern Methods employed in the Treatment of Chronic Articular Osteitis of the Hip.* By Charles F. Stillman, M. Sc., M. D., Chicago. Detroit: George S. Davis, 1891. Pp. 118. [*The Physicians' Leisure Library*.]

*The Improvement of Evacuators for Litholapaxy and the Later Developments of the Operation.* By Otis K. Newell, M. D., Boston. [Reprinted from the *Medical Record*.]

*The Treatment of Urethral Stricture, and a New Divulsor for Rapid Dilatation.* By Otis K. Newell, M. D., Boston. [Reprinted from the *Medical Record*.]

*How should we proceed when Abdominal Tumors are complicated by Pregnancy?* By James F. W. Ross, M. D., L. R. C. P. Eug. Toronto, Canada. [Reprinted from the *Transactions of the American Association of Obstetricians and Gynecologists*.]

*Clinical Aspects and Ætiological Relations of Cutaneous Tuberculosis.* By James C. White, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal*.]

*A Hint to the Literary Men of the Profession.* By Charles Perry Fisher. [Reprinted from the *Medical News*.]

*The Application of Sacral Resection to Gynæcological Work.* By E. E. Montgomery, M. D., Philadelphia. [Reprinted from the *Transactions of the American Association of Obstetricians and Gynecologists*.]

*Criminal Aristocracy, or the Mafia.* By Arthur MacDonald, Worcester, Mass. [Reprinted from the *Medico-legal Journal*.]

*On the Ferments contained in the Juice of the Pineapple (*Ananassa sativa*), together with some Observations on the Composition and Proteolytic Action of the Juice.* By R. H. Chittenden, assisted by E. P. Joslyn and F. S. Meara. [Reprinted from the *Transactions of the Connecticut Academy*.]

*The Technique of Cerebral Surgery.* By G. Wiley Broome, M. D., St. Louis. [Reprinted from the *Weekly Medical Review*.]

*Report of a Case of Spina Bifida, with Partial Motor and Sensory Paralysis of both Extremities, Complete Paralysis of the Sphincters of the Bladder and Rectum, Double Equino-varus, and Purulent Bursitis.* By H. Augustus Wilson, M. D., Philadelphia. [Reprinted from the *Transactions of the American Orthopedic Association*.]

*The Aseptic Closure of Long-standing Sinuses having their Origin in Tubercular Joints.* By H. Augustus Wilson, M. D., Philadelphia. (Read before the Philadelphia Academy of Surgery, November 2, 1891.)

*Scope of Orthopædics—Forms of Club-foot Tenotomy.* By H. Augustus Wilson, M. D., Philadelphia. [Reprinted from the *Medical and Surgical Reporter*.]

*Hand Disinfection.* By Howard A. Kelly, M. D., Baltimore. [Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children*.]

*The Ideal Dressing for the Abdominal Wound.* By Howard A. Kelly, M. D., Baltimore. [Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children*.]

*Osteopenthesia.* By B. Merrill Ricketts, M. D., Cincinnati, Ohio. [Reprinted from the *Journal of the American Medical Association*.]

*The Surgical Treatment of Pyloric Stenosis, with a Report of Fifteen Operations for this Condition.* By N. Senn, M. D., Ph. D., Chicago. [Reprinted from the *Medical Record*.]

*A Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools. Being a Series of Resolutions passed by the Medical Officers of Schools Associations. Third and Revised Edition.* London: J. & A. Churchill, 1891.

*The Middlesex Hospital. Reports of the Medical, Surgical, and Pathological Registrars for the Year 1890.* London: H. K. Lewis, 1891.

The Transactions of the Association of Military Surgeons of the National Guard of the United States, for the Year 1891. Chicago.

Report of the Health Department of the City and County of San Francisco, for the Fiscal Year ending June 30, 1891.

Fortieth Annual Report of the Directors of the New York Ophthalmic Hospital, for the Year ending September 30, 1891.

Seventh Annual Report of the New York Post-graduate Hospital (and the Babies' Wards), for the Year ending September 15, 1891.

Twentieth and Final Annual Report of the Philadelphia Dispensary for Skin Diseases, 1891.

De la méthode hypodermique des injections sous-cutanées comme méthode de traitement dans certains cas de chloro-anémie et de tuberculose pulmonaire. Observations recueillies dans sa clientèle et à sa clinique. Par le Dr. E. Boisson.

Ueber Myositis syphilitica diffusa s. interstitialis. Von Professor Dr. G. Lewin. Berlin: A. Hirschwald, 1891.

## Miscellany.

**On Some Painful Affections following Influenza.**—Dr. A. Ernest Sansom, F. R. C. P., Physician to the London Hospital, etc., contributes the following article to the *Lancet* for January 2d:

I propose in this short communication to pursue the inductive method of reasoning in regard to some cases which at one time caused me considerable perplexity. I will first mention a case which initiated my difficulties. A gentleman aged fifty-three, who for many months previously had been in fair average health, was taken during the night with severe pain in the right hypochondrium. The signs simulated those of hepatic colic. He took a mild aperient, and the attack passed away after one to two hours and he slept. The following day the bowels were properly opened, there was no evidence of absence of bile from the motions, the urine was in all respects normal and contained no bile or excess of coloring matter. The attacks of severe pain, however, recurred at intervals—mostly in the night, but sometimes during the day—for about ten days, treatment by opium and belladonna only relieving them. It seemed that the gall-bladder could be mapped out by the area of tenderness, but never was there the slightest jaundice. On one night there was sharp diarrhoea. I could only say that the attacks were those of hepatalgia of paroxysmal recurrence. In hunting about for a cause, the only antecedent which seemed at all probable in this direction was an attack of influenza contracted in Paris at the very earliest time of the epidemic, and followed by protracted enfeeblement. I computed that nearly twenty months must have elapsed between the original attack and these consequences, if they were consequences. There was no evidence of reinfection, but of course this was possible.

The key seemed to be furnished by a number of experiences which came to me just about the same period as this first instance. In all there was fair evidence of an attack of influenza followed at intervals, extraordinarily variable, by signs of extreme pain and distress. In twenty-four such cases the sites of pain could be thus tabulated: 1. Epigastrium, nine cases; abdomen generally, two cases; localized in hepatic area, one case. 2. Head, various sites, seven cases; supra-orbital region, one case; right inferior maxilla, one case. 3. Heart region, seven cases. 4. Extremities: hips and legs, two cases; calves, two cases; arms, two cases; right sciatic region, one case; fingers, one case; lumbar region, one case.

In Group 1 in some cases the pain at the epigastrium was nearly constant. For instance, a man aged sixty-six, who had been previously quite healthy, caught influenza at Christmas, 1890, and had never felt well since. Six months afterward he had constant pain at the epigastrium, with craving for food. Food slightly relieved the pain, but soon after nausea occurred, with pyrosis. In most cases the pain was paroxysmal, and frequently nocturnal, sometimes attended with vomiting or pyrosis. Peculiar symptoms occurred in some of these cases, as "a feeling as of a cold wind over the chest, and inability to take a deep breath." In some the signs of colic, as in the first case mentioned,

were closely simulated; frequently there was retching, but the tendency was rather to diarrhoea than to constipation. In one case, a man of sixty-three, suffering from intense epigastric pain, with sense of heavy weight preventing sleep, and some vomiting, I found a small patch of herpes zoster below the angle of the right scapula.

In Group 2 were various neuralgias. In one man aged thirty-eight there was intense supra-orbital neuralgia varying from side to side; previously there had been rigor and abdominal pain like colic, and then sweating and palpitation. He had suffered from influenza twelve months previously, but no ailment since. In another case, a lady aged twenty-five, urticaria followed influenza, and twelve months afterward attacks of vertigo, with palpitation of the heart and pain referred to the occipital regions. A lady of thirty-seven, who had suffered from an attack of influenza in May, 1891, averred that two months afterward she commenced to have headache, from which she had never been free in her waking hours for three months subsequently; she also suffered from pain on movement of the right lower jaw. She had tremors and tinnitus aurium, but no vertigo. In others headache occurred coincidentally with gastric crises.

In Group 3 some of the patients referred the pain which they suffered very closely to the region of the heart. In a few cases the pain was persistent, but in most paroxysmal. A lady aged forty-two, who had suffered from influenza nine months previously, described the pain as constant and dull, limited to the heart region. A gentleman aged thirty-six, whose attack dated sixteen months previously, was wearied with such dull aching; it was rather more diffused than in the former case. In another gentleman, aged forty-two, the constant pain in the cardiac region was accompanied by a tingling down the left arm. The most important and characteristic cases in this group, however, simulated angina pectoris. A gentleman aged thirty-one, typically athletic, who had never suffered from illness before his attack of influenza, which was very severe, was taken five months afterward with sudden and violent pain at the heart, eventuating in syncope. He was standing with his back to the fireplace talking with friends, when the attack seized him with violence, and he fell unconscious upon the hearth-rug. There was no epileptoid sign. Another attack occurred a week after. There could be no doubt from collateral evidence that the patient became faint to unconsciousness. In the intervals no notable deviation from health could be detected; the left ventricle was slightly hypertrophied, but not more so than could be expected in an athletic subject. The patient described the pain as of the character of a "grip" or "screw" at the heart; he experienced no coldness, and repudiated any sense of impending death. There were occasionally, also, some attacks of dyspnoea, occurring independently of exertion. Nearly at the same time at which this patient came under my observation a gentleman came under my care with like symptoms, in whom there was no evidence of an attack of influenza. He presented the appearance of typical good health, but suffered attacks of terrible pain at the heart, ending in complete unconsciousness. On some occasions the attacks were followed by wild excitement, and the patient had to be restrained from self-violence. I have reason to believe that in both these cases there was complete recovery. In a lady, aged forty-one, attacks of intense pain were initiated by exertion. The pain was localized in the second left intercostal space—presumably over the superior cardiac plexus—and here was a tender spot. The pulsations of the heart were painfully felt when in the recumbent position. In some other cases there was a feeling of impending death, as in true angina pectoris, though the pain was much less severe. This occurred in a gentleman aged thirty-three, sixteen months after an attack of influenza. Pain referred to the heart, however, had occurred at intervals ever since his attack. In the case of another gentleman, aged thirty-seven, the sensation was described as of an arrest of the heart, as if the pendulum of a clock had been stopped at one swing. With this the patient said: "I feel as if I were going to die." In some cases there was a manifest slowing of the pulse; in others an irregularity. Sometimes a slow alternated with a quick pulse. Fifteen months after an attack of influenza I counted the pulse of a lady aged twenty-two as fifty-six. In most cases the rate was rapid, and I do not remember one case in which the arterial tension was unduly prolonged. This absence of prolonged arterial tension, in my opinion,

took the cases out of the category of true angina pectoris. I have not heard that any case was fatal.

It is no part of my purpose to pursue the question of the cardiac phenomena of influenza. These furnish most interesting lessons, but I am concerned now only with the manifestations of *pain*. I turn now to Group 4, in which there were painful affections of the extremities. A lady aged twenty-five, who had an attack attended with high fever four months previously, complained of intense aching in both arms. This occurred chiefly at night, and she actually wept on account of the pain. Previously to the manifestation in the arms she had suffered pain in the calves of the legs, resembling that of neuritis. In another case of a gentleman, aged forty-one, the pain was referred to the lumbar regions more on the left side, to the right shoulder and the left wrist, to the course of the right sciatic nerve, and to the muscles of the thigh. There were fearful exacerbations, chiefly nocturnal, so that the patient, previously a healthy man, actually shrieked on account of the pain. In the case of a female aged thirty-three pain was localized in the muscles of the calves of the leg and of the thigh. The pain was strongly aggravated after food, especially meat. In another female, aged twenty-three, pain was extremely violent in the thighs and legs, and there were attacks of faintness. Subsequently the suffering was localized in the course of the right sciatic nerve. It was subject to remissions, with severe nocturnal exacerbations; there were also shooting pains at the epigastrium. The case was of alarming intensity, but recovered. In a lady aged forty-eight pain was referred to the right hip and to the right arm; it extended from the right shoulder to the fingers, and all movement caused pain.

There could be little doubt that in these cases there was a form of neuritis. I met with other analogous instances in which there had been no history of influenza: One case in a child in whom there was severe pain in the calves, dropped feet, absolute loss of motor power, and, in fact, all the signs of neuritis of the alcoholic form. Any causation by alcohol was in this case quite out of the question; no doubt it was due to some infectious cause, and resembled the cases of peripheral neuritis, due to no traceable contagion, recorded by DeJérine and others.

In this summary of my personal experiences I have dealt with no cases of the earliest manifestations of influenza; all were in patients whose attack had passed away and who were not confined to their homes. The periods between the attack of influenza and the manifestations of symptoms of pain varied from a few weeks to twenty months.

The evidence appears to me to confirm the view of Dr. Althaus that the *materies morbi* of influenza resembles the syphilitic virus in its tendency to attack many parts of the nervous system after the attack is over, but surpasses the syphilitic toxine in virulence and in rapidity of action. Dr. Althaus\* has adopted the deductive method in his reasoning. Starting from certain probabilities, he has worked out the problems of the effects of the *materies morbi* if it should specially attack certain areas of the central nervous system. He concludes that the different forms of influenza are due to irritant poisoning of the bulb and the nerve nuclei contained in it. Adopting a converse method, that of logical induction, and taking my arguments alone from personal experience, I have arrived at a similar conclusion to Dr. Althaus in so far as the proposition is concerned—that the virus of influenza especially affects the nervous system. Leaving the question of the acute and early manifestations, however, which I agree with Dr. Althaus in considering to be due to involvements of certain areas in the medulla oblongata, it appears to me most probable that the consequent phenomena are better to be explained by inflammatory changes in certain peripheral parts of the nervous system. In regard to the *visceral neuralgic*, the hepatalgia, the gastralgia, and cardialgia, there are signs of localization and, in some instances, of local tenderness that point to a local cause. In some such it seems probable that the sympathetic fibers and ganglia are alone affected. In other cases, as in those in which there seems to be temporary arrest of the heart's action, retching, vomiting, and various disturbances of digestion, it is most probable that the vagus is involved in greater or less degree; but here also the effects might be due to peripheral irritation. In the sensori-motor manifestations it can scarcely be possible to avoid the conclusion that

there is in existence a form of neuritis analogous to that which is caused by many other toxines. The conclusion, therefore, which I have come to is that the various affections I have briefly described are the remote consequences of the influenza infection, and that their proximate cause is a peripheral neuritis affecting the sympathetic ganglia and nerves, the vagus, and the sensori-motor nerve trunks.

**Infantile Deformities and Maternal Impressions and Emotions.**—The following presidential address before the Obstetrical Society of Glasgow, by Dr. George Halket, is published in the *Glasgow Medical Journal* for January:

There are few things more painful to a mother than to give birth to a child that is in any way deformed. How often do we hear a mother say that it matters little to her whether her child is a boy or a girl, or what it is like, or whom it is like, so long as it is "like the world."

We are apt to look upon these words as an idle tale, and worthy of little attention; but I firmly believe that they bear more real significance than they generally get credit for.

A deformed child is a lifelong sorrow to its mother, and an object of pity as long as it lives, yet we not infrequently see children come into this world deformed as to their face, their limbs, or other parts of their body, and bearing these deformities along with them from their cradle to their grave.

The deformities of which I am going to speak are those which have occurred in children at whose birth I attended, with whose family history I was acquainted, and, in the case of those who survived, whose subsequent career I have been able to follow.

I will take first those deformities affecting the head and face, then those affecting the upper extremities, then the lower extremities, and then those affecting the trunk.

The case of greatest interest affecting the face and head was the child of a woman residing in Stobcross Street. It was her second child, the first being as healthy and well-formed a boy as one could wish to see, and who is still alive. The child of which I am speaking was also a boy. Its nose was only partially developed, being very small, and had only one nostril. It had the appearance as if only half the nose were there. The right eye was situated considerably further back on the head and at a much lower level than the left eye. The child could not close that eye, and, sleeping or waking, the right eye was always wide open. On the right side of the forehead there was a small growth, half an inch in length, tipped with bone, and which looked like a small horn. This I took to be the undeveloped part of the nose. The child was otherwise strong and healthy, and lived till it was fifteen months old, when it died of acute bronchitis.

There were five cases of hare-lip. Two of these were simple and uncomplicated, and situated on the left side of the median line. These were successfully operated upon. Two cases, one on the right side and one on the left, were complicated with cleft palate. One died in infancy from bronchitis, the other was operated upon and is still alive. The fifth case was a double hare-lip, with cleft palate, and died in the Western Infirmary, whither it was taken for operation.

I had three cases of children with hydrocephalic heads, all dead-born. One of these required perforation and the application of the forceps; another, born at the end of the eighth month, was delivered with the aid of the forceps. This child had no neck, the head being fixed directly on the shoulders. The third case was a breech presentation, and was delivered with great difficulty. The bones of the head in this case were not united, otherwise craniotomy would have required to have been performed.

I had one case of complete ossification of the bones of the head. The mother of this child had had a large family, and all her confinements were normal. In the present case, after the cervix was completely dilated, the head remained for a considerable time above the brim of the pelvis. To aid delivery, I applied the forceps, but, do what I could, I made no impression on the position of the head. The case being in Crosshill, I got the assistance of Dr. Nairne, but with no better result. We then decided to turn, and again the head gave trouble. It was only after efforts which exhausted us both that the child was brought into the world, with a head as round as a ball and as hard as a stone.

\* *The Lancet*, November 14 and 21, 1891.

Coming now to the deformities affecting the upper extremities, there was one case where the forearms were only partially developed—that is, they were short and thin as compared with the upper arms, and they were firmly fixed at right angles to the upper arms, to which they were attached by a thin web-like membrane of skin and fibrous tissue. On each hand only the thumb and forefinger were present. This child was dead-born, but the mother believed it was alive at the beginning of labor.

The next case was a child born at the end of the eighth month of pregnancy. It had both hands firmly fixed at right angles to the forearms, and resembled the condition which is found in talipes equinovarus in the foot.

There was one child born in which the index and middle fingers of the left hand were not developed, and two cases where the child was born with a sixth finger on the left hand. As the attachments of these sixth fingers were only slight, I separated them and bandaged the hands.

In the lower extremities the only deformity I had was that of club-foot, and of this I had three cases—all of the talipes equino-varus type. In two of these cases only one foot was implicated; in the third, both feet.

All were successfully operated upon.

I had one case—a breech presentation—where one of the feet was very much twisted by intra-uterine pressure, and had all the appearance of a bad club-foot; but manipulation and bandaging eventually restored it to its proper shape.

On the trunk I had three cases of spina bifida. One was in the dorsal region and had no tumor. One was in the lumbar region, and the third was over the upper part of the sacrum. The first two cases died within a few days of their birth from convulsions. The third case did well, the tumor taking on a thick covering of skin. This child, a boy, is still alive, and about eight years of age. He was three years old before he could walk, still walks with a stooping and shuffling gait, and is not intellectually the equal of his brothers and sisters.

These, gentlemen, are the deformities and malformations worthy of note which have occurred in my midwifery practice, and the question now arises, Can their appearance in any way be explained?

The belief that maternal impressions and emotions affect the development of the fœtus has existed from the earliest periods, and, up to the beginning of the eighteenth century, was generally accepted by the medical profession. From that date up till now, and more especially within the last fifty years, writer after writer, and among them men of distinction, both in this country and America, have expressed their disbelief in this theory, and have written many articles to controvert it.

They hold that maternal impressions or emotions are exceedingly common among pregnant women, and that deformities are very rare.

That deformities sometimes occur when there was no history of maternal impression.

That when deformities follow well-marked maternal impressions, they are due to coincidences, and are not cause and effect.

That there is no nerve tissue in the umbilical cord, and that mental emotion can not in this way be carried from the mother to the child. And, further, that, as the action of maternal impressions and emotions can not be explained pathologically, they can have no effect whatever on the fœtus *in utero*.

But, gentlemen, "there are more things in heaven and earth than are dreamt of in our philosophy," and case after case has been put on record, substantiated and confirmed by medical men whose names are sufficient guarantee, that mental impressions and emotions do sometimes affect the development of the fœtus.

One thing is certain: that, knowing the sympathy that exists between the brain and the womb, if there is one time more than another when a woman should be treated with gentleness and care, when her surroundings should be pure and free from anything that is repulsive, it is when she is pregnant.

If, on the other hand, we see her exposed to everything that is bad—the fury of a drunken husband and the annoyance of quarreling neighbors, hearing obscene language and seeing foul sights; if, in addition to that, we find her addicted to drunkenness and the other evils

that spring from that—there is little wonder that the course of nature in the development of the fœtus should sometimes be interfered with.

Now, what do we find in the cases that I have laid before you?

In the first case, where the nose was only partially developed and where the right eye was displaced, the father of the child was at that time a confirmed drunkard and frequently assaulted his wife. There was a history of repeated kicks and blows over the abdomen during the early months of pregnancy, not discovered only after the birth of the child, but of which I was made aware at the time, and measures had to be taken on more occasions than one to prevent abortion. In this case I believe the deformities were the result of external violence.

Taking next the deformities which were due to arrest of development—hare-lip, cleft palate, and spina bifida—there was not, so far as I was made aware, in any of them any history of particular maternal impressions, but there were in every case circumstances which I believe tended to cause these deformities.

In the two worst cases of hare-lip and cleft palate the mothers were given to frequent and long-continued fits of intemperance; and from this cause, aggravated by violent emotions, to which every intemperate person is exposed, the blood became vitiated and so changed as to interfere with the proper nutrition and development of the child.

In two other cases the mother suffered bereavement about the time of conception, and had long periods of grief and mental depression. Another was deserted by her husband and left in poverty and suspense, and the others suffered in many ways from ill treatment and neglect.

Now, bearing in mind the absolute dependence of the fœtus on the blood of the mother, it is not difficult to imagine how mental emotion, long continued, should so affect the quality of the maternal blood as to cause it to act injuriously on the child.

In the two cases where the hands and arms were deformed or only partially developed I did not seek for any history of maternal impression. I thought it better in each case that the mother should be kept in ignorance of the deformity of her dead child.

But there was one case that would not hide, and that was where the child was born alive with the index and middle fingers wanting from one of its hands. The mother was a young woman who knew nothing about maternal impressions, but, when she was made aware of the state of her child's hand, she stated without hesitation that she had to work for some months after her marriage, that the foreman under whom she worked had lost two fingers through an accident, that when she saw his hand for the first time she had a "grueing," or shivering, and that every time she saw him she could not keep from thinking of his deformed hand.

A few years ago an interesting correspondence was carried on in the *British Medical Journal* on the subject of maternal impressions, and medical men in different parts of the country gave an account of cases which had come under their own observation. One medical man had a patient who, in the early months of her pregnancy, wished to have her ears repierced, that she might wear her ear-rings again. When she got this done she wished she hadn't, and the matter preyed heavily on her mind. When she was confined, it was found that the child's ears were likewise pierced, and a thread was passed through one of them.

Another related how a patient of his, in her first pregnancy, was served daily with milk by a boy who had lost his middle finger, and that as he handed her the milk she always observed the absence of that finger. When her child was born, the middle finger of one of its hands was wanting.

A third medical man described how a workman was brought into his surgery with one of his hands cut right off by some machinery. He narrated this incident to a lady friend of his, who was at that time in the early months of pregnancy, on whose mind it made a marked impression, and who could not keep from detailing the incident to others. Her child was born with only one hand.

Another doctor had a patient who, about the time of her conception, had lost a near and dear relative. Her grief was inconsolable, and she spent the early months of her pregnancy in weeping and covering her

eyes with her handkerchief. When her child was born it was born blind.

And this brings me to speak of a case that occurred in my own practice, now a good many years ago, but the facts of the case are as firmly impressed on my mind as if they had occurred only yesterday. It was the saddest case I ever had, for though the confinement was as simple a one as I ever attended, the child was born dead, and the mother died within a few hours afterward, and that from no apparent cause.

On October 4, 1884, a lady residing in the western district of Glasgow called upon me and asked me to attend her in her confinement, which she expected about the middle of December. It was to be her third confinement. Both previous confinements had been normal, and I had attended her in her second confinement, when she made a good recovery. I remember telling her that I did not think she looked quite as well as she did when I saw her last, and she replied that since the death of her mother, who had resided with her, she had felt dull and lonely, and was often in low spirits. Otherwise, she said, she was in good health.

I may here mention that, though I had been frequently in her house visiting her mother and her children, I had never been asked to prescribe for herself, and none of her friends ever suspected her to be suffering from any bodily trouble.

I did not see her again till the early morning of December 9th, when I was called to her confinement. I found her sitting at the kitchen fire, the very image of despair. On my advice she went to bed, and on examination I found the labor well advanced, the head presenting normally, and the membranes unruptured. The pains were strong and regular, and with every pain she cried out in a tone which resembled that of grief rather than of bodily suffering: "Oh, my poor mother, my poor mother." I told her that she was not bearing up so well as she did at her previous confinement, and encouraged her as well as I could. She paid no attention to what I said, but with every pain kept crying: "Oh, my poor mother, my poor mother." Shortly afterward the membranes ruptured, and in a few minutes the child came into the world, but the first view I got of it convinced me that it was dead. There was no discoloration of any part of its body, but it had that soft, white appearance which indicated the absence of life. I did attempt resuscitation, and while doing so asked her when she found the movements of the child last, and she answered that she had felt no "life" since her mother died. Now, her mother had been dead nearly a year.

After removing the placenta and bandaging her, I waited a short time to see that the uterus was contracting properly, and then left her, to all appearances well. In about three hours afterward I was called hurriedly to come back and see her, and was just in time to see her breathe her last. There had been no undue hemorrhage, internal or external; and the only information I could get was that she had attempted to sit up, and had fallen back in a fainting fit.

I was visiting in the neighborhood the following day, and reference was made to what had happened. I stated that I had difficulty in accounting for the cause of death, but the lady to whom I was speaking said she believed the cause of death was a broken heart. And then she told me how in the summer time she had frequently met the deceased lady at the coast, and how her whole talk on every occasion was about her dead mother.

Gentlemen, I have laid before you, for your opinion, every fact of this sad case with which I am acquainted; but whatever the scientific or pathological explanation may be, I am firmly convinced, in my own mind, that the death of this child and the death of its mother are in some way connected with maternal emotions.

**The Function of the Peroneus Tertius Muscle.**—Mr. W. Ramsay Smith, B. Sc., Demonstrator of Anatomy, Edinburgh School of Medicine, contributes the following to the January number of the *Edinburgh Medical Journal*: Recently, in the course of studying the actions of the muscles of the lower extremity with the view of determining what muscular movements take place in walking, I was fortunate to meet with some clinical cases worth recording. In this note I shall confine my remarks to two cases illustrating the function of one muscle—the *peroneus tertius*.

The first case was one in which the *peroneus tertius* of the left side was subjected to a continued strain by the patient sitting for an hour or two in a cramped position, with the heel on the ground, the ankle joint fully extended, and the toes turned in. When the patient, in the act of walking, placed the heel on the ground and allowed the weight of the body to fall on the advanced leg, the sole of the foot came down all at once with a *flap—flap*, and pain was felt at each step taken with this foot. The pain was referred to a spot corresponding to the origin of the *peroneus tertius* muscle. The patient found it impossible to stand on the heel of the left foot; every attempt to do so resulted in the sole of the foot coming down *flap* on the ground, and was accompanied by intense pain in the part of the leg I have referred to. On carefully testing the condition of the *extensor longus digitorum*, *extensor proprius hallucis*, and *tibialis anticus* muscles, I could discover no abnormality; the power of these muscles to resist flexion of the toes and extension of the ankle was as great as usual, and no pain was elicited by such testing. This condition of paralysis continued for about three days, when the muscle gradually regained its power. During that time walking was practiced by keeping the knee slightly more bent than usual, turning the toes slightly more outward, and placing the sole of the foot on the ground at each step of the left foot. In this way there was no pain accompanying the act of walking, and the difference of gait was scarcely perceptible.

The second case was one in which the patient, on descending from a high leap, alighted on the ground on his right heel, the ankle being at the time extended. The symptoms in this case were similar to those in the former, only they were more aggravated; and examination showed that the *extensor longus digitorum*, particularly the outer part of it, was also involved in the strain. The power of this extensor to resist flexion of the toes was impaired, and the pain in the leg was correspondingly increased in its distribution. The act of walking was performed as in the former case.

These two cases illustrate very clearly the action of the *peroneus tertius* as a muscle of ordinary walking when the heel is the first part of the foot to touch the ground. Acting with the *tibialis anticus*, and aided by the extensors of the great and other toes, it prevents the foot from coming forcibly down on the ground, which it tends to do, as soon as the weight of the body bears on the ankle joint; in other words, these muscles on the front of the leg prevent "spasmodic" extension of the ankle joint in ordinary walking. The action of this muscle, too, in helping to maintain the erect posture of the body becomes apparent; and this action goes very far to explain, if it does not make perfectly clear, how the *peroneus tertius* muscle is the peculiar property of the human subject, no other mammal possessing it.

I have not yet seen an instance of the absence of this muscle, and I am unable to say what the state of matters may be in such instances; but it would be instructive to know the condition of the *extensor longus digitorum* to the little toe, and whether any peculiarity exhibited itself in the gait of persons in whom the *peroneus tertius* was absent.

**A Physician's Estimate of his Class.**—In Dr. S. Weir Mitchell's interesting "medicated novel," *Characteristics*, that is being published in the *Century*, there is the following description of varieties of medical men that will suggest acquaintances to many of our readers: "There is no place where good breeding has so sweet a chance as at the bedside. There are many substitutes, but the sick man is a shrewd detective, and soon or late gets at the true man inside of the doctor.

"I know, alas! of men who possess cheap manufactured manners adapted, as they believe, to the wants of 'the sick-room'—a term I loathe. According to the man and his temperament do these manners vary, and represent sympathetic cheerfulness or sympathetic gloom. They have, I know, their successes and their commercial value, and may be of such skillful make as to deceive for a time even clever women, which is saying a great deal for the manufacturer. Then comes the rarer man who is naturally tender in his contact with the sick, and who is by good fortune full of educated tact. He has the dramatic quality of instinctive sympathy, and, above all, knows how to control it. If he has directness of character too, although he may make mis-

takes (as who does not?), he will be, on the whole, the best adviser for the sick, and the completeness of his values will depend upon mental qualities which he may or may not possess in large amount.

"But over and above all this there is, as I have urged, some mystery in the way in which certain men refresh the patient with their presence. I fancy that every doctor who has this power—and sooner or later he is sure to know that he has it—also learns that there are days when he has it not. It is in part a question of his own physical state; at times the virtue has gone out of him.

"I had a rather grim but most able surgeon. He seemed to me to have a death-certificate ready in his pocket. He came, asked questions, examined me as if I were a machine, and was too absorbed in the *physical me* to think about that *other me* whose tentacula he knocked about without mercy, or without knowledge that tenderness was needed. Our consultant was a physician with acquired manners. He always agreed with what I said, and was what I call aggressively gentle; so that he seemed to me to be ever saying with calm self-approval, 'See how gentle I am.' I am told that with women he was delightfully positive, and I think this may have been true, but he was incapable of being firm with the obstinate. His formulas distressed me, and were many. He was apt to say as he entered my room, 'Well, and how are we to-day?' And this I hated, because I once knew a sorrow undertaker who, in the same fashion, used to associate himself with the corpse, and comfort the living with the phrase, 'We are looking quite natural to-day.'"

**The New York Academy of Medicine.**—At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 27th inst., Dr. H. Hoyle Butts will read a paper entitled A Comparison of some Recent Methods for removing Adenoids from the Vault of the Pharynx.

At the next meeting of the Section in Obstetrics and Gynecology, on Thursday evening, the 28th inst., Dr. Robert L. Dickinson will read a paper on The Diagnosis of Pregnancy between the Second and Eighth Weeks by Bimanual Examination, and Dr. Victoria M. Davis will read a paper on The Preventive Treatment of Mastitis.

**Mortality in Cities in the United States.**—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for January 15th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	DEATHS FROM—											
			Total deaths from all causes.	Phthisis pulmonalis.	Yellow fever.	Small-pox.	Variceloid.	Varicella.	Typhus fever.	Energetic fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	Jan. 9.	1,515,901	972	110						3,34	39	16		
Chicago, Ill.	Jan. 9.	1,099,850	617	41						90	13	32	1	3
Boston, Mass.	Jan. 9.	448,477	339	39							7	5	1	2
San Francisco, Cal.	Jan. 2.	298,997		24									2	1
Cincinnati, Ohio.	Jan. 8.	296,503	172	15							2	12	1	
Cleveland, Ohio.	Jan. 9.	261,353	95	7							2	1		
New Orleans, La.	Dec. 19.	242,039	125	14								1		
New Orleans, La.	Dec. 26.	242,039	153	13								1		
Pittsburgh, Pa.	Jan. 2.	238,617	104								5	1	11	
Washington, D. C.	Jan. 2.	220,392	133	13							1			
Louisville, Ky.	Jan. 9.	161,129	91								2	1		1
Rochester, N. Y.	Jan. 9.	133,896	79	6							1	2		
Providence, R. I.	Jan. 9.	132,116									5			
Indianapolis, Ind.	Jan. 2.	105,436	60	5								1	1	
Indianapolis, Ind.	Jan. 9.	105,436	60	8									6	
Toledo, Ohio.	Jan. 8.	81,434	42									1		
Richmond, Va.	Jan. 2.	81,388	46	5										
Nashville, Tenn.	Jan. 9.	76,168	40	3										
Fall River, Mass.	Jan. 8.	74,398	37	4										
Portland, Me.	Jan. 9.	36,425	17											
Binghamton, N. Y.	Jan. 9.	35,005	17										6	
Yonkers, N. Y.	Dec. 19.	32,033	12	1							1			
Yonkers, N. Y.	Dec. 26.	32,033	10	1							1			
Yonkers, N. Y.	Jan. 2.	32,033	22	2								2	1	
Yonkers, N. Y.	Jan. 9.	32,033	15	2										
Mobile, Ala.	Jan. 2.	31,076	21	2								1		
Mobile, Ala.	Jan. 9.	31,076	16	4										
Galveston, Texas.	Dec. 23.	29,084	17											
Galveston, Texas.	Jan. 1.	29,084	15											
Rock Island, Ill.	Jan. 3.	13,634	3											
Pensacola, Fla.	Jan. 2.	11,750	3											

**The Pan-American Medical Congress.**—The committee on organization of the Pan-American Medical Congress, at its meeting at St. Louis

last October, elected the following international executive committee: *The Argentine Republic*, Dr. Pedro Lagleyze, Buenos Aires; *Bolivia*, Dr. Emelio Di Tomassi, La Paz; *Brazil*, Dr. Carlos Costa, Rio de Janeiro; *British North America*, Dr. James F. W. Ross, Toronto; *British West Indies*, Dr. James A. De Wolf, Port of Spain; *Chile*, Dr. Moises Amaral, Santiago; *United States of Colombia*, Dr. P. M. Ibañez, Bogotá; *Costa Rica*, Dr. Daniel Nuñez, San José; *Ecuador*, Dr. Ricardo Cuelon, Guayaquil; *Guatemala*, Dr. José Monteris, Guatemala Nueva; *Haiti*, Dr. D. Lamothe, Port au Prince; *Spanish Honduras*, Dr. George Bernhardt, Tegucigalpa; *Mexico*, Dr. Tomás Noriega, City of Mexico; *Nicaragua*, Dr. J. I. Urtecho, Grenada; *Peru*, Dr. J. Casamira Ulloa, Lima; *Salvador*, Dr. David J. Guzmán, San Salvador; *Spanish West Indies*, Dr. Juan Santos Fernandez, Habana; *United States*, Dr. A. Vander Veer, Albany, N. Y.; *Uruguay*, Dr. Jacinto De Leon, Montevideo; *Venezuela*, Dr. Elias Rodriguez, Caracas. Hawaii, Paraguay, Santo Domingo, the Danish, Dutch, and French West Indies are not yet organized. Nominations of local officers have been received from a majority of all the members of the international executive committee, and a number of the lists have been confirmed by the committee on organization. These will be announced as rapidly as acceptances are received.

**To Contributors and Correspondents.**—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

THE PROGRESS OF CYSTOSCOPY  
IN THE LAST THREE YEARS.\*

By WILLY MEYER, M. D.,

ATTENDING SURGEON TO  
THE GERMAN AND NEW YORK SKIN AND CANCER HOSPITALS.

THREE years ago Dr. Max Nitze, of Berlin, the inventor of the cystoscope, in his well-known essay, Contribution to Endoscopy of the Male Bladder,† stated that we could now, with the help of the cystoscope in its handy and improved shape, establish a strict differential diagnosis between the diseases of the bladder. He further said: "Having seen with the cystoscope that the bladder is healthy, and that the morbid process therefore involves the upper urinary passages, most probably the kidneys, it is tempting to put the question whether we shall be able to prove with the cystoscope which kidney or which pelvis of the kidney is diseased. Either we could attempt to push a thin catheter under the guide of our eyes into the orifice of the ureters, to draw the urine directly from each kidney separately, or we might be able to observe with the cystoscope out of which ureter the blood escaped in a case of hæmaturia," or, I may add, pus or purulent urine in a case of pyelitis or suppurating kidney.

It was obvious from the beginning that Nitze's statement would be sustained by all who practiced cystoscopy—namely, that our knowledge as well as the diagnosis of bladder diseases would just as rapidly widen, clear up, and improve with the help of the new cystoscope as our knowledge of laryngeal diseases, for instance, did after the invention and introduction of the laryngoscope. But would Nitze's hope also be realized, or could it be realized, in regard to kidney troubles? Might we hope to be able to use his cystoscope as at least one means of observing the "character" of the urine in its direct descent from each kidney?

Reviewing the literature on cystoscopy which has appeared since 1887, and the results of my own work in this line, covering now (December, 1891) a period of nearly four years, we can unhesitatingly answer this question in the affirmative.

Before treating of the progress in the diagnosis and treatment of "kidney" diseases with the help of the cystoscope—the special object of my paper—any further, I will try to give a short review of the development of cystoscopy in general, with reference to the construction of additional instruments, made in accordance with the principles laid down by Nitze, and to its influence upon the diagnosis, prognosis, and treatment of diseases of the bladder.

I. INSTRUMENTS.

After three years' careful trial and comparison of the two chief cystoscopes which have been in the market—viz., that of Dr. Max Nitze, manufactured by Paul Hartwig, of

Berlin (*Markgrafenstrasse*, 79), and that of Mr. Joseph Leiter, the well-known instrument-maker of Vienna, manufactured by himself (*Mariannengasse*, 11)—I must slightly alter my remark, made a few years ago,\* that I "prefer" Nitze's instrument. It is true, I still mostly use it, because I have become accustomed to it, and because it seems to me that the picture, as seen through its prism and lenses, is more stereoscopic.† I also believe that, in order to avoid diagnostic errors, it is better to train one's eyes exclusively on one instrument. After experience has been acquired, it is immaterial which instrument is used. And since Leiter has slightly altered the pattern of his instrument in accordance with the suggestion of Harry Fenwick, of London, he has secured the essential advantages of Nitze's cystoscope and eliminated the former disadvantages of his own. Leiter's instrument is now most highly finished and perfectly reliable.‡ "The length of the beak is reduced to less than an inch.# The elbow is well rounded; the length of the shaft is seven inches and a half. The ocular end is fitted with a rotatory plate, carrying the binding screws, while, instead of the Nitze slot-key, a small screw upon the face of the plate forms a more convenient switch."|| In the Leiter instrument of 1887 the beak was nearly half an inch longer, the elbow presented an angle, the shaft was too short, and the battery wires had to be fastened in the binding screws, which were immovable upon the instrument, and thus would twist around it, if the latter was turned around its longitudinal axis in the bladder. The only difference, then, which still exists between the two German instruments, apart from the arrangement of the mignon lamp, is in the telescope. That of Nitze slightly magnifies; that of Leiter slightly diminishes. The lenses in Nitze's instrument also give a more perspective picture, to my eyes at least, and cover a larger field—i. e., the observer's eye will perceive with one glance a larger area.△

The drawbacks alleged against Nitze's cystoscope are:◇

\* Author. A Contribution to the Surgery of the Bladder. *New York Med. Jour.*, Feb. 23, 1889.

† That others are of the same opinion is shown by the following passage in a recent treatise by Cecil-Kent Austin, entitled *Sur le diagnostic précoce des néoplasmes de la vessie et du rein au moyen du cystoscope*. Paris, 1890: "Je ferai remarquer en passant que les images perçues au moyen de l'instrument de Berlin m'ont paru plus nettes, plus satisfaisantes que celles que donne l'instrument viennois."

‡ In the new one, which is in my possession, the beak still measures an inch.

# This alteration, as it appears, was first employed by Leiter in the old Nitze-Leiter instrument. *Neue Beleuchtungsapparate mit Zuhilfenahme des elektrischen Lichtes. Nachtrag zu den von Josef Leiter verfassten Catalogen*, 1890, p. 1.

|| I should say here that Nitze demands that Leiter's cystoscope which is practically the same as Nitze's, be called the Nitze cystoscope manufactured by Leiter.

△ Take Nitze's instrument in one hand, turn its prism to the window, and hold the palmar side of the slightly flexed fingers of the other hand at a distance of about two inches from it; then look through the telescope; you will see at once the fifth to second fingers and a part of the ulnar side of the thumb. Do the same with Leiter's cystoscope; you will see only two fingers and a half.

◇ Cf. E. Harry Fenwick. *The Electric Illumination of the Bladder and Urethra*, second edition. London: J. and A. Churchill, 1889, pp. 36 and 43.

\* Read in part before the Medical Society of the State of New York at its eighty-fifth annual meeting, Albany, February 3, 1891.

† V. Langenbeck's *Archiv f. klin. Chirurgie*, vol. xxxvi, p. 661.

## 1. A somewhat less brilliant light.

It is true, that of Leiter is brighter, because the still longer beak carries a larger, less delicate, and more powerful incandescent lamp. Still, the light as thrown from the Nitze mignon-lamp, if tested as to its strength previous to the introduction of the instrument (what always should be done), will be found entirely satisfactory in every case. Where we can not see with it for special reasons, we shall most probably also not succeed with the other.

2. The silver tip, the carbon filament of which has given out or has been destroyed, has to be sent to Berlin for putting in a new incandescent lamp, whereas Leiter has made the cystoscopist independent.\*

This is now easier arranged for cystoscopists on this side of the ocean, who work with Nitze's cystoscope, as I have induced the W. F. Ford Surgical Instrument Company, 315 Fifth Avenue, New York city, to carry a number of silver tips in stock. Useless tips will there be exchanged for new ones, which fit upon the instrument. (Difference of price here and in Berlin, 50 cents.) I should add, although it is self-understood, that it will be necessary to have a number of these tips, all armed with the carbon filament, constantly on hand, just as the order sent to Leiter should include six reserve lamps. The price of the latter is, however, one fifth of that of the silver tip of Nitze's cystoscope. The difference of the two instruments in this respect is therefore merely a pecuniary one. To replace a burned-out incandescent lamp by a new one does not require a moment longer in Nitze's cystoscope—nay (if such a simple, though important, manipulation is to be compared at all), is even still simpler than in Leiter's. But there is—

3. Another disadvantage, which became manifest to me in the course of the last year, since I have been in possession of three different Nitze cystoscopes. It is that the screw of the different tips in stock will sometimes be found not to fit exactly on the thread at the lower end of the shaft. Thus the screw of the tips now and then overruns the limit of screwing or does not reach it at all. The surface of the lamp then points to another direction than the prism, and the tip is simply useless. It will, however, be seen at once that this is no drawback to the instrument proper, but a mistake which can be remedied at once by a greater accuracy of the instrument-maker. It is to be hoped that Mr. Hartwig will yield to the cystoscopists' urgent requests and pay better attention in the future to this slight but important defect, explained to him at length. The screw-thread of each cystoscope ought to be manufactured *accurately alike*, and the tips, before being sent away, carefully fitted on a standard instrument at Berlin. The arrangement as now made here in New York also dispenses with this annoyance. In cities where a similar arrangement is not or can not be made, the cystoscopist will soon have his small stock of fitting tips, and must insist upon having put new incandescent lamps into these very same tips. I should not omit to state here that, after some experience and with proper care and a good battery, the same tip can be used for nearly a year and perhaps still longer.\*

\* Still I have to mention—

1. To constantly have Nitze's instrument in good working order, it

In his first essay, and later also in his *Text-book on Cystoscopy*,\* Nitze recommended three different cystoscopes for a thorough inspection of the entire inner surface of the bladder.

Cystoscope No. 1, which carries the lamp and prism at its concave side (the latter at the junction of beak and shaft), represents the main instrument, "the" cystoscope.

Cystoscope No. 2, for the inspection of the fundus: The lamp on the concave side; the window at the end of the shaft, through which the observer looks with the telescope; of course, no prism.

Cystoscope No. 3, for illumination of the internal orifice of the urethra and its immediate neighborhood: The lamp and prism on the concave side of the beak, which latter is about half an inch longer than in the others, and bent in nearly a right angle to the shaft. A small mirror, situated at the convexity of the curve inside the tube, reflects the picture which is thrown into the telescope from the reflecting plane of the prism. I have tried this instrument in a number of cases, and can state that the picture seen with it is utterly indistinct. It is to be hoped that it will soon be improved. Although we are able to diagnose the hypertrophy of the prostate "in the picture" with No. 1, yet a thorough inspection of the internal urethral orifice and its surroundings under electric illumination would be very valuable in a number of cases.

In regard to cystoscope No. 2 I can only repeat what I said two years ago: † that it is unnecessary to buy it. I have always succeeded in inspecting the fundus and trigonum, together with the mouth of the ureters, by simply turning No. 1 180° and depressing the handle, even in cases with hypertrophy of the prostate. The inconvenience to the patient is slight. Nitze himself advised me, when I saw him at the International Congress at Berlin, to exchange my No. 2 for a longer No. 1, which would prove very useful in cases of hypertrophy of the prostate, where the urethra is materially lengthened. I did so, and can say that I am very thankful

is absolutely necessary to keep clean and dry the two circular grooves at the upper end of the instrument, as well as the concave surface of the rotatory handle, which, when attached to these grooves, conveys the current from the battery to the instrument. This refers especially to the irrigating cystoscope.

2. The slot key, which, under management of the thumb, serves for opening and breaking the circuit, may work rather easily after some time. The light then will be less brilliant. A simple turn of the screw which holds the key in place will correct this difficulty.

3. If the cystoscope turns too easily in the handle, it will be found useful to leave the left hand at the upper end of the cystoscope, the so-called "funnel," during the examination, while pressing the handle with the other hand tightly against it.

4. If the lamp of a new tip does not burn at once when the current passes its filament, a slight straightening of the little cork-screw-like silver wire at the basis of the tip, before the latter is screwed on, will often be found sufficient to get a bright light.

5. The small bubbles of air which often arise with a peculiar noise from the junction of shaft and tip in Nitze's instrument are caused by the decomposition of the water by the electric current. If a bit of wax is smeared upon the lower groove of the screw at the tip, previous to its being adjusted, this can always be avoided.

\* Wiesbaden, 1889. Verlag von J. F. Bergmann.

† *Loc. cit.*, p. 203.

to Dr. Nitze for this kind advice. The long shaft will be found of advantage in many instances.

As a third instrument I procured the new irrigating cystoscope of Nitze, which permits of changing the fluid in the bladder without being removed itself.\* It contains two small tubes in its shaft, which is thus increased in size to 25 gauge, French. (The size of the beak is 22, as in the others.) The one tube ends just in front of the prism with three small holes side by side. It carries fresh water into the bladder. The water, thrown in with the help of a hand syringe, passes with considerable force over the surface of the prism, thus washing it and removing blood coagula or pus shreds which so frequently settle there and render a successful cystoscopy impossible. This is a very clever arrangement. The other tube ends, or rather begins, with a single oval-shaped opening at one side of the lower end of the shaft; through it the water passes out of the bladder. Both tubes are carried to either side of the upper end of the instrument, and their current can there be shut off by a small stop-cock. Both these stop-cocks are attached below the funnel to a metal ring, which also carries the handle with the slot-key. They thus remain steady in the hand of the observer while the shaft can be turned around its longitudinal axis. The irrigation can be effected without regard to the turning of the shaft. To put the whole into working order, rubber tubes are attached and tied on the end of the two tubes. It will be found of advantage to have the one which carries the water out of the bladder cut so long as to hang into a basin under the table. If the water is changed and the examination continued—which will frequently be of great importance—an assistant or the patient must pump the water in. This latter manipulation is best done intermittently by sudden brief pressures on the handle of the syringe. A fountain syringe can also be used. Of course, this arrangement does not enable us to flush the viscus or wash it out in the ordinary sense. Still, I have found this irrigation sufficient and of the greatest value in clearing up an obscure bladder trouble as well as in the diagnosis of renal disease, pyuria, and hæmaturia. In examining the bladder of patients who suffer from such troubles, the originally transparent medium becomes rapidly and suddenly turbid and the outlook is at once clouded by a dense fog; nothing can be distinguished. I succeeded, in one of these cases where I had to perform nephrectomy for pyonephrosis and cystic degeneration, and therefore wanted to determine the condition and excretory power of the remaining kidney, in establishing the fact, just after fresh water had been thrown into the bladder, that the urine descending from the other kidney was clear (cf. Case III, nephrectomy). In another troublesome case also I could make out only with the help of the irrigating cystoscope that the large amount of pus which always turned the injected water murky in a few seconds was ejected from one ureteral orifice only (cf. Case I, nephrotomy). In fact, I

should prefer to use the irrigating cystoscope mostly were it not that, on account of the increased size of the shaft, its use is only practicable when the urethra is of a certain dimension.

In vesical hæmaturia, where the blood more easily coagulates, the irrigating cystoscope of the present size will often be of little or no use, as the blood-clots generally block at once the canal which carries the water out of the bladder. Fresh water is then pushed into the vesical cavity, but the turbid fluid can not get out.\* If a tumor is to be examined and it does not bleed during the examination, the instrument will also prove valuable in determining the insertion of the growth. The jet of water propelled across the prism and beak will make a pedunculated growth swing, while it leaves the sessile growth undisturbed. (The same result can be obtained in using cystoscope No. 1, by pressing with one hand in sudden short shocks on the epieystic region.)

The irrigating cystoscope will be also found of advantage in cases where papillomatous growths, inserted around the internal urethral orifice, cover lamp and prism of the instrument as soon as it has entered the bladder, and thus render an examination impossible. The field of vision then appears dark. These growths can be easily pushed aside by the forcibly injected fluid, and will then be suddenly seen in bright illumination, swaying in the fluid. Concrements and foreign bodies lying in the pouch behind an hypertrophied prostate gland, and not to be detected there by the examining eye, may sometimes be thrown by the water out of the recessus, and thus diagnosed. Lastly, it is worth mentioning that the irrigating cystoscope enables us to view the bladder in different degrees of distention. In a certain number of cases the ureteral openings can be seen only by this means. (Nitze, *loc. cit.*)

Having thus carefully compared and tried the cystoscopes of Nitze and Leiter, I am ready to say that it is difficult to give proper advice as to which of the two had best be bought by the beginner, as both instruments are equally worthy of being in the hands of everybody who practices electric illumination of the bladder. But, whereas Nitze has given us three useful cystoscopes (according to pattern No. 1), and whereas I deem it of pre-eminent importance, in order to avoid mistakes, to stick to one pattern in the beginning, I prefer to advise the beginner to buy the Berlin instruments. I, personally, have so far gladly incurred the slight annoyance of sending my few burned-out reserve tips to Berlin for repair once in a year. The pleasure of being enabled to work with the three cystoscopes has amply rewarded me. Still, I also often find advantage in using Leiter's elegant instrument in its new shape.

The very newest instrument of this class, which has just been made known to the profession in a preliminary communication, is the *operating cystoscope*, invented by Nitze, and constructed by P. Hartwig, of Berlin (*Centrbl. f. Chirurgie*, No. 51, 1891, p. 993). A cutting forceps is attached, by a peculiar mechanism, to the lower circumfer-

\* *Centrblatt f. Chirurgie*, 1889, p. 949. Nitze had two irrigating cystoscopes made—a "simple" and a "more complicated" one. The former, oval in shape, only permits of throwing more water into the bladder; the latter, which is round, enables us to really change the water. Only the latter is to be recommended.

\* The instrument could be made more useful by increasing the caliber of the tubes and thus, of course, also, of the cystoscope up to No. 30 and more. A female urethra will always, and the male urethra in a few instances or after meatotomy, admit that number.

ence of a cylindrical tube. Its two blades carry at their end a small, sharp scoop. They are opened and closed by a lever, which moves in a longitudinal slit at the upper end



FIG. 1

of the same tube. The whole is slipped on the shaft of the ordinary cystoscope No. 1, and can be moved on it, downward and upward (see Fig. 1 and Fig. 2).

A few more mechanisms of a similar pattern have been designed for intravesical topical treatment.

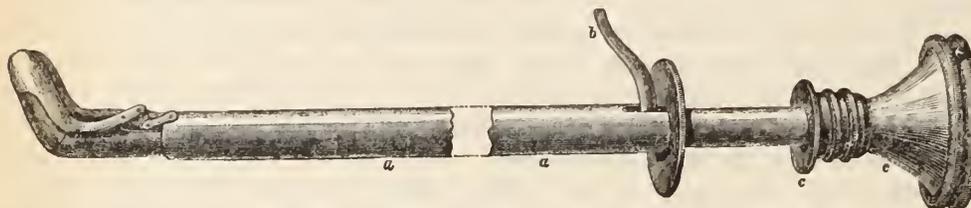


FIG. 2.

To enable one to disinfect these different instruments, and also to make the armamentarium which is needed for intravesical surgery as simple and comparatively cheap as possible, the funnel of the cystoscope has been made movable. It can be screwed on or off the shaft. Thus we can use the same *cystoscope* for all the manipulations, and only need a number of the cylindrical tubes, which carry the proper mechanism. The cystoscope for this kind of work has, besides the movable funnel, a smaller caliber and a longer shaft than the ordinary No. 1. The instrument armed with the forceps has the size of an evacuator as used in litholapaxy; if armed with the other mechanisms, it corresponds to about Nos. 21 to 23 of the French gauge.

Before introducing the operating cystoscope the cylindrical tube, Fig. 2, *a*, is shifted down toward the prism and the forceps, for instance, closed by pressing the lever, *b*, upward. The two blades then surround the beak in such a manner as to form one solid body with it. (The arrangement of the other mechanisms is similar to this.) The instrument will now easily pass a urethra which is not too narrow. As soon as it has entered the bladder the tube is slipped back toward the funnel of the cystoscope (Fig. 1), the light is turned on, the forceps, etc., opened, and everything is ready for work. In looking through the telescope, the motion of the two blades of the forceps or of the cold or red-hot wire of the snare-écraseur can be thoroughly observed and controlled by our eyes.

Thus, an immense progress has again been made. The cystoscope, which hitherto could only be used for diagnostic purposes, is now ready for local intravesical treatment. With the same, if not with more, precision than, for instance, in laryngoscopy, we can make topical application with certain drugs in the bladder without bringing them in

contact with other spots of the vesical mucous membrane; we can cauterize (with the galvano-cautery) ulcers and flat tumors,\* can tear off pedunculated growths with the forceps, can seize and extract foreign bodies, small stones, or the fragments of larger ones, which have been previously crushed. And all this under the direct guidance of our eyes. Indeed, the medical profession, as well as a great portion of suffering mankind, owe thanks to Dr. Nitze for the many brilliant gifts he has bestowed upon them.

In the last three years a few more varieties of the same mechanical principle have been advanced. I will mention these for the sake of completeness:

1. *Hurry Fenwick's Modification of the Leiter Instrument.* †—Part of it has been mentioned above. A further modification is the perforation of the silver cap by three small holes on the side opposite the pane of rock-crystal which covers

the oval window. This is done "to allow of a free current of water to surround the lamp, whereby the hood is kept perfectly cold." In hæmaturia the non-perforated hood has to be slipped on. Fenwick adds in a foot-note: "I break more lamps in the long run, but incur less risk of burning the mucous membrane." In buying a Leiter cystoscope it will be certainly advisable to also order a perforated cap, which is, no doubt, a pretty and sensible improvement, as the larger mignon lamp, situated in the middle of the beak and covered by the rock-crystal pane, heats the entire cap. When in use, the urine or water in the bladder carries off this heat as fast as it is formed, its temperature not being perceptibly raised, even if the lamp is burned for an hour in the bladder. But as soon as it comes in contact with the sensitive mucous membrane of the bladder wall, the patient invariably has a burning sensation. It will be readily understood that a longer unintentional contact, for instance, during narcosis, may really burn the mucous membrane.

The short-beaked Nitze cystoscope carries the incandescent lamp in the tip *uncovered* in direct contact with the surrounding medium. It presents the perforated hood in a peculiar original form. Its lamp does not heat by far as much. In a large number of cystoscopies, with or without anaesthesia, I have so far never had a mishap. The touch of the bladder-wall with Nitze's cystoscope also creates a slight burning sensation.

\* Of course this can not be done if the bladder is filled with water. For such purposes it has to be expanded by air. As Nitze's lamp is situated in the extreme end of the beak, it can burn in the open air for about two to three minutes without spoiling the prism. I presume Nitze intends to proceed in this manner. He promises, in his preliminary article, to give soon full particulars in a more elaborate essay.

† Fenwick, *loc. cit.*, p. 43.

2. *The Irrigating Cystoscope of Berkeley Hill.*—Hill proposed\* to add two small tubes to the lower aspect of the instrument through which irrigation is easily made. The tubes do not greatly increase the caliber.† Nitze's irrigating cystoscope, which carries the tubes inside, seems to offer better advantages.

3. *The "Improved" Incandescent-lamp Cystoscope of Whitehead, Manchester.*‡—The Leiter pattern of 40 French gauge (instead of the usual 22 French); the window of observation and incandescent lamp present double the size, thus increasing the field of vision as well as the brilliancy of light. It is introduced through a median incision in the membranous urethra.

Such an application of the instrument directly annuls the special advantage of cystoscopy—namely, "that it affords a visual diagnosis without a cutting operation." It may, however, be useful and valuable in the female, where the urethra can be easily dilated to No. 40 French.\*

4. *Brunner's Modification of the Leiter Pattern for sounding the Bladder and Catheterism of the Ureters under the Guidance of the Eye.*||—Cystoscope No. 2, of No. 28 French, which carries a separate small channel on the convex side of the shaft. This channel terminates just below the window and can also be used for changing the water in the bladder. It is occluded by a mandrel, when the instrument is introduced. The mandrel later is extracted and replaced by a minute English catheter or an elastic metal sound. Brunner thus succeeded in pushing the catheter into each ureter of a female patient exposed by the light, but failed to do the same in the male. He has had no opportunity to continue his trials in this direction. When the catheter or sound is in the ureter, the instrument itself may be slipped back over it. Perhaps also topical treatment of the bladder could be instituted with this help.

5. *Messrs. F. A. Reichardt & Co., surgical instrument makers, New York city,* have tried to manufacture a cystoscope according to a modified Berlin pattern, which latter bears no international patent. They have, however, not yet succeeded in accomplishing the difficult and expensive task. The instrument which I have inspected at their store was very unsatisfactory in many respects.

6. *The French Cystoscope of Boisseau Du Rocher, of Paris,*<sup>A</sup> is manufactured by Collin, Maison Charrière, of

\* Irrigation of the Bladder in Cystoscopy. *Lancet*, London, 1889, i, 169.

† In a valuable essay of Alexander Stein, New York—Some Points in the Differential Diagnosis of Bladder and Kidney Affections—which appeared in the *Journal of Cutaneous and Genito-urinary Diseases*, 1888, p. 370, I find this passage: "In hæmaturia the injected fluid soon loses its transparency, so that we can see but indistinctly or not at all. I think this latter can be remedied by soldering an oval tube to the bottom of the cystoscope, which would reach to the curve, so that the bladder could be irrigated and refilled without removing the instrument."

‡ *British Medical Journal*, April 7, 1888, p. 768.

\* At Ilurry Fenwick's suggestion, Leiter has made a larger cystoscope of 40 French, to be used exclusively for the female bladder. Its shaft is three inches shorter than in the ordinary cystoscope.

|| Leiter. *Neue Beluchtungsapparate mit Zuhilfenahme des elektrischen Lichtes.* Wien, 1889, p. 9.

<sup>A</sup> Presented by me with the following remarks to the Surgical Section of the New York Academy of Medicine, March 9, 1891.

Paris. In July, 1885, the first report was made about it to the Académie des sciences. But the instrument was not used by others until last year, when Boisseau du Rocher described it at length in an article which appeared in the *Annales des maladies des organes génito-urinaires*, février, 1890.\* He called his instrument "mégalo-scope," and the method of examination for which it was to be resorted to, "mégalo-scopie vésicale." The doctor maintains that his "mégalo-scope" is an entirely new design; that its pattern originated with him independently from those which are already in the market.

To settle this question from the start, it must be said that Boisseau Du Rocher's cystoscope is in its principle nothing else than an elongated ordinary cystoscope of the Leiter pattern No. 2, which is used for an easy inspection of the fundus of the bladder.

In comparison with the latter, the specially striking new features of the Paris instrument are:

A longer beak; a longer telescope, which causes the length of the instrument and in its peculiarities greatly enlarges the spot coming into view; an additional combination of pipes for irrigating the bladder and also for passing the telescope, or passing instruments for catheterism of the ureters.

But the principles in accordance with which the *mégalo-scope* has been constructed are, of course, and had necessarily to be, the same as those brought out in the Nitze-Leiter original cystoscope—viz., the introduction of the light itself into the cavity which is to be examined, and an optic apparatus which magnifies and enlarges the object. The priority of these two devices, which, combined, effected the immense recorded progress in cystoscopy, is due to Nitze beyond a doubt. Any new cystoscopes or endoscopes can only be variations of this original idea.

Further, the medical profession should not accept a new name for Boisseau Du Rocher's instrument and for that which can be done with it. We talk of a laryngoscope and laryngoscopy, of an ophthalmoscope and ophthalmoscopy. We should only have different patterns of a "cystoscope," and one name for the practice created by it—"cystoscopy."

The probable advantages of the Paris instrument, in comparison to the Berlin or Vienna one, as far as I have been able to see them, are the following:

1. That, on account of the length of its telescope, it is six to seven inches longer, and the face of the observer is therefore farther removed from the genitals than is possible in using the other cystoscopes. (But, on account of the great length, a slight motion of the handle will result in a by far greater one of the beak, which thus will often touch the wall of the bladder.)

2. That we can perceive with one glance a larger area and see everything in the same upright position as our eyes would see it without the telescope. (The latter is also experienced in using the Nitze or Leiter pattern No. 2.)

3. That the pipes which run alongside and inside of the

\* See also W. v. Vragassy. Das "Megaloskop" des Dr. Boisseau du Rocher in Paris. *Wiener med. Presse*, 1888, pp. 51 and 90.

lower aspect of the shaft enable us to wash out the bladder before, and apply permanent irrigation during, the cystoscopic examination. There is a wider canal in the center of the instrument for passing the telescope. It is filled out by a steel mandrel while the instrument is introduced into the bladder. If we make use of this canal for irrigation, the viscus can be very thoroughly flushed.

4. That the larger one of the small pipes can be utilized for passing instruments of minute caliber for catheterism of the ureters.\*

5. That the telescope is introduced after the whole instrument has passed the urethral canal—*i. e.*, is in the bladder. The objective lens can thus never be dimmed by an adherent mucous or pus shred or a small blood-coagulum.†

6. That the instrument can be sterilized by boiling water, the cement which is used for fastening the rock-crystal pane in the window of the beak, etc., being such as to stand a great heat. The other cystoscopes can not be boiled. They are disinfected by wiping them very carefully and thoroughly with gauze dipped in a three- to five-per-cent. solution of carbolic acid.

Now, has the French cystoscope also drawbacks as an offset to these advantages? Yes, and very serious ones.

1. We can not inspect the whole inner surface of the bladder with this cystoscope, which, besides, is quite clumsy and not at all as easy to handle as that of Nitze or Leiter.

Boisseau Du Roehér finds an objection to Nitze's instrument on account of the latter's advice‡ to make five exact motions with the cystoscope in the bladder in order to bring into sight every spot of its interior with mathematical exactness. With his own, when introduced into the bladder, the whole fundus, the posterior wall, and a portion of the upper and the two lateral walls come at once into view, without turning or moving the instrument. (In trying to obtain this result we shall, however, get a kind of bird's-eye view.) But to examine the anterior portion of the vertex with the Paris cystoscope, the examining person would nearly have to sit on the floor, and even then the result might not be satisfactory. Therefore two instruments become necessary.

2. The caliber of the shaft is No. 27 of the French scale, that of the beak No. 23. The increase of the size of the shaft is caused by the pipes for irrigation. It is to be mentioned, though, that they are situated at the lower aspect of the shaft, and thus give the tube a conical shape (cf. Brunner's modification). The top of this cone corresponds with the lower circumference of the urethra, which can be stretched. (The size of Nitze's and Leiter's cystoscope is No. 22, that of Nitze's irrigating cystoscope, the shape of which is round, No. 25.)

\* Cf. the Brunner modification.

† Cf. Nitze's irrigating cystoscope. If we make it a rule always to inject some glycerin into the posterior portion of the urethra with the help of a Nélaton catheter right after a careful irrigation of the anterior portion of the urethra, of the neck of the bladder, and of the latter organ itself, and right before introducing the cystoscope, we certainly shall quite rarely meet with this annoying occurrence when using the ordinary cystoscope.

‡ Cf. Nitze's *Text-book on Cystoscopy*, pp. 93-99.

3. The beak is very long—half an inch longer than that of Leiter's, and twice as long as that of Nitze's cystoscope.

4. The angle at the junction of the beak and shaft is  $130^\circ$  and abrupt; in the other two instruments only  $145^\circ$  and well rounded.

5. The lumen of the two pipes used for irrigation and passing catheters for catheterizing the ureters is extremely small. There is at present no catheter in the market, in this city at least, small enough for this purpose.

6. There is no key or screw to make and break the electric circuit. We always have to put in or unscrew one of the conducting wires for this purpose.

7. It is difficult to thoroughly cleanse the inner surface of the objective lens of the telescope. This lens can not be detached from the tube, but has to be reached by a long conductor which holds at its end a piece of maple-marrow.

I have not, so far, succeeded in removing some particles of dust from the inner surface of this lens. A compliance with this need by the manufacturer would mean an improvement of the telescope.

8. The spherical aberration of the lenses of the telescope.

9. A constant dripping of water out of the upper end of the instrument during examination. The intravesical pressure constantly forces the water alongside the telescope, which does not snugly occlude the lumen of the central canal.

So far I have got the impression that the French cystoscope will not as easily come into general use as that of Nitze and Leiter. It decidedly has a few important new features, which will make it desirable for the cystoscopist to be in possession of it. But until the defects mentioned above shall have been remedied,\* we certainly shall always need the additional use of one of the two other cystoscopes in the market if we want to be ready to thoroughly perform a cystoscopic examination in cases where this method can be applied.

In closing this section, a tabulated comparison of the size of the different parts of the three cystoscopes which attract special interest may perhaps be welcome. (See next page.)

In regard to the batteries, a great variety is now at our disposal. Hartwig & Leiter sell a battery with the cystoscope which fully answers the purpose.† The fluid is a mixture of pure chromic acid (to be ordered of Messrs. Churchman & Co., Philadelphia), sulphuric acid, and water (Formula for Hartwig's battery: Chromic acid, 375; sulphuric acid, 300; water, 3,000. For Leiter's: Chromic acid, 500; sulphuric acid, 375; water, 3,000.) The two original Leiter batteries, with hard-rubber cells, are not to be recommended, as they will surely crack and leak after a short while. The repair of such a crack is troublesome and

\* According to a remark of Dr. W. K. Otis, of this city, in the discussion on Dr. L. B. Bangs's paper—Cases illustrating some Difficulties in the Use of the Cystoscope (Section in General Surgery of the New York Academy of Medicine, meeting of November 9, 1891)—this gentleman is at present engaged in improving Roehér's instrument.

† For description, see Nitze's *Text-book*, p. 62; Leiter, *Catalogue*, 1889, pp. 13-17.

CYSTOSCOPE.	Size, French gauge.	Length of entire instrument, measured from outer brim of funnel to tip of beak, in a straight line.		Length of shaft, measured from outer brim of funnel to junction with beak.		Length of that part of the instrument which alone comes into consideration with reference to length of urethra—namely, from inner brim of funnel to lower border of prism.		Length of beak.		Size of angle between shaft and beak.	
		Inches.	Centim.	Inches.	Centim.	Inches.	Centim.	Inches.	Centim.		
Nitze.	No. 1.....	22	10 $\frac{1}{6}$	25 $\frac{1}{2}$	9 $\frac{1}{2}$	24	8 $\frac{1}{3}$	21	3 $\frac{3}{4}$	2	145° (Rounded.)
	No. 1, long.....	22	11 $\frac{1}{6}$	28 $\frac{1}{4}$	10 $\frac{1}{2}$	26 $\frac{1}{2}$	9 $\frac{1}{3}$	23 $\frac{3}{4}$	3 $\frac{3}{4}$	2	"
Irrigating cystoscope	25	11 $\frac{1}{6}$	28 $\frac{1}{4}$	10 $\frac{1}{2}$	26 $\frac{1}{2}$	8 $\frac{3}{4}$	22 $\frac{1}{4}$	3 $\frac{3}{4}$	2	2	"
Leiter, No. 1.....	22	9 $\frac{5}{8}$	25	9	23	7 $\frac{3}{8}$	18 $\frac{3}{8}$	1	2 $\frac{1}{2}$	2	"
Boisseau du Rocher.....	{ Shaft = 27 Beak = 23	16 $\frac{3}{8}$	42 $\frac{1}{2}$	16	41	8 $\frac{3}{8}$	22 $\frac{1}{4}$	1 $\frac{1}{2}$	3 $\frac{3}{8}$	..	130° (Abrupt.)

always unreliable. Since last year the cells have been made of glass. Thus a very annoying disadvantage is at last eliminated. Fenwick uses a battery supplied by Sehall (London),\* and is pleased with it. He wants a rheostat. For cystoscopists on this side of the ocean I would recommend the cheap and easily manageable, portable, small six-celled battery of the Galvano-Faradic Manufacturing Co., New York city. Not to destroy with it the incandescent lamp at once, the elements must be screwed very slowly and carefully into the fluid until the light is bright. In all these batteries there is no rheostat attached. I so far have never seemed to be in actual need of the latter. In a nearly four years' practice in cystoscopy the number of lamps destroyed by me is a very small one. Still, its presence in a battery will be welcome. A very fine storage battery, Gibson's (three different sizes),† is sold by the W. F. Ford Surgical Instrument Co. It contains four large cells and has a rheostat. Its lighting power is ample.‡ It can be arranged to permit of endoscopic and galvano-caustic work at the same time, which will be found especially convenient in urethroscopy. Recharging once in two to six months;§ in spite of its price, I should advise its purchase by a cystoscopist who lives in a great city.

I still have to call attention to the various attempts which have been made in regard to *fixing the picture* as seen with the cystoscope by *clay or wax modeling, colored drawings, and photography.*

Fenwick, the originator of the first-mentioned method,|| has proved, by the very pretty pictures in his work, how

\* *Loc. cit.*, pp. 46, 47.

† Size I weighs about fifty pounds, and has a capacity of fifty amp. hours; size II, about forty pounds, capacity thirty amp. hours; size III, about thirty pounds, capacity fifteen amp. hours.

‡ The Nitze mignon-lamp requires more electro-motive force (9 to 10 volts) than that of Leiter's cystoscope and urethroscopy (6 volts), because its filament is finer, and consequently offers more resistance to the current. The maximum force of the Gibson four-cell storage battery is eight volts and a fifth. The Ford Co. is now constructing a six-cell storage battery which lights the Nitze lamp also to brilliancy. Its price and weight are of course slightly higher. The manufacturer of the Nitze lamp should build it eight volts or less. This can easily be done.

§ This is, of course, a disadvantage, as it makes us dependent upon the electrician. In houses that are connected with the street electric light system, charging can be done at home.

|| Clay and Wax Modeling of the Living Urinary Bladder under Electric Light, *British Medical Journal*, January 5, 1889; and The Electric Illumination, etc., *loc. cit.*, p. 88.

nice and thoroughly the various pathological conditions of the interior of the living bladder, especially of tumors, if modeled in some plastic material, wax or clay, and then photographed, may be recorded and demonstrated to others who could not attend the examination.

E. Burekhardt very lately gave us a fine collection of colored drawings of bladder images in health and disease; \* every one of them was observed by himself and drawn at once with the cystoscope in position. The *Atlas* will especially be useful to the beginner, and explain to him many a picture which was seen but could not be at once identified.

Instantaneous photography, "the *ne plus ultra* of cystoscopic delineation (Fenwick)," is still in its infancy. Nitze has theoretically laid out an interesting method of best getting a small negative, and then magnifying it. Want of time has not permitted him to make practical experiments. † Géza von Antal, ‡ by his assistant, B. Hermann, published the photographie picture of the cystoscopic appearance of a black hair-pin in a female bladder. It is, however, utterly indistinct.

Fenwick (in connection with Mr. Pearson-Cooper, of the London Camera Club) has succeeded in obtaining good negatives of artificial growths both in the dummy and the dead bladder. But the negatives of the living bladder were too indistinct. A number of certain mechanical obstacles have so far formed an almost insuperable barrier to such a method being successful and practical.

In view of the rapid strides of modern technique, it is to be hoped that these obstacles will soon be overcome and that we shall then be enabled to "graphically record the many new and interesting clinical facts which the electric cystoscope is constantly revealing."

As it seems, this hope has meanwhile already been fulfilled. (See Ueber Photographie innerer Körperhöhlen, insbesondere der Harnblase und des Magens, by Dr. Robert Kutner. *Deutsche med. Wochenschrift*, Berlin, No. 48, November 26, 1891, p. 1311. Kutner is a former assistant of Nitze.)

(To be concluded.)

\* *Atlas der Cystoskopie, mit 24 Tafeln in Farbendruck*: Basel, 1891. See, also, the few excellent colored drawings at the end of Nitze's hand book.

† *Text-book*, p. 525.

‡ *Internationales Ctrbl. für Physiologie u. Pathologie der Harn- u. Sexualorgane*, Bd. i, Heft i, p. 18.

## CASES OF GALL-BLADDER SURGERY.\*

By ROBERT ABBE, M. D.,

SURGEON TO ST. LUKE'S HOSPITAL;  
PROFESSOR OF SURGERY IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL.

It is superfluous before this society to-night to review the methods advocated for the relief of diseases of the gall-bladder. These have so recently been written upon by Credé, Tait, Kummell, Senger, Gregg Smith, and others, that it will serve our purpose if such observations are made in connection with the unusual features of the cases here recorded as will be suggestive to operators in this field.

Rules for diagnosis and surgical treatment have still to be definitely written, the result of yet to be accumulated experience. Cases of failure and success have further to be recorded before we are masters of the grave accident of complete biliary obstruction.

It is for this reason, and because of the interest attending this line of surgery, that I ask your attention to the unusual cases of which I will speak.

I may say that in general the experience of most operators is favorable to the accomplishment of surprisingly good results in bad cases of obstructive diseases of the gall-ducts, and this is amply borne out by my own four successful cases.

As illustrating the simplest form of operative procedure in cases of obstruction without inflammation, I will first speak of one, done six months ago, and of the ultimate results of which I may now speak with some confidence.

*CASE I. Multiple Attacks of Biliary Colic during Four Months; Exhaustion; Cholecystotomy; Removal of Three Large Gall-stones; Immediate Suture of the Gall bladder; Recovery.*—In April, 1891, Mrs. W., a lady of sixty-four years, came under my care with symptoms of chronic biliary obstruction. She had been for three months under the care of Dr. Partridge, of this city, who had watched her through many severe and constantly recurring attacks of biliary colic.

Her first attack dated to five or six years before. There was then a period of freedom until four months before I saw her, when she was seized with a most severe attack, repeated at intervals of a week or less during the four months following. Each attack was succeeded by moderate jaundice and progressive exhaustion. Though in the earlier intervals she resumed her work, she became too weak during the last month to leave her room.

The usual accompaniment of clay-colored stools and dark bile-stained urine followed each attack.

At last the pain became nearly continuous and she was becoming exhausted. Her skin had a moderate jaundice only, persisting between attacks, though after each severe exacerbation she was quite yellow. I had her removed to a room at the hospital, where poulticing and massage soon relieved the pain and cholæmia, the urine becoming free from bile.

On any attempt to walk, however, pain immediately recurred. There was a moderate tumor the size of an egg at the site of the gall-bladder. A diagnosis of gall-stone obstruction of the cystic duct was made, based on the subsidence of cholæmia with continuance of pain and gall-bladder distention.

I operated April 24th by vertical incision.

The distended and elongated gall-bladder popped out of the wound as soon as the peritonæum was opened, and afforded an

excellent opportunity for handling it without soiling the peritoneal cavity.

Three good-sized stones were found, the largest free, the two smaller ones wedged tightly in the cystic duct. The contents of the gall-bladder showed no suppurative change. The stones were, after considerable trouble, worked back into the gall-bladder and removed.

A small gum-elastic bougie was then passed into the common duct and onward far enough to show all obstruction removed.

I then ventured to do the ideal operation of suturing the incised gall-bladder and returning it into the peritoneal cavity. The mucous and peritoneal coats of the collapsed bladder being œdematous and sliding freely on each other, I thought best to make a separate suturing of each. With fine catgut I stitched the muscular layer so as to invert the mucous edges, and then with finest black silk sewed the peritoneal edges.

The abdominal wound was closed, as usual, in separate layers by buried sutures.

The patient made an uninterrupted convalescence, and left the hospital on the twenty-second day in excellent condition, having gained rapidly in weight, having good digestion, normal movements, and being free from pain.

At the present date (six months after operation) she remains in perfect health, is free from pain, and has resumed her work. The abdominal scar is solid.

This case illustrates the feasibility and safety of the so-called "ideal operation" of immediate suture of the wound in the gall-bladder and replacement in the abdomen.

I believe the absence of suppurative inflammation within it is a *sine qua non* of the procedure. The ability to pass a bougie through the unobstructed ducts may be wanting, for the tortuous and pocketed condition of the cystic duct will often entrap the point of a probe so as to make it impossible to pass it through even a pervious canal. In such a case one might fill the gall-bladder with fluid after removing the impacted calculi, and, by pinching the incised wound, observe whether the fluid can by pressure be emptied into the intestines. If so, I see no reason why the immediate suture should not be resorted to.

It has been observed that a comparatively large sound will pass through a sacculated duct when a small probe will be entrapped. In one case I was unable to pass either a large or a small one, yet the duct was pervious. In another such case I would try fluid, and, if pervious, I would prefer to suture and return to the abdomen.

*CASE II. Gall-stone with Suppurating Gall-bladder and Enormous Thickening, simulating Cancer; Cholecystotomy; Recovery.*—In April, 1889, F. M., a young married woman, came under my care for progressive debility and hectic, with a tumor of the right side below the ribs. There had been a vague history of colicky pain before the tumor began. She had not been jaundiced. The tumor had been noticed for five or six months. It was at this time apparently as large as one's fist and quite movable, lying in the direction of the gall-bladder. The mass was tender to pressure, and had been diagnosed as a cancer. Believing it to be an empyema of the gall-bladder, I did laparotomy in the usual site, and, much to my surprise, came upon a solid tumor occupying the exact site of the gall-bladder, and running backward so as to include the ducts in the mass.

Adhesions to the adjacent parts were present.

In spite of its very malignant look, I thought best to make a

\* Read before the New York Surgical Society, October 14, 1891

free incision into it, to relieve, if possible, any pent-up source of sepsis from which I judged her to be suffering. The incision only seemed to confirm our fears. The massive and hard walls were from an inch to an inch and a half thick, and in gross appearance resembled and cut like carcinoma tissue. The remnant of the gall-bladder cavity was a small channel holding only two drachms of muco-purulent fluid. No foreign body could be felt within it.

I therefore established a fistula from it through the abdominal wall, and gave the patient rather an unfavorable prognosis.

During the next few weeks she made an easy convalescence. The sinus, however, did not close, but the mass remained quite as evident to external palpation as before.

Six months afterward she returned to me to see if the sinus could not be closed.

I was surprised to find her in restored health. The sinus secreted copious mucous discharge, but, on probing, it no longer led into an indurated mass. The tumor was no longer to be found. In the sinus was a gall-stone, incrustated with phosphate, the size of a pecan nut. This I removed.

The sinus promptly healed, and some months afterward I had an opportunity of examining her side, and could find no trace of tumefaction. The patient was in robust health.

This extraordinary hyperplasia of the walls of the viscus presented a strikingly deceptive appearance of malignancy. It has been occasionally observed by others, but no explanation has been offered of why it should occur in one case more than in another.

CASE III. *Cholecystotomy and Removal of Fifty-three Stones, followed in Six Months by Cholecystectomy and Removal of One Stone more.*—Mrs. L. B., aged twenty-nine years, admitted to St. Luke's, October, 1888, with the following history:

Ten years previously she had her first attack of gall-stone colic. It was followed six months later by another, three months later by another, and afterward almost every month for many years. The intervals ranged from two weeks to three months. The attacks were agonizing, and she had acquired a morphine habit in consequence. Jaundice had supervened on several of the attacks, but she had no chronic jaundice. She had become emaciated physically and discouraged morally.

The region of the gall-bladder was tender on palpation, but no tumor could be felt. Even her corset pressure was painful.

I operated on October 8, 1888, by the vertical incision. The gall-bladder had old, intimate adhesions to the stomach, which being dissected off, I secured its presenting end by two loops of silk stitched through its wall before opening, and evacuated fifty-three small and large calculi. The fluid in the gall-bladder was thin, whitish mucus.

Although no probe could be passed into the common duct nothing could be felt suggestive of stone, either within by probe or without by palpation of the duct. The gall-bladder was stitched in the wound. The patient made a quick recovery and went to her home in Maine with a sinus not yet healed.

Six months later she returned with the sinus still discharging a mucous fluid without bile, and having had moderate recurrences of pain.

I advised reopening the abdomen to explore the cystic duct and remove the atrophied gall-bladder.

No calculus could be felt by palpating or sounding the cystic duct. I therefore dissected the gall-bladder from the liver and from adherent colon and stomach and ligated it close to its junction with the hepatic duct.

On cutting it away, I found that a calculus the size of a pea

was locked between two strictures of the duct, and had been the evident cause of continued pain.

The wound being now clean, the abdominal wound was closed at once.

The lady made an immediate recovery of her health, and all pain ceased from that date.

A letter received two days since from her physician states that up to the present date, *three years* since operation, she has remained in perfect health, without the least recurrence of pain.

I was impressed in this case with the difficulty of discerning by the touch of a silver probe the soft surface of a gall-stone. I doubt if one can know in any case whether all stones have been removed except by the touch of the finger within the gall-bladder.

I was also pleased to find the dissection from the surface of the liver not a difficult or serious matter. There had been enough inflammation in past years to cause more intimate union with the liver than the usual cellular tissue. Yet the hæmorrhage was readily controlled by pressure.

The fourth case is one of great interest.

CASE IV. *Impaction of Gall-stones in the Hepatic, Cystic, and Common Ducts for Two Years and a Half; Profound Cholæmia; Removal of Gall-stones and Gall-bladder; Recovery.*—A. C., aged thirty-six years, was in excellent health until two years and a half since, when she was first seized with biliary colic and became gradually jaundiced. The colic was soon relieved, but her jaundice increased, and during the entire period has only grown worse and worse. At times she seemed almost black with it, as she expressed it, yet she continued to work at her occupation of dress-making. She lost flesh, and now weighs thirty pounds less than she did. Since the first attack she had indigestion and vomiting frequently, but never of blood. Her stools have been clay-colored and her urine like porter. Two months ago she had a renewal of the biliary colic, which she characterizes as "terrible," but it diminished in one week. She has grown quite unlike her old self, in being subject to nervous attacks, and occasionally has what resembles *petit mal*, losing consciousness for a few moments. She presents the most intense form of jaundice in her face, body, and mucous membranes. The complexion is rather of a blackish-green than yellow, owing to prolonged staining and pigmentation. The liver is very much enlarged, extending two inches below the free border of the ribs. A tumefaction can be felt somewhat deeply at the site of the pylorus, quite hard and suggestive of malignant or inflammatory growth.

During abdominal palpation over this portion, the patient on every occasion was seized with semi-epileptic, semi-hysterical attacks, at first groaning, then lapsing into unconsciousness, with muscular contractions—evidently from pressure near the solar plexus, in a woman profoundly cholæmic. The patient was altogether in a poor condition, with five per cent. of albumin in her urine and hyaline casts. After consultation with my colleagues, I operated, April 13th, under ether. The vertical incision was used. Adhesions of the stomach to the gall-bladder and liver hid it from view, but after careful dissection it was released. Several moderate-sized calculi could be felt through the walls of a rather small gall-bladder, as well as in the cystic duct, and one, as large as a walnut, farther down in the common duct. The bladder was opened and some viscid bile escaped. The stones being removed from the gall-bladder, it became necessary to incise the cystic duct to release others.

No amount of manipulation availed to move the largest one in the common duct. An attempt was made to crush it ex-

ternally, but without effect. I therefore split the wall of the common duct in continuation of the cut in the gall-bladder and duct, and found the large stone locked between two strictures of the duct. It being removed, a bougie passed readily into the intestine through the duct.

I then sewed up the cut of the duct with finest black silk, and cut away the gall-bladder and its duct entirely, leaving only the greatly dilated hepatic duct, into which the finger readily passed and from which stones were removed.

The engorged liver poured out large quantities of healthy bile during my manipulation. To control the discharge I introduced a large rubber drain into the hepatic duct, running it upward into the liver a short distance. Over this I passed a larger tube, which terminated at the site of the junction of the ducts, and around it I packed a small iodoform gauze tamponade—the object being to divert all the bile from the liver out of the abdominal wound, and after a few days by removing the inner tube to let the larger one remain to drain the sinus—thus leaving the bile free to travel along the common duct as soon as swelling had subsided.

This device worked admirably, and surprising quantities of bile were poured out during the first two days. Her jaundice soon began to clear perceptibly. The urine cleared at once.

Seidlitz powders were given the second and third day with good results.

At the end of a week she suffered an attack of acute dry pleurisy, from which she slowly recovered.

On the ninth day the first bile tinged her stools. One week later she had a sloughing abscess of her back, from no apparent cause. This retarded her convalescence.

In four weeks she sat up, ate well, and was losing the jaundice, but had a bronzed skin from pigmentation.

At the end of four weeks a fistula only remained in the side, through which most of her bile escaped. Having seen abundant evidence of bile in the stools, I ventured to have the fistula strapped. Immediate and complete closure and healing followed.

In five weeks her bile was all pursuing its normal course, and she was entirely well, except for color, which was slow to leave. During the summer she has resumed work, and is in perfect health again at the present time, her color having now become perfectly natural.

This case shows that intense cholæmia is not necessarily as fatal an element in operable cases as has been commonly taught. The operative method I have adopted is by the vertical incision over the site of the gall-bladder, and I believe that thus more extensive exploration can be made than by any other method.

The last case I will mention is that of a man with chronic obstructive cholæmia from a small malignant growth just within the outlet of the common duct. This man was for many weeks under medical care in St. Luke's Hospital before being transferred to my service. He was profoundly jaundiced and suffering from an exhausting hectic fever. His liver was enlarged to three inches below the ribs and a considerable tumor of the gall-bladder was perceptible. The most marked feature in the history of his illness was the absence of an initial attack of colic. This in itself was presumptive evidence of malignant obstruction. The distended gall-bladder with grave hectic warranted the diagnosis of empyema of the gall-bladder. The suppurating gall-bladder was found and relieved by the usual operation. No stone or malignant disease was found. The gall ducts were impassable to small or large probes passed into the gall-bladder. The probability of a stricture or other obstruction at the duo-

denal end of the common duct led me to search for this through an incision into the duodenum; this I made two inches and a half long and, as I supposed, about four inches and a half from the stomach. Most careful search and palpation failed to reveal the site of entrance of the duct into the duodenum, and the incision was closed by a continuous Lembert suture. Drainage of the suppurating gall-bladder was therefore all that was accomplished. The man survived one week. Post-mortem examination showed the duodenal incision to have been four inches below the site of the duct. A small, soft malignant growth was attached to the wall of the duct just within its lower end, and acted as a valvular stricture. It was scarcely large enough to be perceived by palpation through the intestinal walls at the post-mortem. From this origin, however, multiple secondary deposits of cancer were found in the liver and lung, some of them as large as a hen's egg.

The case illustrates the comparative ease and safety with which the duodenal end of the common duct can be examined by proper incision into the duodenum. Had there been any stone or growth of considerable size in the lower end of the duct, it would certainly have been felt by the finger within the intestine and could have been removed.

In conclusion, I would emphasize the fact that the four cases of obstructive disease from gall-stones here narrated were all progressing to a fatal end and the patients were all restored to perfect health by operation, the time elapsing since operation being from six months to three years.

## DISEASES OF THE URINARY APPARATUS.

BY JOHN W. S. GOULEY, M. D.,

SURGEON TO BELLEVUE HOSPITAL.

(Continued from page 95.)

### PART I.—PHLEGMATIC AFFECTIONS.

#### SECTION II.—SPECIAL CONSIDERATIONS.

##### X.

#### ACCIDENTS, COMPLICATIONS, AND CONSEQUENCES OF THE ACUTE TYPES OF URETHRITIS.

WHEN exempt from accidents, complications, and consequences, urethritis resolves in four or five weeks, or, if primitive and in a young healthy subject, may be cured in eight or ten days. It is principally in this second class of cases that the rapid cures are so frequently reported, while the accidents, complications, and consequences are too often ranked by themselves as if they had no connection with urethral phlegmasia. It is therefore necessary, in the management of urethritis, to keep in mind the liability of the occurrence of the accidents which may arise from the imprudence, carelessness, or neglect of the patient; of the complications which aggravate the urethral phlegmasia; and of the consequences of unwise, untimely, or rash treatment. Not many years ago was still in vogue the routine treatment of "gonorrhœa," consisting in the administration of large doses of copaiba or cubeb, and in the use of strongly astringent urethral injections, without regard to the type or stage of the phlegmasia. The frequency of accidents and of more or less grave sequelæ was then great as compared to what it is at present. The

rational treatment, based as it is upon a sounder pathology and more accurate diagnosis, seems now to be so firmly established that these accidents and sequela occur with markedly less frequency than in former times, and are much better managed.

The accidents of acute urethritis are urethral hæmorrhage and conjunctivitis. The complications to which acute urethritis is liable are balanitis, posthitis, and balanoposthitis, the last causing or aggravating phimosis, and the forcible retraction of the narrowed and swollen prepuce producing paraphimosis. The consequences of acute urethritis are lymphangitis, inguinal adenitis, peri-urethritis, cryptitis, bulbo-urethral adenitis, prostatitis, orchitis, gonocystitis, trachelocystitis, pyelitis, nephritis, septicæmia, pyosapremia, rheumatism, chronic urethritis, and urethral stenosis.

ACCIDENTS OF URETHRITIS.—*Urethral hæmorrhage* during acute urethritis is ordinarily due to frequent and prolonged erections of the penis, to masturbation, or to coitus, and is not an uncommon accident. It is rarely abundant, and ceases spontaneously in the majority of cases. Preventive and afterward repressive means should be promptly employed, for the reason that hæmorrhage indicates here a solution of continuity of the mucous membrane, and therefore liability to a rapid stenotic process. Profuse hæmorrhage is rare and generally due to "breaking the chordee" in superacute urethritis. It usually ceases spontaneously in the course of thirty-six hours, but sometimes continues several days, much to the detriment of the sufferer. Active measures should therefore be taken to suppress the flow of blood. If cold fails when applied externally or by way of intra-urethral irrigations, it is wise, without further delay, to introduce a urethroscope as far as the seat of hæmorrhage, to wash away the blood with iced water, and to touch the bleeding spot with a camel's-hair brush previously dipped in persulphate of iron solution, and then to irrigate once more in order to be sure that the hæmorrhage is checked. The patient should be kept quiet in bed, cold external applications continued several hours, and other suitable means taken to prevent erections, but the parts should not be meddled with any further, for the more handling, the greater the liability to recurrence of the hæmorrhage. Internal pressure by the introduction and maintenance in position of a large catheter has been recommended in these cases, but this should be avoided except in the most extreme circumstances. The presence of such a foreign body becomes almost intolerable, and in the course of three or four days is liable to cause ulceration of the mucous membrane, and even perforation of the urethra and urinary fistula.

*Virulent conjunctivitis* arises from the accidental contact of pus from virulent urethritis with the conjunctiva. The pus may be conveyed to the eye by a soiled hand or through some other medium, such as a towel or cloth polluted with urethral pus. The right eye is oftener affected than the left, and both eyes are very rarely involved. This phlegmasia, commonly called "gonorrhœal ophthalmia," is, fortunately, an extremely rare accident of urethritis, for it

is ordinarily superacute. Though it may resolve in a few days under suitable treatment, leaving but slight traces of its occurrence, its sequela are frequently refractory to treatment, and sometimes fatal to vision. Its progress is occasionally so rapid that the eye perishes in a few hours after the first symptoms. It is characterized at its outset by some itching of the edges of the lids, by a sensation as if a small foreign body had lodged beneath the eyelid, and by great increase of lacrymation. Then follow much turgescence of the conjunctival capillaries, chemosis, intense pain in and around the eye, annoying photophobia, and a profuse flow of pus. The chemosis sometimes increases so rapidly as to strangle and destroy the cornea before medical aid can be obtained.

The main features of the treatment employed by experienced ophthalmic surgeons is here given to guide the general physician in whose practice cases of virulent conjunctivitis occur, for the salvation of these inflamed eyes depends upon the promptness and efficiency of the treatment which should be forthwith begun, to be vigorously continued until the arrival of an expert ophthalmologist, with whom the responsibility of the further management of the case is shared. But, inasmuch as an ophthalmologist may not be accessible for several hours, or even for a day, as in small towns, the general physician should render himself competent to manage cases of virulent conjunctivitis to the end. For his own protection he should, at his first visit, make a note of the exact condition of the eye, and have some person to witness this examination of the eye and of the writing of the memorandum, which he should sign and the witness should countersign.

The treatment of this violent phlegmasia should be most prompt and energetic, the prime indication being to check the rapid phlegmasic process and thwart its destructive tendency. In the early stage, and then only, free local depletion should be effected through leeches applied to the temple close to the outer canthus of the eye. The instillation of atropine solution should at once be begun, to be continued to the end of the phlegmasic process. Copious catharsis should be induced. The patient should be placed in a dark room and his sound eye properly protected, but the inflamed eye should not be covered. A nitrate-of-silver solution, sixty grains to the ounce, should be applied once each day to the whole conjunctival surface with a camel's-hair brush, and immediately washed away. When chemosis appears, free cuts should be made through the conjunctiva radiating from the cornea's edge. But what is most efficient and most to be depended upon to relieve the chemotic pressure upon the eye is free section of the external canthus, including the dense aponeurotic layer, and this simple operation can not too soon be employed in cases of extreme chemosis. Almost incessant ablutions of the eye during the first forty-eight hours should be made with cold, mildly astringent antiseptic solutions, and this eye kept under the watchful care of a trustworthy and faithful nurse, who shall obey strictly the physician's directions. After forty-eight hours, or after the danger of strangulation of the cornea is passed, the ablutions need not be so frequent and the nitrate-of-silver solution may be weaker,

but still used once daily until the conjunctival membrane appears normal. If the whole cornea have already sloughed, the eyeball should be extirpated as soon as expedient after the termination of the phlegmasic process.

COMPLICATIONS OF URETHRITIS.—*Balanitis*—phlegmasia of the glans penis, involving the mucous membrane, the spongy substance, or both—is characterized, in the first case, by an itchy and burning sensation, more or less intense redness, swelling, and at length a purulent discharge. It may be of the same nature as, or may have appeared before, the urethritis, by which it is intensified, particularly when caused by the accumulation of smegma. In superacute urethritis there sometimes occurs an abundant plastic exudation in the substance of the glans penis, which swells and becomes very tense. Resolution is slow or is not accomplished, and the imperfectly organized exudate undergoes sclerous degeneration, causing irregular shriveling of the glans. Subacute balanitis, with plastic exudation and induration of the glans, is often the outcome of violent, careless, and unduly frequent catheterism. The induration thus caused is most apparent around the urinary meatus, and is in some cases so strongly marked as to be mistaken, at first sight, for malignant disease.

*Posthitis*—phlegmasia of the foreskin of the penis, affecting its mucous layer, its cutaneous layer, or both of these layers—sometimes exists independently of balanitis, but, as a general rule, is associated with balanitis and is designated as balano-posthitis. Posthitis occurs frequently in young subjects affected with vesical stone, causing frequent and painful urination and subacute urethritis; this frequent escape of urine, and the traction upon the prepuce made by the sufferers in endeavoring to obtain relief, being the exciting cause of the posthitis. The foreskin is elongated, sodden, swollen, red, and painful, and its mucous membrane emits pus and sometimes blood. This sodden condition of a long prepuce in the adult occurs in cases of urethral stenosis and obstruction to urination from other causes, leading to unduly frequent urination, or to constant dribbling of urine.

Infibulation of the prepuce—a device of very ancient date, to insure continency among the young until the age of twenty-five, described by Celsus, practiced extensively in the middle ages, condemned by Dionis and others during the seventeenth century, seriously recommended within the last fifteen years as a cure for “epilepsy and seminal loss”—is still occasionally, but secretly, employed. It is hurtful not only on account of its favoring the accumulation of filth, but of the irritation excited by the buckle, which is liable to induce posthitis with so much induration of the foreskin as to lead to the suspicion of malignant disease. Dupuytren relates such a case which at first he believed to be cancer of the prepuce. The jealous mistress of the patient had succeeded in inserting an ingeniously contrived gold ring through the end of the foreskin and had locked it. In the course of time the extremity of the penis was so much enlarged, indurated, and painful, that the ring was removed; this afforded relief from the pain, but the swelling and induration were slow in yielding to treat-

ment. The parts finally regained in a measure their normal state.

*Balano-posthitis* is generally due to the accumulation of smegma beneath a long prepuce, but at times it begins with the attack of urethritis, and is even superacute and associated with lymphangitis. The mucous membranes of the glans and prepuce are tumid, of a vivid red, very sensitive, and emit a considerable quantity of pus. In extreme cases, complicated with phimosis, these mucous membranes ulcerate in patches, so that when cicatrization is accomplished the two surfaces adhere permanently unless precautions are taken against the occurrence of such adhesion.

*The treatment of balanitis and balano-posthitis*, in cases where only the mucous membranes are involved, and the prepuce is short or easily retracted, consists in thoroughly cleansing the glans and prepuce with antiseptic solutions three or four times daily, and after each washing to cover the affected parts with a thin layer of a powder composed of equal parts of oxide of zinc and boric acid, or else aristol, or euprophen, which is said to be an iodide of isobutylorthoeresol, and which does not possess the objectionable odor of iodoform. Ointments are not tolerated in the majority of cases.

*Phimosis*.—Balano-posthitis complicated with phimosis not being amenable to treatment by powders, the preputial cavity should be irrigated with antiseptic fluids two or three times daily until the subsidence of the phlegmasic process. If the prepuce be only long enough to cover the glans penis, divulsion of the preputial orifice may be employed to relieve the constriction; but if this orifice be extremely narrow or its edges much indurated, postotomy will be the more efficient procedure. This operation consists in making a longitudinal incision through the skin and mucous membrane of the prepuce on its dorsal aspect, so that the glans can be easily exposed. The edges of the skin and mucous membrane should then be stitched together, so as to obtain a transverse scar from the longitudinal incision, and thus increase the size of the preputial opening.

When the prepuce is long and so narrow as to render its retraction difficult or impracticable, posthectomy should be performed, but not until the subsidence of the phlegmasic process, unless the integrity of the glans be imperiled by the existence of chaneroids. This minor operation, performed for many thousand years largely as a religious rite, consists in cutting away the superabundant foreskin and enough of its mucous membrane to permit the glans penis to be easily uncovered. As a religious rite the greater part, if not the whole prepuce, is removed. For the purposes of the surgeon it is rarely necessary to make a complete posthectomy. The operation is the same in principle as it has ever been, but its details have undergone many hundreds of modifications. The essential steps of posthectomy are—1, to pull gently forward the prepuce; 2, to apply a suitable clamp to retain it in position and to protect from injury the extremity of the glans penis; 3, to quickly cut away all that part of the prepuce isolated by the clamp; 4, to remove the clamp and slit the mucous membrane longitudinally not more than half an inch; 5, to trim with scissors the angles of the mucous membrane; 6, to take proper

means to arrest any oozing of blood or, if necessary, to tie bleeding vessels; 7, to stitch the mucous membrane to the skin with very fine silk or with horse-hair; and 8, to apply a light dressing to the parts. In very young subjects no stitching is necessary. Ordinarily the wound heals primarily.

*Paraphimosis*, an accident of phimosis, occurs from the forcible retraction of a narrow prepuce for the purpose of cleansing the glans, or during coition or masturbation. It is then very difficult or impossible for the patient to bring forward the retracted prepuce, owing to swelling of the glans penis. When paraphimosis has existed several days it is not possible sometimes, even after section of the constricting ring, to replace the foreskin. Ordinarily it is rather an inconvenient and unsightly deformity than a dangerous condition, for the glans penis is very rarely damaged by an irreducible paraphimosis. A portion of the dense ring into which the retracted prepuce is converted finally sloughs and the strangulation ceases, but the adhesions which take place forbid the ultimate reduction of the prepuce.

The reduction of the retracted prepuce in paraphimosis can generally be effected by compressing the glans penis and pushing it backward while the prepuce is, as it were, unrolled upon the glans, using for this purpose the thumb and index and middle fingers of each hand. This process is applicable only before the glans penis has become very tumid. When the tumefaction of the glans is such as to forbid reduction by this method, a simple and quick process is to apply elastic compression by means of a bandage, one inch wide, of thin India-rubber, such as dental surgeons use under the name of rubber dam. Compression so made expels the blood from the glans and sufficiently decreases its size to permit of reduction of the retracted prepuce. The last turns of the bandage should be applied to the œdematous prepuce to expel the serum from the meshes of its connective tissue. The bandage is not removed from the glans penis until the reduction is nearly complete. It has been proposed to relieve paraphimosis by placing the patient on his back, grasping the penis with one hand, and striving thus to lift him. This is said to have been practiced on children as well as on adults. The violence of this remedy is such as to make it worse than the discomfort which it is designed to relieve, for the traction incident to the effort of raising the whole body by the penis is so great as to seriously injure the urethra, and possibly also the cavernous bodies.

CONSEQUENCES OF URETHRITIS.—*Lymphangeitis* of the larger subcutaneous lymphatic vessels of the penis occurs in consequence of slight injuries, of friction by the clothing during exercise, or of the untimely use of urethral injections. The phlegmasia may be subacute, acute, or superacute.

Subacute lymphangeitis is characterized by its indolence, by the slight engorgement of the subcutaneous lymphatics, and by a little œdema of the neighboring connective tissue. It is a frequent consequence of acute urethritis and may appear during the first ten days or not until the decline of the phlegmasia. It rarely suppurates and resolves under rest and simple lotions in the course of four weeks.

Acute lymphangeitis is characterized by longitudinal reddish tracts in the course of the lymphatics, which are tense, nodulated, and tender to the touch, from the preputial frænum to the inferior inguinal glands where they terminate. The prepuce is much swollen from serous exudation, and sometimes the whole phallic integument is in the same tumid condition. This type of lymphangeitis very rarely suppurates, and resolves in the course of three or four weeks under absolute rest in recumbency and soothing lotions.

Supercute lymphangeitis is characterized by a diffuse erysipelatous redness and swelling of the integument of the whole penis. Although it most frequently resolves under the same management as the acute type, it is sometimes followed by abscesses in the course of the lymphatics, and in very rare instances by diffuse suppuration, requiring free and early incision. In still more rare instances the phlegmasia is propagated to the cavernous bodies of the penis (phallitis), and leaves a certain amount of induration which deforms the penis during erection. This plastic exudation in the cavernous bodies sometimes undergoes calcareous infiltration, a condition often miscalled bony transformation of the penis.

*Inguinal adenitis* often follows lymphangeitis of the penis consequent upon urethritis, but it also occurs without there being any lymphangeitis, and may appear as a consequence of any of the forms of virulent urethritis or of simple non-contagious urethritis. One or more than one gland may be inflamed. The phlegmasia may resolve after a few days of rest, may be indolent, or suppuration may ensue. This form of adenitis is one of the varieties of non-syphilitic buboes; there being two varieties, one of which resulting from chancroids of the penis or urethra, the other from non-infecting urethritis. These buboes are ordinarily on a level with or a little below Poupart's ligament, and may be unilateral or bilateral. In the event of suppuration, the diseased glands should be freely incised, and in some cases excised.

*Peri-urethritis* arises as a consequence of acute, but more frequently of superacute, urethritis, the phlegmasic process extending itself to the submucous connective tissue or even to the spongy substance, and occupying a part or the whole circumference of the urethral canal. It occurs in the perineal, in the serotal, or in the phallic region of the urethra, most frequently in the last-named region. It is often provoked by untimely urethral injections, by the so-called abortive treatment of benign urethritis with strong solutions of nitrate of silver, by violence to the inflamed urethra such as may occur from coition or from masturbation, or by any ingested substance which may render the urine acid. It is characterized by a more or less abundant plastic exudation in the submucous connective tissue, or both this and the spongy substance. The exudation may occupy the whole extent of the inflamed part of the urethra or may be confined to one or several isolated points, causing much pain during erection and, to a greater or less extent, curvature of the penis (chordee). When the exudate retains its semi-fluidity it may soon be absorbed, or may end in suppuration and peri-urethral abscess. The abscess opens oftener in the urethra than externally. In the latter

case the urethra may be perforated and a urinary fistula thus established. When the exudate is partly organized, sclerous degeneration begins and urethral stenosis is the sequel. This sclerous degeneration may be so rapid that in a few months the lumen of the urethra is reduced to the point of admitting only a capillary bougie, or it may be so slow that five, ten, twenty, or even thirty years may elapse before the caliber of the urethra is sufficiently reduced to attract the attention of the sufferer.

In the treatment of *peri-urethritis* the first indication is the discontinuance of the injections which may have provoked the phlegmasia. If balsamics had already been administered, they too should be discontinued. The patient should be confined to bed for five or six days, and means taken to abate the frequent and painful erections of the penis which so much aggravate the phlegmasic process. An evaporating lotion, or, better, dry cold, by mediate irrigation, as suggested by Petitgand, applied through India-rubber tubing of small size and thin walls, coiled around the penis so that a continuous flow of water at any desirable temperature may be used without wetting the bed or otherwise inconveniencing the patient, has the double effect of preventing erections and of acting as a local antiphlogistic. The urine should be rendered bland by the administration of diluent drinks, and five grains of gum camphor, one grain of hyoscyamus extract, and five grains of taraxacum extract, made into a bolus, should be taken at bed-time and, if necessary, once again during the night.

When these means fail to induce resolution, and suppuration ensues, the peri-urethral abscess opening in the urethral canal, it is necessary to take measures to prevent the entrance of urine, rare as this occurrence may be, into the abscess cavity for two or three days, or until the formation of granulation tissue. This is effected by the passage of a small, soft catheter whenever urination becomes necessary. If the abscess points externally, it may be incised, or, if small, the few drops of pus it contains may be removed by aspiration, as advised by Christian Smith. For this purpose the ordinary syringe employed for hypodermic injections may be used. This simple process, perhaps repeated two or three times, tends to prevent urinary fistula. Should it, however, fail, a sufficiently free external incision is indicated.

When resolution is slow or when the exudate, instead of leading to suppuration, becomes more consistent, with a tendency to undergo organization, the oleate of mercury, applied daily along the under surface of the penis or the perinæum, according to the site of the peri-urethritis, is of much advantage. In obstinate cases the oleate of mercury may be replaced by vesicating collodium once every week until this vesication has been used three or four times. Internally the bromides of sodium, ammonium, and potassium, two grains each, should be given in a wineglass of water four times a day for a week or ten days.

Resolution failing, the peri-urethritis becoming chronic, or sclerotic degeneration beginning, which is the same as saying that a stenotic process is established, the most efficient method of treatment, designed to prevent the formation of a narrow stricture, is free dilatation of the urethra once a week continued several months.

*Urethral cryptitis*—phlegmasia of the mucous follicles of the urethra—a common consequence of acute urethritis, is often very persistent and sometimes constitutes the main cause of chronic urethral discharges. It occurs most frequently in the balanic region, but may affect one or many follicles in any part of the urethral canal. It happens occasionally in acute urethral phlegmasia that the mouth of a follicle becomes occluded by swelling of the mucous membrane. Purulent accumulation ensues, distends the follicle, and forms a small, hard, globular, or ovoid abscess, containing only four or five drops of pus, which is finally discharged into the urethra, or externally through a very narrow orifice. This orifice does not always close, and there remains a fistulous tract through which some urine escapes. To prevent the formation of a fistula, an attempt should be made to open the mouth of the inflamed follicle with a slender probe, such as the smallest used in stenosis of the lacrymal ducts, so that the pus may escape in the urethra. This failing, aspiration is made as in periurethral abscess, or even external incision. The treatment of chronic cryptitis will be considered under the head of chronic urethritis.

*Bulbo-urethral adenitis* is a rare consequence of acute urethritis. This phlegmasia having already been described, it is now only necessary to thus briefly notice it as a consequence of acute urethritis.

*Prostatitis*, having also been described, requires no further examination.

*Orchitis* is used as a generic term to signify a phlegmasia affecting any or all of the divisions of the testicle. Epididymitis is the term commonly used for phlegmasia of the summit of the testicle, and didymitis for phlegmasia of the body of the testicle, the latter occurring rarely. Of 222 cases of epididymitis consequent upon urethritis observed by Fournier, 164 were from acute urethritis and 58 from chronic urethritis. Of the 164 cases from acute urethritis, 6 occurred during the first ten days of the urethritis, 15 on the eleventh day, 34 during the third week, 30 during the fourth week, 29 during the fifth week, 19 during the sixth week, 9 during the seventh week, and 21 during the eighth week. Of the 58 cases from chronic urethritis, 22 occurred during the third month, 1 during the seventh year, and the remainder scattered between the fifth month and the fourth year.

*Epididymitis* is a frequent consequence of urethritis. It occurs in about thirty per cent. of all cases of acute urethritis, and generally appears on or about the third week from the beginning of the urethritis—*i. e.*, during its period of decline, or after it has reached the prostatic region. However, this extension of the phlegmasia to the prostatic region sometimes occurs in a few days after the beginning of the urethritis, particularly if the urethritis begins in the prostatic region. In either case, epididymitis may begin very soon after the development of urethritis. It arises from extension of the phlegmasic action, by continuity of mucous membrane and lymph-vessels, through the ejaculatory duct and spermatic canal, and thus reaches the epididymis. In some cases the phlegmasic action is most intense in the spermatic canal, and is even propagated by

the lymph-vessels to the spermatic cord. In these cases there is sometimes little swelling or pain in the epididymis, while at other times the epididymis is much swollen, very painful, and accompanied by perididymitis, the pain extending to the inguinal region and even to the abdomen. These last are cases of superacute epididymitis.

A young man affected with superacute epididymitis complained, on or about the third day, of severe pain, extending from the testicle and spermatic cord to his abdomen, which soon became distended. This was the beginning of a sharp seizure of peritonitis, from which he, however, recovered. A little reflection as to the explanation of the attack of peritonitis led to the conclusion that the canal between the peritoneal cavity and the tunica vaginalis, formed in fetal life by the descent of the testicle, had remained patent, and that the phlegmasia of the tunica vaginalis, consequent upon the epididymitis, had through this channel extended itself to the peritonæum. It is worth while to take into account the possible existence of such an anomaly in case of peritonitis arising in connection with epididymitis, though it is also possible for peritonitis to occur by transmission through the medium of lymph-vessels.

Phlegmasia of the epididymis may be developed slowly and gradually in six or eight days, or may be superacute and reach its height in twenty-four hours. It is often attended with febrile reaction and gastric disturbance—furred tongue, nausea, vomiting, etc. Ordinarily, however, it attains its maximum of intensity in the course of three or four days. Both testicles rarely suffer at the same time. The phlegmasic action may affect only that part known as the tail of the epididymis, may be extended to the body, or may be most intense in the head of the epididymis. This same phlegmasic process frequently involves one or both seminal vesicles. Suppuration is a very uncommon result of epididymitis. Resolution occurs on or about the third week; but there often remains some induration at one or two points at the head or toward the tail, or the whole of the epididymis becomes sclerosed, and finally shrivels. Epididymitis occasionally recurs several times in the course of three or four months on the same side, and sometimes on the opposite side—*orchite à bascule* (Ricord). These recurrences are apt to be owing to the existence of small abscesses in the substance of the epididymis.

One of the occasional consequences of bilateral epididymitis is sterility. This is owing to chronic phlegmasia of both spermatic canals, the acid pus destroying the spermatozoa. In some cases these canals become completely occluded by a gradual stenotic process, with destruction of the epithelium, or by pressure from without at the tail of the epididymis during the shriveling of a phlegmasic nodule.

Several patients who had suffered bilateral epididymitis married healthy women, whom they have never succeeded in impregnating. One of them married a second time, and his wife, a well-formed woman in excellent physical condition, had not become pregnant ten years after.

*Didymitis* and epididymitis are specialized because, in the first case, the phlegmasia sometimes scarcely affects the

epididymis, but expends itself on the body of the testicle, and, in the second case, because often the spermatic canal is very little affected, and the body of the testicle is intact, while the epididymis is the center of the phlegmasic process. To warrant this specialization there are other reasons, among which may be mentioned that didymitis sometimes arises from direct violence to the body of the testicle, and that this didymitis is said to occur secondarily to parotitis and to variola without epididymitis.

Didymitis, consecutive to epididymitis, may be subacute, acute, or superacute. It may resolve in three or four weeks, may suppurate, may end in gangrene of the testicle in two or three days, or become chronic. Superacute epididymitis is almost always attended with perididymitis, and sometimes with parenchymatous didymitis. In either case there is true orchitis, all the divisions of the testicle being affected.

*Subacute parenchymatous didymitis* is attended with little pain, but is slow in resolving, and liable to recur every few weeks. These recurrences forebode the development of purulent foci in the testicle. After three or four recurrences of dull pain and a sense of tension in the testicle, the two layers of the tunica vaginalis become adherent anteriorly or laterally. This is evidence that an abscess is approaching the surface. It happens that in some cases a single abscess is formed, becomes encysted, and is not recognized until the diseased testicle is removed and cut open, when a central mass of cheesy pus is enucleated.

*Acute parenchymatous didymitis*, though very painful, the pain extending from the testicle along the spermatic cord to the inguinal and even to the lumbar region, generally resolves with the accompanying epididymitis, and very rarely suppurates. Sometimes resolution fails and the phlegmasia becomes chronic. The seminiferous tubules are then plugged with plasma, and the intertubular substance is soon involved, sclerosis and shriveling of the testicle ensuing. This is not an uncommon occurrence in cases of didymitis consecutive to parotitis. There is a type of didymitis in which the testicle remains indurated for many months, and finally breaks, by ulceration, through the bounds of its tunics and integument, and is extended as a fungoid mass, named benign fungus, sometimes mistaken for syphilitic or for tubercular disease. Benign fungus occurs among persons whose health is much deteriorated by debauchery and its consequences. This so-called benign fungus consists of no other elements than those composing the testicle in a state of chronic phlegmasia, together with a covering of granulation tissue.

*Superacute didymitis is of rare occurrence.* It is attended with very great pain and much febrile reaction, reaching its maximum of intensity within forty-eight hours, when the fate of the testicle is decided, for after this the phlegmasic process is on the decline or the testicle is in a gangrenous state. The whole body of the testicle is affected, the intertubular as well as the tubular substance. Its form and size are unchanged, the fibrous tunie yielding no space for swelling, hence the occurrence of gangrene, the hardness, and the almost intolerable sense of tension experienced by the sufferer. Even when the tes-

ticle escapes gangrene it is likely to be otherwise injured, for it either suppurates or ends in chronic induration, sclerous degeneration, and shriveling.

THE TREATMENT OF EPIDIDYMITIS should be adapted to the degree of the phlegmasia and to the peculiarities of individuals. Fretful, hyperæsthetic, algophobic patients affected with the mildest epididymitis are sickened by what others regard as a minor degree of pain, and require to be tranquillized by free doses of the bromides or even of opium. Otherwise the mild cases need nothing more than rest and suspension of the testicle. Other patients affected with superacute phlegmasia, endangering the testicle, make little or no complaint, though they experience much pain. In these cases prompt antiphlogistic treatment and the closest attention are necessary to save the testicle.

*Acute epididymitis* demands free catharsis, rest in the horizontal posture, and the ice-bag for forty-eight hours, or perhaps longer. There are cases in which cold applications fail to relieve pain; in these, hot fomentations often have the desired effect in the course of a few hours. The testicle should then be swathed in a thick layer of carded cotton sprinkled with half an ounce of tincture of opium, and the whole well suspended. In case of phlegmasia of the spermatic cord with much pain, a small plaster composed of powdered opium (one drachm) and a sufficient quantity of water to make a thin paste should be applied over the inguinal canal, as recommended by Velpeau, after ten or twelve leeches have extracted as many ounces of blood from that region. As a general rule, poultices should not be used; they are particularly hurtful in cases complicated with scrotal dermatitis. When there occurs effusion of serum in the tunica vaginalis (acute hydrocele), attended with much pain, relief is very soon afforded by making fifteen or twenty punctures with an exploring needle, the serum escaping in the scrotal connective tissue. "Strapping" is worse than useless and is sometimes destructive to the testicle. The patient should be kept in the horizontal posture for at least a week, and the testicle properly supported during that time and for two or three weeks thereafter. When suppuration has taken place in any part of the epididymis free incision should be made without delay.

THE TREATMENT OF DIDYMITIS is essentially the same as that of epididymitis, except in the case of the superacute type, which demands more heroic antiphlogistic measures, beginning with the application of at least sixteen leeches in the inguinal region on the affected side. Then the ice-bags—one anteriorly, the other posteriorly, as suggested by Curling—should be used continuously night and day for four or five days. Sufficiently free doses of opium, or of morphine hypodermically, to blunt the senses and induce sleep, are absolutely necessary. The prime indication is to prevent the occurrence of suppuration or of gangrene of the seminiferous tubules. When the violence of the phlegmasia is expended, when the pain is relieved, the affection is to be dealt with as in the case of epididymitis. But when, in the course of thirty-six or forty-eight hours, the faithful use of

ice and of the other antiphlogistic agents fails to subdue the phlegmasic process, and the sense of tension is rapidly increasing, a free incision should be made through the scrotum and tunica albuginea. This is imperative as the only means of increasing the space for swelling or of re-establishing the local capillary circulation and thus preventing necrosis of the seminiferous tubules. The patient has a right to the benefit of the doubt, if any doubt exist in the mind of the physician as to the expediency of the procedure at the particular time, by a prompt resort to this incision, for even a brief delay may be fatal to the integrity of the testicle. This seemingly violent mode of treatment was advocated about fifty years ago by Vidal (de Cassis), who afterward wished to generalize it in all forms of orchitis, and made incision of the tunica albuginea, and even of the parenchyma of the testicle, in four hundred cases. He was criticised with undue severity by Gosselin, who asserted that the incision scarcely ever extended beyond the tunica vaginalis, and that the relief experienced by some of the patients so treated was owing to the exit of serous fluid which had distended the tunica vaginalis and had been the chief cause of the pain. Vidal did, however, accomplish incision of the tunica albuginea and often found the testicle already necrosed. In such cases incision is surely indicated. Hernia of the seminiferous tubules is liable to occur after incision of the tunica albuginea, but better this than gangrene, for under favorable circumstances cicatrization follows, though the testicle is more or less damaged.

(To be continued.)

## A CASE OF SO-CALLED LARYNGEAL VERTIGO.

By I. ADLER, M. D.,

VISITING PHYSICIAN TO THE GERMAN HOSPITAL, NEW YORK.

THAT peculiar, though somewhat varying, group of symptoms which, following the lead of Charcot, is commonly designated as laryngeal vertigo, is still a subject of discussion as regards both its pathology and its ætiology. The well-authenticated cases thus far reported are comparatively few in number. Scarcely more than two dozen cases have been reported since Charcot first called attention to the affection in 1879, and the authors differ widely in their interpretation of the clinical facts. Under these circumstances every new case of so rare an affection becomes valuable as possibly shedding some light on a point hitherto doubtful or obscure. From this point of view I venture to present the following case:

Mr. J. E. H., aged about fifty-three, merchant. No hereditary taint of any kind. With the exception of several attacks of gonorrhœa, claims never to have had venereal disease. Minute examination detects no evidence of syphilitic lesion. Does not use tobacco in any form. Is accustomed to take several glasses of wine or beer with his meals. He is a man of florid complexion and robust and healthy appearance. He professes never to have had any serious illness, but is subject to "colds and coughs." From time to time during the last few years he has shown slight but sufficiently well marked symptoms of a gouty tendency and has had occasional attacks of muscular

rheumatism. About three years ago he had an attack of acute bronchial catarrh with little or no febrile symptoms, accompanied for several days by thin, foamy, and not very copious bloody expectoration. No pulmonary lesion could be detected, and the sputum then and since remained free from tubercle bacilli. The slight hæmorrhage was referred to congestion of the bronchial mucosa. In November of 1890, in the course of a slight bronchial catarrh attended by rather violent paroxysms of cough, he claims during one of these coughing spells to have suddenly "fainted." Being hurriedly called in and arriving a few minutes after the attack, I found the patient apparently perfectly well and bright. Questions addressed to him and to the members of his family who had witnessed the attack elicited the following facts: The paroxysm of cough had been no worse than usual. He was in a sitting position when the cough seized him, and during the coughing he arose as if to expectorate, then suddenly fell to the floor, totally unconscious. He claims to have noticed no premonition of any kind. There was no giddiness; he was not conscious of any tickling or burning or other sensation about the larynx. The bystanders were unable to state whether the face was pale or turgid or livid. There was no cry, no involuntary micturition, nor were any convulsive twitchings noticed. The unconsciousness lasted but a very few seconds. The patient raised himself without assistance from the floor, laughed at the alarm expressed by his family, felt no lassitude, sleepiness, or any discomfort whatsoever. Careful examination showed some dry râles in the larger bronchial tubes, slight hyperæmia of the pharynx and larynx, and an elongated uvula, otherwise no lesion of any kind. The bronchial catarrh, accompanied by still rather violent paroxysms of cough, passed away in about a week, but no further seizure like the one described occurred. The treatment consisted in the administration of opiates and expectorants.

I desire to note here a peculiarity in Mr. H.'s manner of coughing which struck me whenever I had occasion to see him for one of his periodical attacks of coughing. It seems as if he had acquired a habit of "choking" over his cough whenever the paroxysm is even moderately severe. The chin is depressed so as almost to touch the sternum, head and shoulders stoop forward, the face becomes turgid and red, the superficial veins swell out, and the cough consists of a deep inspiration, succeeded by a number of short, spasmodic expiratory movements following each other in rapid succession, and differing only from pertussis in lacking the long sibilant inspiration which commonly ends the paroxysm in the latter.

During April of this year Mr. H. had an attack of influenza, and following this, after the febrile stage had passed, a very violent cough. At first there were all the symptoms of diffuse bronchial catarrh, sonorous râles over the entire chest, mucopurulent expectoration, etc. Later on the râles gradually vanished, the expectoration diminished, and finally at the end of about ten days ceased altogether, but the cough remained more violent than ever, and assumed a more spasmodic character. The peculiar habit referred to above was still more marked. The cough came in paroxysms, during both day and night, seriously interfering with his sleep. It commenced with tickling in the region of the throat and larynx, became at once very violent, accompanied by turgidity of head and neck, lasting from some seconds to several minutes, and ended usually with the expectoration of a small lump of glassy mucus, sometimes, however, without any expectoration. This state of things continued for about a week, sinapisms, opiates, expectorants, and inhalations being administered without any apparent effect on the paroxysms of coughing. One evening during a violent coughing spell, which occurred while Mr. H. was standing upright, he suddenly dropped to the floor utterly unconscious. I was called

in at once and arrived a few minutes after the seizure. There had been no premonitory signs. The cough commenced with the usual tickling in the upper air-passages, but did not apparently differ from any of the preceding paroxysms. There had been no giddiness. The patient did not feel that anything unusual was going to happen. He simply dropped to the floor, almost immediately to arise again, feeling perfectly well, but not aware of any unusual occurrence.

The physical condition now was the following: Very moderate granular pharyngitis, elongated uvula, slight hyperæmia of the larynx, heart and lungs in normal condition, pulse full and regular—between 60 and 80 beats per minute. The pupils of equal size and reacting normally. Ophthalmoscopic examination negative. No appreciable symptoms on the part of the nervous centers. The knee-jerk somewhat subnormal, but still sufficiently well marked. The urine, which was examined frequently and carefully, at no time showed albumin, casts, or sugar. The quantity of phosphates and urates was slightly in excess of the normal. No other abnormality could ever be detected. Opiates had been given before; they were now administered in larger doses. No attack during the next two days; then another one of exactly the same character as before, with merely this difference: that, happening to recline on the sofa, he did not fall to the ground, but simply lost consciousness. As opiates had been of no service, they were now replaced by large doses of the bromides of sodium and ammonium, and a competent laryngologist made daily applications of a spray to the pharynx and larynx. The attacks of sudden loss of consciousness following cough now appeared daily, soon several times during twenty-four hours, by night as well as by day. During one of these attacks about this time Mr. H. slightly bit his tongue. The seizures evidently becoming more frequent and more severe, the local treatment, after about ten days of spraying, was discontinued. By the desire of the patient and his friends, the advice of a very well known neurologist was obtained. On recommendation of the latter, iodide of sodium was added to the bromides, and both gradually increased up to ten grammes *pro die*, also gradually increasing doses of the red iodide of mercury, blisters to the back of the neck and laryngeal region, and large doses of cerium oxalate. This treatment was continued for about three weeks. Under the influence of the bromides the pharynx and larynx became quite anæsthetic, and the patient stupid and somnolent. There were marked symptoms of iodism. The seizures, however, steadily increased both in violence and frequency. He had now as many as four or five in twenty-four hours. In one of these attacks, which came upon him while descending from one floor to another, he fell down stairs and was badly bruised. In another he dropped while standing with a friend in the street and severely hurt his face.

It is to be noted that, while no seizure ever took place without preceding cough, by no means every violent paroxysm of cough was followed by loss of consciousness. The daily coughing spells were quite numerous—sometimes several dozen in twenty-four hours—but, as far as I have been able to ascertain, he never had more than five seizures attended by loss of consciousness in one day. Nor were always the most violent fits of coughing followed by these peculiar attacks. Not infrequently a very violent paroxysm would pass without further consequences, while a comparatively rather mild cough would send the patient into unconsciousness. It is stated, too, that in several instances, when the state of unconsciousness had been of somewhat longer duration than usual, slight convulsive twitchings of the eyes and arms were noticed just before consciousness returned.

As the patient was evidently getting worse, all this treatment was now stopped; no medicine whatever was adminis-

tered, and when, after about six days, the local effect of the iodide and bromide had completely disappeared, another very careful general and local examination was made. The result of the general examination proved entirely negative. Locally the same appearances were found as above stated. The larynx was carefully examined with a probe, in order to determine the presence of any hyperæsthetic spot as the origin of the convulsive coughs. No such spot was found. As no tangible point of attack could be made out in the larynx, as medicinal treatment had plainly and completely failed, and bearing in mind the experiences of Gleitsmann, who had cured a similar case by removing adenoid vegetations at the base of the tongue, and of Charcot, who effected a cure by cauterizing a granular pharyngitis, I determined to clip the uvula. This was done at once. The patient went home and had no attack for twenty hours; then two very slight ones in rapid succession, and none since then. The cough continued for some five or six days, having completely lost its spasmodic character, and then disappeared altogether.

The preceding history has been given at great length because it seems to offer several points of interest. We have here a man without organic lesion and of fairly good health, who, after a moderate attack of bronchitis, becomes subject to spasmodic cough, attended by frequent seizures of complete loss of consciousness. There is no aura preceding the seizure, no cry, no involuntary micturition, no hebetude or confusion of mind on regaining consciousness. Unfortunately, it so chanced that I was never able to observe an attack in person. It is therefore impossible to say what was the behavior of pulse and heart during a seizure. The members of Mr. H.'s family, who witnessed quite a number of these sudden losses of consciousness, were invariably startled and alarmed to such a degree as to render them unfit for the purposes of closer observation. It was impossible even to make out with any degree of certainty whether the patient was red or pale in the face. Altogether the witnesses tend more toward the belief that the face was red and turgid. The patient himself describes his sensations during a violent paroxysm of cough as "choking," as "wishing to cough, and not being able to cough out"—a sensation evidently very similar to that described by the patient of Russell.\* It seems reasonable to assume from all this that the spasmodic cough was frequently followed by spasm of the glottis. That for this latter the elongated uvula was principally responsible would seem to follow from the failure of all other treatment and the prompt relief from all symptoms after the clipping. In what manner the uvula produced the spasm can not be positively ascertained. I am inclined to assume that it was by direct irritation of the *rima glottidis*. The patient's peculiar attitude while coughing would tend to raise the larynx sufficiently to permit this, while the fact of these spasms occurring frequently at a time when the pharynx and superior portions of the larynx were well under the influence of bromide anæsthesia would seem to preclude any other mode of mechanical irritation. It is not impossible that the attack of influenza which preceded these spasmodic seizures may have induced a more than ordinary irritability of the nervous system, and that this may explain why former attacks of cough were never,

\* *Birmingham Medical Review*, vol. xvi, August, 1884.

with but a single exception, followed by similar complications.

Leaving out of consideration those cases in which similar attacks have occurred in the course of locomotor ataxia, as so-called laryngeal crises, and where well-marked anatomical lesions have been found in the track of the pneumogastric and recurrent,\* we find widely differing opinions as to the nature of this singular neurosis. Charcot † is inclined to accept this group of symptoms as a disease *sui generis* and analogous to Ménière's disease, the afferent nerve in this instance being the superior laryngeal. Gray ‡ and Massei § consider these attacks to be essentially epileptic. Others again, such as McBride, || Russell, ^ Knight, ¶ and Gleitsmann, † explain the loss of consciousness and attendant symptoms by disturbances of circulation in the brain, basing their views on the well-known experiments of E. F. Weber. ‡

It is not my intention to enter into a detailed discussion and criticism of these conflicting opinions, nor to give an exhaustive review of the cases thus far recorded. All this has been done most fully and ably by Thernes, ¶ Knight, and others. In the case of Mr. H., the complete loss of consciousness and the absence of all vertigo and even giddiness, as well as of nausea and vomiting, seem to preclude all analogy to Ménière's disease. There seems no necessity of ranging our case under the head of reflex epilepsy. No spot or nerve could be found by the irritation of which it was possible to produce an attack. Nearly all cases of well-authenticated reflex epilepsy present well-marked convulsive seizures with all the classical symptoms preceding and following the convulsions. Interesting in this respect are the cases of Schneider.\*\*

The oft-quoted case of Sommerbrodt, †† in which a large fibroid of the left vocal cord apparently caused true convulsive attacks of epilepsy, can not be considered here, as the patient had had epileptic attacks fifteen years before which were at that time referred to a cicatrix on the right hand and disappeared after the excision of the scar. Evidently this was a case of well-marked "epileptic disposition."

It seems as if all the symptoms in our case could be satisfactorily accounted for by the experiments and theory of Weber. Forced expiratory movements with a spasmodically closed glottis caused increased intrathoracic pressure.

\* Jean, *Gazette hebdom.*, 1876, No. 27. Féréol, *Gaz. hebdom.*, 1869, No. 7.

† *Le Progrès méd.*, 1879, 17. *Revue des sciences méd.*, x, p. 135.

‡ *Amer. Jour. of Neurol. and Psych.*, November, 1882.

§ *Giornale internaz. delle scienze med.*, Anno vi. Abstracted in *Internat. Ctrbl. f. Laryngologie u. Rhinologie*, 1885, p. 21.

¶ *Erlinb. Med. Jour.*, March, 1884.

^ *Loc. cit.*

¶ *Transactions of the Amer. Laryng. Assoc.*, 1886, p. 34.

‡ *Med. Monatschr.*, i, p. 510.

† Ueber ein Verfahren, den Kreislauf des Blutes und die Function des Herzens willkürlich zu unterbrechen. *Müller's Archiv*, 1851, p. 88.

†† Deux observations de vertige laryngé dans la coqueluche chez les vieillards. *Jour. de méd. de Paris*, 1887, p. 936.

\*\* Einige Fälle von geheilter Reflexepilepsie der Nase. *Berl. klin. Woch.*, 1889, No. 43.

†† Ueber ein grosses Fibroid des Kehlkopfes als Ursache der Epilepsie. *Berl. klin. Woch.*, 1876, p. 563.

Ultimately not only the heart itself to a certain extent, but principally the *venæ cavae* are compressed, the flow of blood to the heart is diminished and then ceases, a condition of arterial ischaemia and venous hyperaemia ensues in the brain. The pulse becomes weaker and finally disappears altogether, and the heart's action comes to a standstill unless, before this climax is reached, the glottis is reopened and normal respiration is resumed. That this mechanism can and does produce complete loss of consciousness with total amnesia, and even convulsive twitchings, within a fraction of a minute is established by Weber's experiments on himself. All the conditions given by Weber were present in the case of our patient—the spasm of the glottis with violent, rapid expiratory movements, the turgid face and neck, etc. Had it been possible to obtain a satisfactory record of the pulse and heart, or even of the pulse alone, during one of the seizures, the question could have been settled beyond peradventure. As it is, the case appears in all essential respects analogous to Thiermes's second case, where the pulse and heart during the spell of unconsciousness were found so characteristically in accord with Weber's results.

Being still completely ignorant of the true anatomical lesion underlying epilepsy, and the experiments of Kussmaul and Tenner and others making it at least probable that disturbances of cerebral circulation play an important rôle in the pathology of epilepsy, there can be no objection, if one was so inclined, to call the peculiar seizure of laryngeal vertigo epileptoid—epileptoid attacks, however, resulting not from a hypothetic irritation of a peripheral nerve, but from great and sudden disturbance of cerebral circulation.

Finally, it is perhaps worthy of note that in the present case again, as in so many before recorded, there is a history of gout and rheumatism. That in all hitherto recorded cases, with but one exception (the second case of Knight), the patients are males, of whom the large majority had passed their fortieth year when they became subject to these attacks, are facts that must be taken into account in the future study of this affection.

**The Medical Society of the State of New York.**—Dr. J. H. Glass, of Utica, the chairman of the committee on credentials, announces that the committee will be in session, together with the treasurer, at the Delavan House, Albany, on Monday evening, February 1st, to facilitate the registration of members and delegates.

**The Alvarenga Prize of the Paris Academy of Medicine.**—According to the *Lancet*, Dr. Frederick Bateman, of Norwich, England, whose views regarding the localization of the speech center have been mentioned in the *Journal*, received the award on December 15th, for his treatise on *Aphasia and the Localization of Speech*. The prize was divided equally between him and Dr. Leguen, of Paris. There were twenty-five competitors, the prize being open to all comers.

**The Death of Dr. Stanislas Zalewski, of Bordeaux, France,** is reported in the *Progrès médical*. He had reached the patriarchal age of one hundred and eleven years. He was born at Warsaw in 1780, but had lived in France since boyhood. He retired from practice thirty years ago, subsisting on a slender pension allowed him by the French Government. Until quite recently his health had been excellent, and all his faculties unimpaired.

#### Answers to Correspondents :

No. 370.—Probably you could obtain it of Messrs. Eimer & Amend, No. 205 Third Avenue.

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### MOLIÈRE AND THE MEDICAL PROFESSION.

THE presidential address presented at the last meeting of the Ohio State Medical Society deals with that greatest satirist of the medical profession, Molière. Its author is Dr. Conklin, of Dayton, and the address may be found in the *Transactions* of the society, just issued.

Molière's true name was Poquelin, Molière being that adopted by him during the ten years of his life when he was a strolling player. It was some time in the year 1658, when he was thirty-six years old, that Molière emerged into the sunshine of court recognition. Then it was that the long-coveted opportunity, an invitation to play before the king, came, and grandly did Molière's genius plume its wings for dramatic flight. During the fifteen years that embraced the true career of the dramatist, the favor of Louis was unshaken, and it was rewarded by that brilliant series of comedies which mark an era in French literature. In that time Molière composed thirty pieces, half of which are classical. The later ones are the best, for in them he found the true field of his genius—the portraiture of the Tartuffes, Sganarelles, Dandins, Argans, and other perennially true types of human character.

Dr. Conklin's contention is in Molière's favor as against the views commonly pronounced by the critics. Nearly all commentators assume that Molière was actuated by an implacable rancor against physicians and their calling. A careful study of his writings, of the friendly tenor of his life, and of the state of the times will prove that this harsh indictment has been overdrawn. The two great objects of the dramatist were the selfish one of maintaining court favor and the intellectual one of exercising his creative faculty as poet and comedian. If he failed to keep the king amused and to make the people laugh at his characters, he would be relegated to the strolling profession. His genius impelled him to chastise the shams and hypocrisies of his time. He hated cant and pedantry, and attacked every station of life, from the highest to the lowest, that exposed these frailties to his view. Without rancor, with very little of avoidable personality, and without partiality, he made the nobles, the Church, the doctors feel the sting of his satire where they were most vulnerable. "The shafts of his humor, like the arrows of Tell, pierced the foibles at their center, without wounding head or heart."

Molière had not a few intimate friends among the physicians of the court, some of whom were under discipline by the Faculty of Medicine for the use of antimony and other chemical innovations. Molière had very little of sarcasm to expend upon the faction addicted to the antimonic "irregularity," but the phlebotomists of the academy are never spared. They are ordinarily represented as ignorant pretenders, speaking in

mongrel Latin like that which, in *Le malade imaginaire*, is put into the mouth of the candidate who has a stereotyped answer for all questions about the treatment of diseases:

“Clysterum donare,  
Postea seignare,  
Ensuita purgare,”

and in the event that this treatment fails, he next replies: “Reseignare, repurgare et reeclysterisare.”

Medical sects and dissensions abounded, and physicians carried on their controversies with all the acrimony of theologians. The sick-room was the scene of many an unseemly quarrel, from the death-bed of Cardinal Mazarin down to the cot of the coachman. These scenes were the legitimate prey of the satirist, and they became immortal in the text of *L'Amour médecin* and *Le malade imaginaire*. The latter was composed by Molière when his health was rapidly failing and the shadows were gathering about him. It is a dying comedian's sarcasm on the impotence of the medical art against life's last ebb. His health had been precarious for six years; he was annoyed by cough and hæmorrhages, due either to aneurysm or to pulmonary phthisis. “How much a man suffers ere he dies!” was his weary exclamation when on his way to the theatre on the evening of his death. Under these circumstances, and others of an embittering nature, it is not surprising that he gave vent to satire and bitter invective against the art that failed him at the pinnacle of his genius and renown. “You have a doctor,” said the king to him when they were walking together in the royal garden, “what does he do for you?” “Sire,” he replied, “we walk together, he prescribes remedies which I do not take, and I get well.” But medicine may be said to have obtained a poetic revenge against Molière, since his death-blow fell upon him in immediate connection with his fourth rendering of the *Malade imaginaire*. He was taken violently ill while on the stage, and was carried to his deserted home, where he died in less than an hour, suffocated by a pulmonary hæmorrhage. He thus literally materialized the dismal prediction which he had put into the mouth of Argan, in the play last mentioned, when saying that Molière would get only his deserts if the physicians “would let him die without medical assistance.” He died without assistance, but not for the reason stated by Argan, “and that will teach him another time not to make fun of the Faculty.”

To sum up the case as stated by Dr. Conklin, Molière was a man of genius, with many traits of true nobility; he hated a lie, a sham, a miser, and a bigot. He could not fail to see the foibles of his time, and he had the courage and ability to chastise them. “Nothing was too humble or too sacred for his purpose. The doctors were fair game and easy to ridicule. Everybody, when well, laughs at doctors, and no one—not even the doctors—is seriously the worse for it.”

### MINOR PARAGRAPHS.

#### SEPTIC PNEUMONIA IN THE NEW-BORN.

In the *Archiv für pathologische Anatomie und Physiologie und für klinische Medicin*, Dr. O. Lubrasch and Dr. H. Tsutsui

report interesting post-mortem findings in the case of an infant two days after birth. The autopsy was performed thirteen hours after death, and revealed pleuritis and pneumonia of the left upper lobe, bronchitis of both sides, and atelectasis of the right lung; parenchymatous infiltration and uric-acid infarction of the kidney; fat infiltration and congestion of the liver; an enlarged spleen; and icterus. The microscopical examination of the organs revealed the presence of Gärtner's bacilli in great numbers. These micro-organisms were found in the vessels of both lungs, between the cells and the fibrinous masses of the pneumonic exudation, and in the fibrinous effusion in the pleura. The spleen contained numerous patches of micro-organisms similar to the typhus bacilli. These were also found in the kidney, in the glomeruli and intertubular capillaries. None were found in the mucous membrane of the intestines. Cultures were made from material taken from the lungs and spleen, and then inoculated into rabbits and guinea-pigs, and the condition brought about in these animals proved the nature of these germs. Gärtner declared these bacilli to be identical with those that he had previously described. It was thought at first that the case was one of Winckel's disease, as the important clinical symptom of hæmoglobinuria was present, followed by genuine septicæmia, until the finding of the Gärtner bacillus. It was a matter of considerable wonder how these organisms had entered the child's system, as every possible avenue of entrance, such as the umbilicus and the intestines of the infant and the external genitals of the mother, were examined with negative results.

#### THE TREATMENT OF DEBILITY, ANÆMIA, AND RICKETS.

A VERY common error in the treatment of diseases of defective nutrition is pointed out by Dr. Cheadle in the July number of the *Practitioner*. It consists in relying wholly or chiefly upon drugs. Children are dosed with iron, phosphates, or cod-liver oil without regard to the condition of the digestive functions or their fitness for the reception of such materials. A delicate child is condemned to cod-liver oil because it is flabby and anæmic, without regard to other conditions. Perhaps the appetite is poor, the tongue is coated, and the bowels are constipated. The chief cause of the symptoms in this case is to be found in the disordered state of the functions of digestion, absorption, and excretion. Cod liver oil and iron are invaluable in their proper place, but here, by intensifying the digestive difficulty and diminishing the appetite, they are likely to do more harm than good. A few doses of gray powder, followed by a tonic with some saline laxative, will be far more effectual. At the same time the diet must be carefully regulated. When the digestive disorder has been removed the oil, iron, and phosphates may be found of the greatest value in completing the cure in rickets. Plenty of fresh milk and cream, raw meat juice, fresh air, and sunlight are better medicines than any to be found in the pharmacopœia.

#### BORO-BORAX.

ACCORDING to *Lyon médical* for January 3d, this is a compound, discovered by Jaenicke, formed by mixing equal parts of borax and boric acid in boiling water. It is a crystalline, neutral body, of great solubility in comparison with boric acid, sixteen per cent. dissolving in cold water, about thirty per cent. in water of the temperature of the blood, and seventy per cent. in boiling water.

#### LAVAGE IN THE TREATMENT OF ILEUS.

DR. AUFRECHT, in the *Therapeutische Monatsheft*, says that the method of treatment from which he has had the best re-

sults is to give a dose of morphine subcutaneously at once, and then to introduce an œsophageal tube into the stomach and irrigate with large quantities of water. By this means the gas is allowed to escape, the distention got rid of, and the stomach cleared of its abnormal contents. In some instances but one irrigation has been sufficient to relieve the distress and quiet the patient. He advises the giving of the morphine hypodermically in every instance, as in this way its action is much more prompt in arresting spasm. The patient should be kept under its influence and the irrigation repeated if distention reappears.

RESECTION OF THE LIVER.

ACCORDING to the *British Medical Journal* for January 10th, Professor Tansini, of Modena, in extirpating a hydatid cyst of the liver found it necessary to excise a portion of hepatic tissue. There was free hæmorrhage from the cut surface of the liver that was controlled by catgut ligatures; the hepatic wound was closed by silk and catgut ligatures, and the patient was well within a fortnight.

ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending January 26, 1892:

DISEASES.	Week ending Jan. 19.		Week ending Jan. 26.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	9	6	8	2
Scarlet fever.....	242	33	211	26
Cerebro-spinal meningitis....	4	2	2	3
Measles.....	152	9	128	9
Diphtheria.....	115	46	122	38
Small-pox.....	0	0	11	0
Erysipelas.....	2	0	5	0
Varicella.....	9	0	18	0
Pertussis.....	0	2	0	2
Leprosy.....	0	0	1	0

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from January 17 to January 23, 1892:*

BRECHEMIN, LOUIS, Captain and Assistant Surgeon, will proceed without delay from the Presidio of San Francisco, Cal., to Vancouver Barracks, Washington, and report in person to the commanding officer of that post for temporary duty.

APPEL, AARON H., Captain and Assistant Surgeon, is relieved from duty at Fort D. A. Russell, Wyoming, and will report in person to the commanding officer, Fort Buford, North Dakota, relieving CABELL, JULIAN M., First Lieutenant and Assistant Surgeon, who will then report in person for duty at Fort D. A. Russell, Wyoming.

Society Meetings for the Coming Week:

MONDAY, *February 1st:* New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisana Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica, N. Y., Medical Library Association; Cornin, N. Y., Academy of Medicine; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, *February 2d:* Medical Society of the State of New York (first day—Albany); New York Obstetrical Society (private); New York Neurological Society; Elmira, N. Y., Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburg, N. Y., Medical Association; Hampden, Mass., District Medical Society (Springfield); Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine.

WEDNESDAY, *February 3d:* Medical Society of the State of New York (second day); Society of the Alumni of Bellevue Hospital; Harlem

Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

THURSDAY, *February 4th:* Medical Society of the State of New York (third day); New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, *February 5th:* Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *February 6th:* Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Proceedings of Societies.

NEW YORK SURGICAL SOCIETY.

*Meeting of October 14, 1891.*

The President, Dr. CHARLES K. BRIDDON, in the Chair.

**Obstructing Cancer of the Rectum.**—Dr. WILLY MEYER presented a man sixty-one years old, upon whom he had operated for this trouble a year before. Bimanual palpation had revealed a large movable tumor obstructing the gut entirely. Inguinal colotomy was performed, and the gut was opened at once. Six weeks later the speaker did an exploratory laparotomy with the view of ascertaining whether the growth could be removed by this route, but he found the parietal peritonæum studded with the malignant growth, which had also spread over the mesocolon.\* He said that he now presented the patient, because he had been treating him for a prolonged period with the aniline dyes (pyocetanin), irrigating with a 1-to-1,000 solution, and methyl blue internally. He was aware that after the establishment of an artificial anus, as had been done in this case, these patients would often do well for a considerable period; still, he was inclined to attribute a good deal of the comparative well-being of this patient at present to the aniline treatment. The growth itself was unchanged in size, but the metastatic nodules were still slowly increasing. The man had remained in fair condition and had not lost weight during the past nine months.

**Excision of the Right Tonsil, the Pharynx, and the Tongue for Sarcoma.**—Dr. MEYER showed another patient, thirty-four years of age, upon whom he had recently operated, according to Miculiez's method, for a malignant invasion of the right tonsil, the tongue, and the pharynx. The patient had suffered excruciating pains, and though the speaker had feared that the operation would very much endanger the man's life, the patient had begged that it might be undertaken. Tracheotomy was first performed and the Trendelenburg tampon-cannula was introduced. Then an incision was made curving downward from the mastoid process to the chin, the flap was raised, and the glands, few and soft, were removed. Then the right external carotid artery was tied, also the ascending branch of the inferior maxillary. It was found necessary to remove the tonsil, with the pharynx of the right side, the epiglottis, and the whole tongue. The patient was narcotized through the tampon-cannula, and this instrument, with the blown-up bull, was kept in place forty-eight hours. It was then exchanged for an ordinary tracheal cannula. A soft-rubber catheter was passed through the wound into the œsophagus, and the patient fed

through it. The cannula was removed from the wound on the tenth day, and the man soon learned to swallow the stomach-tube. The patient, as would be seen, was now in good shape, complaining only of some shortness of breath. He could eat and swallow well, and was able to articulate distinctly enough to make himself understood.

**The Use of Wire and Pins in Ununited Fractures.**—Dr. L. A. STIMSON presented a man upon whom he had recently operated for ununited fracture of the thigh bone with considerable overlapping of the fragments. The speaker had cut down upon the parts and had taken off enough of the bone to permit of the fragments being brought into apposition by transverse section, placing the parts in a split so that the lower segment was supported by the upper. Satisfactory union had followed. He presented this patient in order to emphasize his opinion that the use of wire and pins in such cases was needless and probably detrimental, being likely to prevent rather than promote union.

**Fracture of the Head of the Radius.**—Dr. STIMSON also presented a patient who had come under his care with a fracture of the head of the radius. This was, the speaker said, quite a rare accident, some eighteen cases only having been reported, of which three had come under his own care. The injury had been produced in this case, as in most of the others, in the course of a backward dislocation of the bones of the forearm at the elbow. The patient, in trying to save a child from falling, had sustained an injury which had been diagnosed as a dislocation. He had remained under treatment for about two weeks, and had then come under the speaker's notice. Upon examination, there was found a prominence at the upper aspect of the elbow, and this seemed to be a portion of the head of the radius. An operation had verified this opinion. The specimen he presented as an example of a rare injury and to draw attention to the good results which had followed its removal. At the time of the operation the patient had lost the power of flexion and extension of the forearm, and almost entirely that of rotation. Motion was now very fair. The speaker would also draw attention to the beautiful appearance of the cicatrix, due to the use of Dr. Halsted's method of subcuticular suture.

**A Bullet in the Brain.**—Dr. J. A. WYETH presented a boy the full history of whose case had already been published. The youngster was shot at short range with a pistol in the hands of a playmate. The bullet entered the cranium and was never located. The boy was seen shortly after the injury and an incision was made admitting of the removal of pieces of bone which had been driven in upon the dura. The wound was then cleansed and an aseptic dressing applied. The boy had some slight symptoms of delirium for two or three days. He had been, however, kept exceedingly quiet and in the recumbent posture for a considerable time, and all the untoward symptoms had passed away. He had now been ten months out of bed, and seemed to be entirely well. The speaker had brought the patient to show the good results that might follow such an injury when no attempt was made to trace a foreign missile in the brain.

**Cancer of the Tongue.**—Dr. FRANK HARTLEY presented a patient who had been admitted into the Roosevelt Hospital on August 11th. The man was twenty-eight years old, married, and a farmer. His previous history gave nothing of interest. His present trouble, the patient thought, had begun three months before his admission. He had suffered mostly from a sore throat. He was examined by Dr. Beatty, and a diagnosis was then made of carcinoma involving the posterior third of the tongue and the adjoining portion of the anterior pillar of the fauces. The growth was distinctly circumscribed, hard, and only superficially ulcerated. The epiglottis was uninvolved and no glandular enlargement existed within the neck. The pos-

terior third of the right half of the tongue and a small part of the posterior third of the left half of the tongue were directly infiltrated. The man's general health was good. The heart and lungs were normal. There was no alcoholic habit. He smoked only moderately.

An operation was performed on August 18th, preceded by the usual antiseptics for the mouth, teeth, face, and neck. Tracheotomy was done and etherization carried on through the tube. A curved incision was made, five inches from the right angle of the mouth, downward and backward until the posterior part of the submaxillary triangle was entered. Hæmorrhage having been controlled, the inferior maxilla was divided at the site of the second molar tooth, after its extraction. The tongue was then divided parallel to, but midway between, the raphé and the left border. Both lingual arteries were tied as they entered the tongue from the hyoglossus muscle. The floor of the mouth on the right side and three fourths of the tongue were removed as far as the hyoid bone. The anterior pillar of the fauces and the tonsil on the right side were also removed, as the induration seemed to extend to them. An enlarged gland to the right of the pharyngeal wall and to the inner side of the ramus of the jaw was also taken away. The small portion of tongue remaining was sutured to the floor of the mouth. A drainage-tube was used in the lower angle of the wound, just below the division in the inferior maxilla. The inferior maxilla was held in position by catgut sutures through the bone. The skin was sutured with silk, and the mouth and pharynx were packed with iodoform gauze. The progress of the case had been as follows:

*August 19th.*—Rectal feeding every twenty-four hours. Temperature, 101°; pulse, 80.

*21st.*—Drainage-tube removed.

*22d.*—Tracheotomy-tube removed. Packing in the mouth and pharynx removed. Rectal feeding stopped. Stomach-tube used in feeding.

*26th.*—Primary union in the wounds. Peroxide of hydrogen used as a mouth wash; packing discontinued.

*29th.*—Use of the stomach-tube discontinued; fluid diet used.

*September 9th.*—Patient discharged; wounds healed; the teeth in good apposition.

An examination of the growth, made at the laboratory of the College of Physicians and Surgeons, had shown it to be a carcinoma.

**Cases of Gall-bladder Surgery.**—This was the title of a paper by Dr. ROBERT ABBE (See page 120.)

Dr. CHARLES MCBURNEY recalled the case reported by him this year in which the gall-stone was found lodged in the lower part of the common duct, in the hollow of the pancreas. The gall-bladder itself had entirely disappeared, doubtless owing to repeated attacks of inflammation. The stone, however, could be felt distinctly. It was impossible to reach the stone through incision in the side of the duct, and he had preferred to open the duodenum by vertical incision. He had then found the intestinal opening of the duct, split it upward for about an inch to the stone, and removed the latter through the intestine. The intestinal wound was then closed. The patient made an excellent recovery, and is now perfectly well. He would suggest as a useful method, where the duct was open above, that a sound should be passed from the gall-bladder down the duct in order to come as near the intestinal opening as possible, and so mark the position of the latter after the intestine was opened. In his case the opening was marked by the presence of a prominent ridge, two inches before it entered the intestine, becoming more and more marked as it passed down to the opening.

Dr. F. LANGE had had occasion several times to operate for obstruction of the common duct, both by stone and malignant growths at the head of the pancreas, and several of his cases had been brought before the society in former years and published. In a case in which he had performed colocoystomy for cancer of the pancreas the method of sewing the gall-bladder to the gut, which in this instance was the transverse colon, was by invaginating the gall-bladder into the gut. He had done this because the gall-bladder was extremely thin and because he had hoped that a valvular closure could be obtained. The patient had made a satisfactory recovery, but died six months later from progress of the cancerous growth. The general result of the operation, however, was not encouraging. The communication had diminished to an opening which would barely admit the passing of a probe. During life the appearance of gall in the stools had varied. At times it would disappear for a week or two and then come on again. He would therefore advise that this mode of operating should not be chosen. Perhaps it was better to invaginate the gall-bladder partly into itself, so that the edges of the incision could not come in contact again. It was an open question as to how much diminution would take place after this operation. In another case the malignant disease was complicated by the presence of stone. The patient was, however, in such a cholæmic condition that death had taken place from uncontrollable capillary hæmorrhage from within the gall-bladder, and probably from the liver, in the course of a few days. In both of these cases there were advanced liver changes.

Dr. LANGE also showed a number of gall-stones, removed from a lady on whom he had operated and who had malignant disease of the gall-bladder itself. The stones were of unusually large size. He had removed the stones, but had not thought that malignant disease existed. The wound, however, had not healed, but had kept secreting more and more, and luxuriant masses grew from the bottom of the gall-bladder. Microscopical examination had then determined the existence of large spindle-celled sarcoma, from which the patient eventually died, since radical operation did not seem advisable.

Dr. L. S. PILCHER cited a case in which he had operated last winter, when, at the time of the removal of some hundred calculi from the gall-bladder, the presence of a stone impacted in the common duct was appreciated, but the condition of the patient had then contra-indicated further interference. She had recovered from the operation, and before an opportunity could be made for again attacking the obstruction the calculus had passed spontaneously. He thought that sometimes, where it was necessary to leave the duct thus impacted, Nature might be looked to as likely to effect a cure. His patient had since completely recovered her health.

Dr. F. KAMMERER, referring to the last case cited by Dr. Abbe, thought that it was not often that so small a malignant tumor made such large deposits in the lung and liver. He had seen an interesting case of malignant disease lately. A woman had come to the hospital giving the history of biliary colic in former years. She was in a very low condition. Examination showed the existence of an enlarged liver, and below it was a large fluctuating tumor, the size of a child's head, reaching to the brim of the pelvis, giving the impression of a tumor of the kidney on bimanual palpation. As the patient had no jaundice, this case had presented some difficulties. He had punctured the liver several times and had got nothing. The patient had considerable rise of temperature and something had to be done. Puncture of the tumor itself drew away sero-purulent fluid. Operation had demonstrated that the tumor was an enormously distended gall-bladder. There was some ascites on incision. A large quantity of the sero-purulent fluid and some inspissated pus came

away when the gall-bladder was incised. When the fingers were introduced into its cavity large masses of *débris* and about forty gall-stones were found and extracted. There was a large perforation connecting with the liver, the distended bladder having become adherent to almost the entire lower surface of the liver, and the liver-tissue itself was much broken down. The patient had never rallied. Post-mortem examination had shown that the trouble was a malignant tumor of the gall-bladder. There were no metastatic deposits in the liver. The cancer was most likely a consecutive disease to the development of stone in the gall-bladder.

**Artificial Appliance after Removal of One Side of the Lower Jaw.**—Dr. McBURNEY, after calling attention to the great discomfort which resulted to patients subsequent to the removal of part of the lower jaw, from imperfect articulation of the teeth, cited a case in which he had done this operation for sarcoma and had called in other aid with a view to mechanically overcoming the subsequent difficulties. At the time of the operation he had had an interdental splint made, which was worn during the healing process. Afterward Dr. Albert Westlake had devised the apparatus, a model of which he exhibited. This device was still worn to-day by the patient with absolute comfort, keeping the teeth of the half jaw remaining in perfect articulation with those of the upper jaw and enabling the patient to masticate easily and perfectly. Absolutely no lateral displacement of the jaw existed to-day.

#### NEW YORK ACADEMY OF MEDICINE.

SECTION IN GENERAL SURGERY.

*Meeting of January 11, 1892.*

Dr. WILLIAM T. BULL in the Chair.

**Resection of the Rectum.**—Dr. WILLY MEYER presented a patient from whom he had removed a section of the rectum about four inches long on the 9th of October, 1891. The specimen was shown. The operation was performed in the kneelbow posture by Kraske's incision, the coccyx being resected. The rectum was then peeled away from its anterior attachments, the section made through healthy mucous membrane, and a piece of iodoform gauze passed upward into the gut. The gut was then brought down and secured. The bowels were opened on the tenth day. The patient now had control of feces and usually of gas, and had gained more than fifty pounds since the operation.

Dr. B. F. CURTIS showed a specimen representing an operation that he had recently performed for resection of the rectum and sigmoid flexure for carcinoma.

Dr. PARKER SYMS showed a specimen representing resection of the rectum for carcinoma. Allingham's operation had been performed, and it was believed that it had not been sufficiently thorough, as within two years a tumor was again felt in the rectum. In March, 1891, Kraske's operation was performed, and there had been no recurrence as yet. A preliminary colotomy was performed a few days prior to the Kraske operation, on account of the weakness of the patient. She now had partial control of the bowel.

Dr. A. SHUNK presented a specimen showing carcinoma of the rectum which he had recently removed. A left inguinal colotomy was first performed. Six weeks later the diseased rectum was removed through the opening in the left groin.

The CHAIRMAN showed a specimen of cancer of the rectum. The patient from whom it had been removed had apparently been cured by the operation.

**Intestinal Anastomosis.**—Dr. R. F. WEIR exhibited a patient who had been operated upon for an intestinal fistula which

had developed in connection with ventral hernia. The relations of the fistula to the intestine were ascertained by a careful dissection and separation of adherent intestines, the diseased portion was removed, and a lateral intestinal anastomosis was performed. A second patient was shown upon whom gastro-enterostomy had been performed for pyloric stenosis. A third was also shown who had been subjected to four abdominal operations for intestinal obstruction, the fourth, through a median incision, resulting in relief.

Dr. ROBERT ABBE presented a patient who had undergone four abdominal operations within a year. Three of them had been performed by Dr. A. F. Currier, the last one resulting in a persistent intestinal fistula. Dr. Abbe had operated for the relief of this, removing the segment of small intestine in which the fistula was located, and making a lateral anastomosis. The result had been entirely satisfactory, the patient being now in perfect health.

The CHAIRMAN showed a specimen illustrating gastro intestinal anastomosis. The operation had been performed for cancer of the pylorus. He also showed a specimen illustrating intestinal anastomosis. In this case an inguinal colotomy had been performed for cancer of the intestine. After the artificial anus had persisted three years Dupuytren's operation had been performed, but without satisfactory result. An intestinal anastomosis was then performed, and the patient lived two years in comfortable health. At the end of that period symptoms of intestinal obstruction appeared, and it was supposed to be due to contraction in the openings which had been made in the intestines. An abdominal section was performed, which showed that the obstruction was due to adhesive bands of the intestines. The operation had resulted fatally, and the autopsy had shown that contraction in the intestinal openings had not occurred to an extent sufficient to cause any interference with the intestinal function. The case was also instructive from the fact that five years and a half had elapsed since the cancerous growth had been removed, and there had been no recurrence.

Dr. ABBE read a paper narrating his recent experience with intestinal anastomosis.

Case I was that of the patient who had been exhibited.

Case II. In this case the symptoms of intestinal obstruction were pronounced. A left inguinal colotomy was performed without giving relief. This was followed by right inguinal colotomy, this by a median section at the outer border of the right rectus muscle, and this by a fourth section, which revealed a stricture twelve inches above the anus. A resection was made, and six months later carcinoma of the right ovary was diagnosed.

Case III illustrated lateral anastomosis performed on account of hernia of the abdominal wall with intestinal obstruction. The lateral anastomosis in this case was preferable to end-to-end suture of the segments of intestine, the latter procedure being impracticable on account of the difference in their diameters.

Case IV was one of Kraske's operation, in which the rectum had been resected six inches from the anus. Seven months later an inguinal colotomy had been necessary on account of recurrence of the disease.

Case V was one of strangulated right inguinal hernia with gangrene of the intestine. The gangrenous portion was excised, the opening in the gut extended an inch in each direction, and the opening closed by rows of sutures passed parallel to the transverse axis of the intestinal tube.

Case VI was one of cancer of the stomach. There was a decided tumor in the epigastrium with troublesome nausea, vomiting, and pain. The patient was very weak, but insisted upon an operation. After three days of stimulant treatment

the operation was performed. The stomach was found greatly dilated, and the tumor involved the pylorus and omentum. Gastro-enterostomy was performed, but the patient succumbed two hours after the completion of the operation.

Commenting upon these cases, which were all of recent date, the speaker remarked that almost all cases which called for the operation of intestinal anastomosis were cases in which the symptoms were severe and entailed much surgical shock. It had been urged that time was of the utmost importance in such operations, and, as a means of saving time and abbreviating the operations, various forms of plates had been devised. All such plates, whatever their construction or substance, were objectionable for one reason or another, and, after a considerable experience, the speaker was of the opinion that better results could be obtained without them, the intestinal openings being carefully apposed and secured to each other by sutures, and a double row of sutures being passed entirely around the portions which were brought in contact with each other. The intestinal openings should be four inches long; they might contract to half this length within six months, but they would be less likely to contract unduly if sutures alone were used than if dependence were placed upon intestinal plates. The speaker was not entirely satisfied that the experiments in anastomosis of the intestines of dogs could be depended upon as analogous to the work which was required upon the human intestine. The tolerance of dogs was greater than that of human beings; their tissues also presented different conditions. In many of the cases in which intestinal anastomosis was decided upon the patient should be prepared by a preliminary colotomy.

Dr. J. A. WYETH believed that intestinal anastomosis could not be regarded in any sense as a simple operation, and thought that the prognosis in the majority of cases in which it was performed would be bad. He was not in favor of lateral anastomosis in any case in which terminal anastomosis was admissible.

Dr. B. F. CURTIS thought that if lateral anastomosis was to be performed the method by suture alone was preferable to that by plates. If the circular suture (end-to-end operation) could be performed there would be less contraction of the lumen of the gut than by the lateral method, but the former operation was the more difficult. Concerning the criticism made upon intestinal surgery in dogs, it was true that dogs resisted purulent infection better than human beings, but he had not found that they resisted faecal infection any more successfully.

Dr. J. D. BRYANT emphasized the necessity of promptness in operating in cases of intestinal disease in which anastomosis was necessary. Delay weakened the condition of the tissues and so rendered them less suitable for resistance when the operation was performed.

Dr. WEIR remarked that the statistics of the lateral intestinal operation were thus far much better than those of the circular operation. Therefore we were not yet in a position to discard the former method.

Dr. F. KAMMERER expressed a preference for the method by sutures alone over that in which rings or plates were used.

Dr. MEYER quoted the statements of Kraske, Bramann, and Schede as preferring the circular suture to any other method after resection of the rectum. He also spoke of the necessity of protecting the peritoneal cavity from soiling when removing the rectum.

Dr. SYMS had found the rings ineffectual to prevent extravasation of faeces after lateral anastomosis. He had lost a patient after such an accident.

Dr. R. H. M. DAWBAEN adhered to his opinion that plates were more useful in intestinal anastomosis than sutures alone. With plates one was far less likely to pierce the mucous mem-

brane of the intestine than with sutures alone; hence there was less danger of faecal infection. He also believed in the advantage of the few minutes of time which could be saved when plates were used. Abbe's catgut rings were believed to be an improvement upon Senn's bone plates, but the potato plates which had been devised by the speaker would retain their position longer than the catgut rings.

## Reports on the Progress of Medicine.

### NEUROLOGY.

**Nervous Complications of Gonorrhœa.**—In the *Gazette des hôpitaux* for September 5, 1891, Dr. Paul Raymond states at length the complications of gonorrhœa. They are not unlike those induced by other forms of infectious disease. Charvot, in his article on sciatica, says that two predisposing pathological factors of this disease are found in pelvic inflammations among women and gonorrhœa in men. When due to gonorrhœa, sciatic inflammation rarely appears during the first week, but is delayed till the second or third week. The onset is sudden, almost instantaneous. The early symptoms often come on in a night, and their extreme limit of severity may be reached in twenty-four hours, relative calm being established in four or five days. Then the neuralgia disappears, or remains stationary for a time, worse at night, and always most intense about the exit of the sciatic nerve. The pain travels down the thigh, but rarely beyond the popliteal space. There is also a erural neuralgia of similar onset and origin. These conditions coincide with the degree of articular manifestation in gonorrhœa, both being complications or extensions of an infectious process. A double sciatica suggests the involvement of the spinal cord—a meningo-myelitis. Meningeal inflammation of the cord in no wise differs clinically from other infectious forms of myelitis, from the erysipelatous, from that due to variola or typhoid fever. When due to gonorrhœa, it usually lasts from a fortnight to six months, and quite exceptionally over two years. Death sometimes occurs. Reflex paralysis due to joint trouble gives about the same symptoms as a true myelitis, without organic lesion. There are also muscular atrophies following gonorrhœa that do not appear to be consecutive to the joint lesions. Abnormalities of special sense appear as complications of gonorrhœa. Amblyopia may accompany multiple arthropathies and last several days. Optic neuritis of similar origin has been noted, and also severe headache and deafness. The skin does not escape. A gonorrhœal erythema sometimes appears that is a true angeioneurosis. This is a morbid process quite distinct from eruptions due to local applications, such as balsam of Peru, which are frequently seen during the treatment of gonorrhœa. The cutaneous complications of nervous origin are symmetrical and have more the appearance of congestion than of true inflammation.

**The Diagnosis of Anæsthetic Leprosy and Syringomyelia.**—In the paper contained in the *Revue de médecine* for September 10, 1891, Dr. Marestang arrives at the following conclusions to the effect that syringomyelia and anæsthetic leprosy are distinct entities, thus proved by pathological anatomy. Syringomyelia is based upon a medullary process, of gliomatous nature most frequently, while anæsthetic leprosy is the outcome of a specific neuritis. There are certain clinical differences:

#### *Syringomyelia.*

Disassociation of sensory disturbances.

Integrity of superficial muscles of the face.

Absence of discolorations on the skin.

Hair unaffected.

Deviations of the spine.

In leprosy there is spontaneous resorption of the phalanges, profound alteration in the nails, partial or complete loss of hair, and the

#### *Anæsthetic Leprosy.*

Abolition of the sense of touch.

Atrophy and paresis of superficial muscles of the face.

Thickening and nodular swelling of nerves.

Discolorations (painless) upon the body.

presence of Hensen's bacillus in the portions of tissue that are ulcerated.

**Neurasthenia and its Mental Symptoms.**—In the *Medical Communications of the Massachusetts Medical Society*, vol. xv, No. 2, 1891, appears in full Dr. Edward Cowley's exhaustive paper with the foregoing title. Neurasthenia is one of the most frequent and important of nervous diseases. Its mental symptoms afford significant indications for diagnosis, prophylaxis, and treatment. Depression, weakened mental control, and irritability are signs of the characteristic mental weakness. Insanity, in its functional and curable forms, is always weakness, and its study is useful in relation to neurasthenia, because they have a common origin. In normal fatigue, toxic products of exercise are formed in nerve and muscular tissues. From this and other sources toxic elements may accumulate in the blood and tissues. In pathological fatigue these contribute to local or general inanition or auto-infection. Visible changes in nerve cells that attend normal fatigue go to support the inference of a molecular and chemical variation, in pathological fatigue, that manifests itself as a condition of exhausted or changed nutritional power. To the ætiology and pathology of neurasthenia they bear a direct relation. Habit, diathesis, idiosyncrasy, have an important influence in causing "dispositions to repeat organic processes," whether normal or abnormal. The analysis of normal and pathological fatigue shows that mental symptoms in the latter may be easily recognized. They correspond with the physical events in neurasthenia. The phenomena, so far as they go, are in unison with the like conditions of melancholia. The symptoms are objective and subjective, mainly the latter, which include the mental symptoms. There is mental depression and a sense of ill-being; diminished power of voluntary attention and mental control; introspection and worry, with attention acting in its attracted form; and changes in the "sense of body"—irritability and hyperæsthesia, languor and anæsthesia. In consequence, two conditions of clinical importance become prominent. These are morning weariness and anæsthesia of the sense of fatigue. Neurasthenia, then, is a morbid condition of the nervous system, and its underlying characteristics are excessive weakness and irritability or languor, with mental depression and weakened attention. It may be regarded as the initial term of many nervous disorders having a varied ætiology. The treatment logically includes elimination, rest, exercise, massage, and the promotion of sleep. The mental indications and other subjective symptoms, being the earliest and most significant always, are the best guides to treatment. This must be suited to the different stages of neurasthenia, to the conditions of first effects and after-effects, and to the special type that the patient represents.

**Facial Neuralgia and Ear Troubles.**—A most interesting series of observations, recorded by Dr. Gellé, upon the condition of the ear in various forms of nervous disease has appeared in recent issues of the *Progrès médical*. The coexistence of pain in the ear and neuralgia upon the same side of the face was found in twenty-two cases of facial neuralgia. Often facial neuralgia starting from different points is symptomatic of acute inflammation of the ear, or of new inflammatory attacks set up on some former diathetic otorrhœa. The facial pain in this case precedes by several days the otic or periotic complication. At times, in spite of frequent attacks and intense otalgia, the ear itself remains sound. In certain instances the attacks bear a close relation to a simple or diathetic inflammatory condition at the level of the orifice of the Eustachian tube. In three cases examined, syphilis proved to be the cause of the unilateral ear difficulty, one of the patients presenting severe otalgia without lesion for some time before the appearance of a subacute otitis resulting in suppuration, secondary symptoms appearing only after the ear trouble. There is a history of facial neuralgia in nearly all cases of chronic deafness. It is also a frequent premonitory symptom of facial paralysis, and accompanies vertigo *ab auro lesa* and hyperæusia. The cases cited demonstrate a close relationship between facial neuralgia, acute otitis, and facial hemiplegia.

**Guarana in Migraine.**—The *Journal de médecine* for October 18, 1891, quoting from Pemberton Peake, recommends the following method of warding off or ameliorating an attack of migraine: When prodromes appear—restriction of the visual field, ringing in the ears, etc.—work must cease. The patient is to take twenty or thirty grains of guarana in a little broth, go to bed, and try to sleep. When the characteristic

headache begins, a good-sized cup of tea is in order. A little reading or conversation will help banish the depression that the pain causes. This plan of treatment shortens the attack.

**Facial Paralysis due to Rupture of the Ear-drum.**—In the *Journal de médecine de Paris* Dr. Delobel records a case of this kind. The patient was thrown from a carriage, falling upon the left side of the head. There was a cut about the root of the nose, and bleeding from the nose and ear. There was no loss of consciousness, will, or of movement; no vertigo, no evidence of fracture. The patient complained of great pain, noises, and deafness in the left ear. This prevented his hearing a watch applied to the ear, though the sounds were heard distinctly when it rested upon the forehead or was put into the mouth. Eleven days after the accident complete left-sided facial hemiplegia was present. There were disturbances of taste and diminution of sight. Electricity and strychnine were the remedies used. In about two weeks a slight improvement was noticed. All paralysis disappeared by slow degrees, and in time the sense of taste returned. Symptoms pointing to some deep-seated lesion of the seventh pair of nerves, as loss of taste and of faradic response in muscles supplied by them, caused the author to regret that he did not use subcutaneous injections of pilocarpine, as suggested by Strauss, to settle at once the question of profound lesion by the absence or delay of sweat on the affected side or its simultaneous presence on both sides.

**Paraplegia of Syphilitic Origin.**—The *Annales de dermatologie et de syphiligraphie* for October, 1891, contain a report of this condition, based upon seventy-one cases, by Dr. Pierre Bouillocke. The facts appear in the form of brief *résumés*, the chief points being the earlier existence of syphilis, the age at which paraplegia appeared, and its course, nature, and duration. Syphilitic myelopathy alone is rare—found only seventy seven times in a given number of cases in which cerebro-spinal syphilis existed four hundred and sixteen times. At what age of the disease does paraplegia make its appearance? Among the cases under consideration evidences of paraplegia existed during the first year of infection in eight cases, in the second year in eighteen, in the third year in ten, in the fourth also in ten, from the fifth to the tenth year in seventeen, and between the tenth and the twenty-second year in eight. Therefore, in sixty-two cases of paraplegia out of every hundred the onset has been during the first four years following the initial lesion. Late syphilitic myelitis is comparatively rare. Myelitis of syphilitic origin that develops rapidly within a few weeks or two or three months is most unfavorable as regards prognosis. Chronic diffuse myelitis is seldom fatal, and it is not often completely cured. Vesical troubles remain after nearly all the signs of paraplegia have disappeared. Weakness of the legs, difficulty in walking and standing upright for any length of time, a certain degree of contracture in severe cases, are some of the after-effects more or less permanent.

**The Neuroses of Development.**—Dr. T. S. Clouston's admirable lectures on this subject that have appeared in various issues of the *Edinburgh Medical Journal* during the year end in the August number with a few considerations in regard to prevention of the neuroses of development. Heredity is a question of degree and intensity in each case. Fortunately, in most instances it needs an exciting cause to develop the diseases which are its outcome. There are one or two general principles safe to follow as making for prevention. Build up bone and fat and muscle, especially fat, by every known means during periods of growth and development. Make fresh air the breath of life to the young. Develop lower centers rather than higher ones when there is poor heredity. Avoid, if possible, alcohol and nervine stimulants. Do not cultivate, rather restrain, the imaginative and artistic faculties and ready sensitiveness and idealisms generally in cases where such tend to appear too early and too keenly. They will be rooted on a better brain and body basis if they come later. Cultivate and insist on method and order in all things. The weakly neurotics are always disorderly, unbusinesslike, and unsystematic. Fat, self-control, and order are the three most important conditions for them to aim at and develop.

**Attacks of Tremor among Epileptics.**—Dr. Feré notes in the *Revue de médecine* for June 10, 1891, the different aspects of tremor among epileptics. It may be merely an episode in the classic epileptic seizure, or the only symptom of a paroxysm, with loss of consciousness. Some-

times tremor lasts for hours or days, either general or local. It is usually rapid, especially in the hand, the oscillations ranging from seven to ten a second.

**The Pathology of Ophthalmoplegia.**—This is the subject of an interesting paper by Dr. J. W. Collins, of London, and Dr. L. Wilde, of Durham, England, in the *American Journal of the Medical Sciences* for November, 1891. Owing to the complexity of the structures concerned, post-mortem examinations have been of comparatively slight value. The site and nature of the lesion to which the group of oculo-motor palsies is due have been mooted questions. In no other situation are there opportunities for a small lesion to affect so many cranial nerves as in the cavernous sinus. Putting aside the rather obscure ocular palsies of cortical origin, the floor of the aqueduct of Sylvius and fourth ventricle and the walls of the cavernous sinus would be the most favorable site for small lesions to bring about extensive results. In the former, such lesions would be mostly nuclear, in the latter necessarily neural. The authors introduce the following scheme:

#### OPHTHALMOPLÉGIA.

##### I. Cerebral.—

- |                         |  |
|-------------------------|--|
|                         | } Conjugate deviation.   |
| (a) Cortical.           |  |
|                         | } Hemiptosis (?).  |
|                         |  |
| (b) Cortico-peduncular. |  |
| (c) Nuclear.            | } 1. Cycloplegia. } "Ophthalmoplegia interna."<br>} 2. Iridoplegia. }<br>} 3. Palsy of the extra-ocular muscles; ptosis. |
| Third nerve.            |  |
| Fourth nerve.           |  |
| Sixth nerve.            | 4. Palsy of the superior oblique.  |
|                         | 5. Palsy of the external rectus.   |

##### (d) Radicular (and ? commissural).

##### II. Basal.—(a) Region of pons.

- |     |     |                     |
|-----|-----|---------------------|
| (b) | " " | peduncles.          |
| (c) | " " | cavernous sinus.    |
| (d) | " " | sphenoidal fissure. |

##### III. Orbital (including peripheral).

Ophthalmoplegia of cortical or cortico-peduncular origin is usually conjugate, not unilateral. The only exception to this rule, apparently, is that of ptosis occurring exclusively upon the side opposite to that of the cerebral lesion (Landouzy). Observations by the authors of 120 cases show that some evidences of syphilis were found in 33 per cent.; of the whole number, 65 per cent. were men; from twenty to forty years of age were the periods of its most active manifestations; and the condition was unilateral in 61 cases. In 65 of the patients in which external ocular muscles were affected, there was also some disorder of intra-ocular muscles. In 29 of the 65 both iris and ciliary muscle were involved. Special attention must be directed to the mode of linking of extra-ocular palsies with cycloplegia and iridoplegia, respectively, as bearing upon the work of Henser and Volker, and of Kohler and Pick. In the 34 cases in which only one of the two—viz., iris or ciliary—was affected, plus extra-ocular palsy, in no less than 31 the iris and not the ciliary presented abnormality. In only three, therefore, was the ciliary alone affected. If it be true that the centers for ciliary, iris, and extra-ocular muscles are arranged in the foregoing order, tandem fashion, on the floor of the aqueduct, the connection of these ocular palsies is at once apparent. In 116 cases, analysis in regard to distribution of the palsy according to nerves involved showed an implication of the third nerve alone in 47 instances. In 42, the third, fourth, and sixth were affected in company; in 11, the sixth only; in 8, the third and fourth together; in 4, the third and sixth; in 2, the fourth and sixth; and in 2, the fourth alone. Of the 92 cases out of the 120 in which the result is noted, 53 improved under treatment, 26 completely recovering. In 15 there was no improvement, in 2 the disease was progressive, and in 22 fatal. Under ten years of age 50 per cent. died; over ten, 23 per cent.

**A Case of Acromegaly.**—This is reported in detail in the *Revue de médecine* for September 10, 1891, by Dr. Spillmann and Dr. Haus-halter. The tables of measurements are particularly interesting. The patient, a *religieuse*, fifty-two years old, noticed the onset of her present condition at the age of forty, up to which time she always enjoyed robust health. Menstruation then ceased suddenly, to be immediately followed by a gradual enlargement of face, hands, and feet. The skin

thickened by degrees and the back became arched. The characteristic ugliness of acromegaly is reproduced in the cuts illustrating the report. The patient is cheerful, without headache or any sensory trouble, and with mind unaffected. Gloves are not manufactured sufficiently large for the hand, and men's shoes of enormous width and length are the only ones this *religiense* can wear. The ocular troubles consist of marked amblyopia on one side and almost complete amaurosis on the other. There is no sensitiveness to cold, but constant complaint of heat. The skin is oily and frequently covered with profuse perspiration.

**The Brain in Microcephaly.**—Dr. Giacomo has recently made public his observations upon this subject, of which the following is a *résumé*: The morbid process causing microcephaly is essentially one of the central nervous system, and the deformity of the skull results from want of development of the brain. There is no microcephaly that is primarily osteal. It is always neural. The condition is not confined to the brain alone. There is also micromyelia. The nervous system in microcephaly presents no pathological alterations that could be produced by arrest of development. The brains all belong to the human type, varying according to the period of embryonic life wherein arrest of development took place, and ranging in degree from one below the normal adult brain to the verge of anencephaly. The formation of the cortex in extreme cases, aside from the evident arrest of development, bears much resemblance to that of certain animals and may be considered an example of atavism to the evolutionists, for this formation has never existed during the historical period of the human race.

**Synopsis of Opium Inebriety.**—In the *Journal of Mental and Nervous Disease*, June, 1891, there is a paper with the foregoing title. Morphomaniacs include literary men, mathematicians, and scientists. Medical men are more exposed to the formation of the habit than any other class. They have a seemingly reasonable excuse, knowing the speedy effect of morphine that permits a return to work. In time the will is paralyzed and personality destroyed. Molecular changes are brought about and a neurosis is produced. Mental faculties are the ones that suffer first from the use of opium. There are marked depression of spirits, hallucinations, especially of sight, and morbid fears. Sensation is usually impaired or perverted. There is a wan complexion, greasy skin, a vacant look, listlessness, loss of appetite, and obstinate constipation. Upon the withdrawal of the drug there is diarrhoea. If this does not occur, it is safe to suspect that the patient still continues the use of opium in some secret fashion. There are several plans of treatment. The noted German, Dr. Livenstein, stops all morphine at once without regard to length of habit or dose. This entails much mental and physical suffering and the risk of suicide. Collapse is threatened. Against this plan Dr. J. B. Mattison, of Brooklyn, expresses himself with much emphasis and holds that no man is warranted in subjecting his patient to such horrible torture. The dread of such an ordeal as described by others keeps many in the continued toils of the morphine habit. The rapid but not abrupt withdrawal of opium is what Dr. Mattison advocates. A certain amount of control of reflex irritation may be obtained by bromide of sodium in large doses for four or six days. The maximum sedative effect of the bromide should be secured by the time the maximum nervous disturbance is expected or brought about by withdrawal of the opium. But even this plan causes much suffering. The gradual method seems more rational. The only reasonable hope for cure at all is in the wise care of a specialist familiar with all the exigencies that may arise. A collapsed condition is best met by stimulants, ammonia or alcohol. Delirium can be warded off by coca, chloral, and bromides. For vomiting, stop all solid food, give hot beef extract, hot milk, and beef peptoids in liquid form; and as remedies ammonii ar. spir., bismuth subnit. To overcome diarrhoea, first use an emulsion of castor oil with brandy; then give bismuth subnitrate and zinc sulphocarbolate. Treat pains in the legs by hot foot-baths, massage, and friction. In the event of apparent sleeplessness, be sure, first, that the patient is not shamming, and then administer full doses of bromide, sulphonal, and sometimes valerianate of zinc in the form of elixir. Codeine can be given to allay pain as safely as any opiate and without great danger of its use growing into a habit. In anæmic conditions, iron and strychnine are indicated. In notable depression or long-lasting prostration, alcoholic stimulants are required. Restlessness and insomnia may be warded off

by a hot bath before retiring. Electricity, especially the electric bath, will in most cases tranquillize the system. Mental quiet is a positive essential. Cheerful surroundings, amusement, and pleasant society are necessary. If the patient uses the hypodermic syringe, this should be instantly discarded and all opium given by the mouth. The physician should take complete possession of his charge, and be to him a constant, kind adviser and moral support.

Miscellany.

**Mortality in Cities in the United States.**—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for January 22d:

CITIES.	Week ending—	Population, U. S. Census of 1880.	Total deaths from all causes.	DEATHS FROM											
				Phtisis pulmonals.	Yellow fever.	Small-pox.	Variceloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.	
New York, N. Y. ....	Jan. 16.	1,515,301	907	110							4	41	39	12	7
Chicago, Ill. ....	Jan. 16.	1,099,850	600	34							69	17	27	3	4
Brooklyn, N. Y. ....	Jan. 9.	806,343	494	52							2	13	24	4	2
Brooklyn, N. Y. ....	Jan. 16.	806,343	465	47							4	12	25	1	1
St. Louis, Mo. ....	Jan. 9.	451,770	225	23							2	1	6	1	1
Boston, Mass. ....	Jan. 16.	448,477	23	23							1	5	9	2	1
Baltimore, Md. ....	Jan. 16.	434,439	225	16							3	9	11	2	1
Baltimore, Md. ....	Jan. 16.	398,997	195	21							1	1	4	1	1
San Francisco, Cal. ....	Jan. 9.	296,308	146	13							6	3	10	1	1
Cincinnati, Ohio. ....	Jan. 15.	296,308	146	13							1	2	2	2	2
Cleveland, Ohio. ....	Jan. 9.	261,353	95	7							1	1	2	2	2
Cleveland, Ohio. ....	Jan. 16.	261,353	122	22							1	11	1	2	2
Pittsburgh, Pa. ....	Jan. 9.	238,617	88	22							3	1	1	1	1
Washington, D. C. ....	Jan. 9.	230,392	132	14							3	1	4	1	1
Detroit, Mich. ....	Jan. 9.	205,876	116	10							2	7	16	1	1
Detroit, Mich. ....	Jan. 16.	205,876	110	10							1	2	7	1	1
Milwaukee, Wis. ....	Jan. 9.	204,468	109	3							1	9	19	1	1
Rochester, N. Y. ....	Jan. 16.	183,896	67	8							1	1	1	1	1
Kansas City, Mo. ....	Dec. 25.	132,716	51	5							1	1	2	1	1
Kansas City, Mo. ....	Jan. 2.	132,716	41	2							1	1	3	1	1
Providence, R. I. ....	Jan. 16.	132,146	73	3							2	1	1	1	1
Denver, Col. ....	Jan. 9.	106,713	46	12							1	2	3	1	1
Toledo, Ohio. ....	Jan. 15.	81,434	34	4							1	1	1	1	1
Richmond, Va. ....	Jan. 9.	81,348	34	4							1	1	1	1	1
Nashville, Tenn. ....	Jan. 16.	76,168	32	6							1	1	1	1	1
Fall River, Mass. ....	Jan. 16.	74,398	50	5							1	1	1	1	1
Portland, Me. ....	Jan. 16.	36,425	27	2							1	1	1	1	1
Binghamton, N. Y. ....	Jan. 16.	35,005	25	3							1	1	1	1	1
Yonkers, N. Y. ....	Jan. 16.	32,093	17	4							1	1	1	1	1
Mobile, Ala. ....	Jan. 16.	31,076	25	2							1	1	1	1	1
Auburn, N. Y. ....	Jan. 9.	25,858	7	1							1	1	1	1	1
San Diego, Cal. ....	Jan. 9.	16,159	9	1							1	1	1	1	1
Pensacola, Fla. ....	Jan. 9.	11,750	7	1							1	1	1	1	1

**The Treatment of Influenza.**—The following, except for a few verbal changes, appeared as an editorial in the *Boston Medical and Surgical Journal* for January 21st:

In the prophylaxis of influenza it must be remembered that the disease is a something (germ or other morbid factor) plus, not infrequently, a severe cold. A catarrh or cold is a mechanical congestion of the naso-pharyngeal mucous membrane due to exposure to alternating temperatures, not necessarily accompanied by fever or any constitutional disturbance. This congested mucous surface furnishes a favorable nidus for the influenza germ as well as for the germs of ordinary suppuration. The germs or their ptomaines find entrance into the blood and produce the rigors and other constitutional symptoms. The main prophylactic indication, then, would be to avoid, as far as possible, the causes of ordinary colds. When once the congestion is established, means should be taken to prevent this extending, and to destroy any germs that have effected lodgment on the congested membrane. Here the use of diaphoretics (a warm bath, a vapor bath, heaters, liquor ammonii acetatis, jaborandi, Dover's powder—the patient being in bed) may be salutary; the symptoms of prostration are to be treated by abundant stimulants. The menthol spray, or eucalyptus inhalations, stimulate the local circulation, and are perhaps germicides. The eucalyptus may be inhaled from a handkerchief, and a two- to five-per-cent. [solution?] of menthol in some form of liquid vaseline be injected into the nostrils in chronic catarrh.

There is no special treatment for the bronchitis of influenza. The acuteness of the attack, the oppression, the teasing, dry cough, the scanty expectoration of the first stage, indicate the need of expectorants and salines, whilst the prostration indicates the disadvantage of their administration. Ten drops of wine of ipecac, one drop of tincture of aconite, five grains of nitrate of potassium in a dessertspoonful of liquor ammonii acetatis, constitute a convenient mixture for this stage of the disease; the dose may be given every two hours during both day and night, or the tincture of lobelia inflata in five-minim doses may be substituted for the ipecacuanha wine. Citrate of potassium in thirty-grain doses with lemon juice and syrup is a favorite combination, making a mixture which is very pleasant to take. No one will question the beneficial effects of hot fomentations and cataplasms to the chest, especially when there is pain and dyspnoea. The old custom of giving an emetic at the onset of a severe bronchial attack has gone out of fashion, still there are times when nothing will so speedily relax the tightened bronchi, allay the element of spasm, and promote expectoration, as a full dose of ipecac or turpeth mineral. The latter emetic is especially applicable to children with abundance of subcrepitan râles all over the chest, dyspnoea, and other symptoms of capillary bronchitis.

When expectoration has begun (and in influenza it sometimes does not begin at all) there is probably no better expectorant than carbonate or chloride of ammonium. The latter, if rubbed up with extract of licorice and taken in emulsion, in water or in syrup, is not especially disagreeable to the taste. The aromatic spirits of ammonia may be given in syrup of Tolu or syrup of senega, and often no other expectorant will be needed. Marotte has recently published a paper in which he recommends, in order to oppose the pulmonary manifestations of *la grippe*, the employment of chloride of ammonium in doses amounting to two or three grammes daily. He would give the salt in capsules or cachets, the dose being fifty centigrammes.\*

As the adynamic symptoms are always marked, a supporting treatment should be instituted from the first, and alcoholic stimulants are frequently indicated. A tablespoonful of whisky in a glass of milk is a favorite combination with many. Or the milk is given in teacupfuls every two hours, and is alternated with a glass of grog or champagne. The alcohol often seems materially to aid expectoration, besides combating restlessness and insomnia. It is especially in broncho-pulmonary cases, complicated with weak heart and pulse, that alcohol is a necessity. Physicians doubtless do not sufficiently utilize the stimulating and supporting effects of strong coffee, which may often be allowed to advantage in influenza *ad libitum*.

Where the cardiac enfeeblement is very marked there can be no question as to the benefits of digitalis, strophanthus, caffeine, and sometimes of nitroglycerin. In the pneumonia and broncho-pneumonia of influenza the leading indication is often to support the struggling heart, and digitalis may be given here with often happy effects. An eligible form is the infusion, of which a teaspoonful may be given every two hours for a day or two; then strophanthus or caffeine may be substituted for the digitalis.

Many practitioners have great faith in sulphate of quinine, both as an abortive means in the early stages (abridging duration of the attack), and as a supporting agent all through the sickness. By general consent, however, quinine has of late been relegated to a secondary and subordinate place in the therapeutics of this and other affections, being given in rather small doses and for its tonic effect.

For the nervous symptoms of influenza—the headache, the backache, the pains in the limbs, the restlessness and insomnia, etc.—there seems to be nothing so good as acetanilide or phenacetin, and no medicines are more generally prescribed. Just how these medicines act is not yet known, but they certainly have a marked action in allaying the rheumatoid and neuralgic pains of influenza, and they also combat the fever element and relieve the insomnia. A recent writer in the *Lancet* even affirms that acetanilide is enervative of the bronchitis, destroying the micro-organisms that pervade the mucous membrane and the sputum; and that he has found it to cause the cough to disappear. Other practitioners may not have seen the same results, but there is abundant

testimony that phenacetin and acetanilide are invaluable and safe medicaments in influenza. The former may be given in ten- and the latter in five-grain doses every two hours until the muscular or neuralgic pains cease; two or three doses generally prove sufficient. Some prefer to give stimulant with these drugs, as it hastens their action and counteracts any depressing effects. When the muscular pains are obstinate, salol (five grains) or salicylate of sodium (fifteen grains) have been recommended.

A capital point in the treatment is to watch the patient, that he be not allowed to go out too soon, for cases are not rare where, after a light attack, exposure to cold has been followed by fatal pneumonia.

We can but just allude to MacLagan's treatment of influenza by salicin in large doses. This writer reports a series of cases which, he maintains, go to show that salicin in doses of twenty grains every hour for five or six hours, then every two hours for a day, "arrests the course of the disease as effectually as it does that of acute rheumatism when given in the same manner." In all his reported cases the cure was rapid, "the temperature falling to the normal, and convalescence commencing in all within twenty-four and in most within twelve hours of the commencement of the treatment."

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

\* *Bull. et mém. de l'Académie de médecine*, June 16, 1891.

Original Communications.

A CONTRIBUTION TO  
THE SURGERY OF THE ŒSOPHAGUS.\*

By ARPAD G. GERSTER, M. D.

In the summer of the year 1878 a Polish Hebrew peddler, hastily swallowing a piece of beef stew, was suddenly choked by a hard body, which he felt entering and become arrested in his gullet. The initial dyspnœa disappeared, but constant pain was felt in the œsophagus, which was acutely augmented by efforts at deglutition. Only liquids could be swallowed.

The medical man whose aid was sought for the relief of the sufferer first attempted to ram the foreign body down into the stomach. The pain felt by the patient was so intense that these attempts had to be given up. Emetics were then administered, and when these had failed to bring up the foreign body, large doses of castor oil were given by mouth and *per rectum*. Thus five days passed by. On the sixth day after the accident the patient was examined by the writer of this paper. Considerable fever and an anxious expression were observed, and dysphagia and a constant pain low down in the neck were complained of. Liquids could be swallowed with difficulty, solids not at all. The œsophageal sound was arrested at a distance of nine inches from the lower incisors by a hard, immovable body, which did not permit its passage lower down. A long curved œsophageal forceps was passed, and it was very easy to grasp the body, but whenever an effort was made to dislodge it, the instrument slipped off. Evidently the body was so firmly impacted that any endo-œsophageal methods at extraction were hopeless; hence immediate œsophagotomy was earnestly recommended. The patient was admitted to one of our city hospitals, where he lay unattended for five days more. On the sixth, external œsophagotomy was performed, the patient then being very feeble from high fever and the lack of nourishment. The gullet was opened without much difficulty, but the extraction of the foreign body was accomplished even then with very much trouble, on account of its size and shape. It was a triangular and equilateral piece of bone, each side being about an inch and three quarters long, and its thickness about half an inch. The bone emitted a fetid odor, and some blood escaped from the gullet after its extraction. The external wound was left partially open.

The fever from which the patient had suffered before the operation did not abate: the entire wound became septic, ill-smelling, and coated with a yellowish deposit, and five days after the extraction, in the night, he bled to death from the internal jugular vein, the wall of which had sloughed extensively. The slough was detached in the night and, before aid could be summoned, the patient had died.

The lesson drawn from this case was too drastic to be forgotten. It taught the perniciousness of delay in extracting impacted foreign bodies from the œsophagus, and the uselessness of a late operation.

Here the foreign body was very large, very unfavorable for a safe passage, and its sharply projecting angles were extremely dangerous during attempts at dislodgment and extraction. But is the presence of a less angular body—such as, for instance, a coin impacted in the œsophagus—free from danger?

Let the following history answer this question:

Frederick P., a year old, exhibited symptoms of an intense tracheal stenosis, principally *obstructing expiration*. The patient came under the care of the writer on March 6, 1886, by the kindness of Dr. Boldt. Tracheotomy was done at once at the German Hospital without relief. On March 10th the child died of pneumonia. On autopsy, a brass trousers-button was found imbedded in old cicatricial tissue between the trachea and œsophagus, midway between the cricoid cartilage and the bifurcation. An open communication existed between the two tubes. The button was held in place by a rim of cicatricial tissue in the œsophagus, its free lower margin projecting downward into the lumen of the trachea like a valve. Thus, inspiration found no impediment, but on expiration the valve was raised and extreme expiration stenosis was the result. The parents remembered that weeks before the child had swallowed a button, but, no trouble being noticed then, the matter had been forgotten.

The study of an excellent paper by George Fischer,\* in which the histories of eighty cases of œsophagotomy for impacted foreign bodies are collated, will show that, though the shape or size of the impacted body is of great importance as to the ultimate issue, the length of time during which the impaction remains unrelieved is of much greater moment. Ulceration by pressure will destroy the integrity of the mucous lining, and thus a portal for the entrance of infectious matter is opened. Phlegmonous processes accompanied by sloughing will lead to perforation into adjoining organs or closed cavities—such as the trachea, the pleura and lungs, the mediastinum, the large vessels—almost each of these complications having a fatal significance.

Twice the writer has been obliged to practice laryngo-fissure on account of extensive perichondritis caused by the penetration of a foreign body from the œsophagus. One of the histories is as follows:

Julius M., a peddler, aged thirty-nine. The previous history pointed at the lodgment of a foreign body in the œsophagus, with dysphagia, which disappeared spontaneously. Gradually dyspnœa supervened. The laryngoscope demonstrated the presence of a small irregular tumor in the larynx, the size of which did not seem to explain the intense dyspnœa. Tracheotomy was done December 18, 1886, at Mt. Sinai Hospital. On incising the trachea above the thyroid body, a granulating but dense mass, occupying the posterior and lateral aspects of the larynx just below the vocal cords, was exposed. Surrounded by this mass was found the point of a wooden skewer, an inch in length, its ends being imbedded diagonally in the tissues between the larynx and œsophagus. No open communication with the latter organ could be found by probing. The cricoid cartilage was divided, the body was extracted, and the granuloma was excised. On December 27th the tracheal tube was removed. The outer wound healed promptly, but the old dyspnœa again reappeared, so that on January 27, 1887, laryngo-fissure was performed. Moderate return of the new growth was found about the defect of the mucous membrane in which the wooden splinter had been imbedded. The probe was introduced into the aperture and penetrated downward and backward to the distance of three fourths of an inch, thin pus exuding from the sinus. Intense swelling and hyperæmia of the entire mucous membrane and submucous tissue of the larynx and adjoining trachea were noted. In view

\* Read before the New York Surgical Society, November 11, 1891.

\* *Deutsche Zeitschrift für Chirurgie*, vol. xxv, p. 565.

of the perichondritis a tracheal tube was left inserted in the wound. Subsequently during the writer's absence from town various attempts were made at wearing an O'Dwyer tube with a view to curing the stenosis, but these efforts remained futile. In June some cartilage was expelled and the patient recovered.

The second case referred to was almost identical with the one just related. The patient was operated on at Mt. Sinai Hospital in the winter of 1890. A wooden splinter had penetrated the posterior wall of the trachea at its junction with the larynx, and had caused necrosis of a considerable portion of the thyroid cartilage. After the expulsion of this the dyspnoea was abated and the tracheal tube could be dispensed with. But a rebellious tracheal fistula persisted at the site of the tracheotomy wound and was successfully closed by a plastic operation identical with that devised by Szymanowsky for the closure of urethral fistulæ.

In reviewing the vast material presented by George Fischer, we unhesitatingly come to the conclusion that, if a foreign body becomes lodged in the œsophagus and can not be displaced downward into the stomach or extracted without the employment of much force, it is imperative to perform external œsophagotomy at once. With the exception of cases in which a goitre or cervical tumor impedes the otherwise simple steps of the operation, the procedure as now practiced is comparatively safe, its rate of mortality for all cases, recent and old, good and bad, being computed by Fischer as twenty per cent. The conditions are parallel to those existing in strangulated hernia. *An early operation is safe; a late one dangerous and very often useless.* Delay extending over twenty-four hours is never justified, and if at the end of this period extraction by bloodless processes is not easy, the gullet ought to be cut at once.

Tedious and often-repeated attempts at dislodgment, in a case where impaction has been present for more than twenty-four hours, are apt to be more dangerous than œsophagotomy. The patient's general condition is usually bad from fever and starvation, and the depressing effects of the manipulations in the fauces and œsophagus, productive of nausea and vomiting, are not to be slighted. Finally, the further injuring of the mucous membrane in the presence of septic ulcerative processes or sloughing, and the probability of causing *traumatic* perforation, are to be well weighed.

As regards the technique of œsophagotomy, the following points have to be observed: The incision should be ample, to permit comfortable operating without the employment of much traction and bruising of the organs exposed. Blunt methods of division are to be shunned, as torn tissues are not so viable as cut ones and are apt to succumb very easily to septic influences that may proceed from an ulcerating or sloughing œsophagus. The incision should be just in front of and parallel with the anterior border of the left sterno-mastoid muscle, beginning a little below the level of the cricoid cartilage and extending to the sternal insertion of the muscle. The omo-hyoid is drawn aside, and the lateral margin of the thyroid gland is exposed to serve as a guide. The large vessels should remain undisturbed within their common sheath, and are to be drawn backward and aside, together with the sterno-mastoid. Dissection should proceed between two mouse-tooth forceps.

Thus vessels crossing the tract of the incision can be recognized and secured before being cut. Should the sternal portion of the sterno-mastoid be in the way, it may be cut also. The recurrent nerve must not be injured. The œsophagus can be recognized by the longitudinal direction of its fibers, or, if this is difficult, by protrusion practiced with a metallic catheter or urethral sound from within. It is incised between two small, sharp retractors, and fillets of silk are passed through the edges of the cut, by which manipulations within the viscus are made much easier. In the absence of septic complications—and this may be fairly expected in cases receiving early attention—the edges of the œsophageal wound should be stitched at once with fine silk. The outer wound is to be packed loosely with iodoform gauze. A few silk-worm-gut stitches may be inserted into the cutaneous edges of the wound, which, however, is to be closed only after the removal of the packing. In these cases alim-entation by the mouth can be commenced at once with liquid substances, and the patient should swallow very small quantities and while lying on the right side. Minute leakage will often occur, but will not interfere with the rapid healing of the wound. In those cases where ulceration or sloughing has occurred, suture is often impracticable and rarely safe. The open method by packing is in order, and large defects may necessitate the use of the stomach-tube, which can be inserted through the wound or by the mouth or nares.

The following cases may serve as illustration of these remarks:

CASE I.—Margaret Kurtz, aged nine years, swallowed a bi-convex tin whistle on March 22, 1889. The family attendant, Dr. Katzenmayer, had made a large number of unsuccessful attempts to dislodge and remove the body, which could be easily reached by the mouth. On March 29th the writer took charge of the patient at the German Hospital. The foreign body could be easily grasped by suitable forceps, but would yield neither to traction nor pressure. It was firmly held in the region of the thoracic aperture. Œsophagotomy was done at once under chloroform. When the body was grasped through the wound with a short, stout forceps, considerable manipulation was needed to change its position and to extract it. The œsophagus was sutured; the outer wound packed. Alim-entation with milk began the next morning. No leakage. Thirteen days after the operation the patient was discharged cured, without having had any febrile disturbance.

CASE II.—Samuel Brisander, two years old, swallowed a penny on March 28, 1889. Since then only liquids could be swallowed. The child complained of pain in the abdomen. Eleven days after the accident the patient was admitted into Mount Sinai Hospital. On April 9th—that is, on the twelfth day—the writer examined the child in anæsthesia. There was no fever. A metallic body could be identified by click seven inches and a half from the lower incisors, but all efforts at its dislodgment or extraction were futile on account of the smallness of the space. Fearing that an ulceration was present, no attempt was made to push the body into the stomach. Œsophagotomy was at once performed in the usual manner. The penny, which was very firmly grasped by the walls of the œsophagus, was dislodged and extracted, not without difficulty. The œsophagus was sutured, the outer wound packed, and nutrition commenced at once. Slight leakage was noted on the third day after the removal of the first packing, but in three days more it ceased.

No febrile or local reaction was observed. On April 14th the child became sick with the measles, and, though the wound had healed kindly within a fortnight, the patient's discharge was delayed till May 11th by this complication.

It can be fairly assumed that most œsophagotomies performed early and with the proper observance of technique would yield as favorable results as the ones here recorded. The dangers caused by the impacted body, especially if it is jagged and prone to putrescence, are infinitely greater.

Though no œsophagotomy was performed in the last case, to be reported presently, yet so many points of interest and importance are illustrated by it that it deserves to be put on record.

CASE III.—Fanny Stiner, forty-three years old, a poorly nourished, anxious-looking woman, had swallowed a fish-bone on April 1, 1889. Since then she had felt considerable pain in the left side of her throat and been unable to swallow anything but liquids. On April 9th a painful swelling was observed corresponding to the left lobe of the thyroid gland, which extended well backward under the sterno-mastoid muscle. Though the body temperature was normal, the woman showed a state of marked depression, with a rapid and small pulse, and her respiration was markedly stridulous and embarrassed. Search was made in the œsophagus for the foreign body ineffectually. As subsequent events showed, it could not be found there because it was not there. Chloroform being administered, the posterior edge of the thyroid gland was exposed as in œsophagotomy. It was found that the left lobe of the thyroid gland was tumescent and very hard. With an aspirator extremely fetid pus was withdrawn from the gland, whereupon this was freely incised and about two ounces of ichorous pus were evacuated from a cavity, the inner wall of which was formed in part by the left lateral aspect of the trachea and œsophagus. From the bottom of this cavity was extracted a fish-bone which apparently had found its way there from the œsophagus. The cavity was packed and the wound treated by the open method. Recovery was slow, though the reaction was mild, and the swallowing rapidly improving. On May 10th the patient was discharged cured.

The great importance of an early incision of phlegmonous foci caused by perforating foreign bodies originally impacted in the œsophagus need not be insisted on at this date. Waiting for the appearance of fluctuation is too risky on account of the destructive character of the inflammation, and a methodical dissection guided by anatomical knowledge is the only proper thing.

## THE PROGRESS OF CYSTOSCOPY IN THE LAST THREE YEARS.

By WILLY MEYER, M. D.,

ATTENDING SURGEON TO  
THE GERMAN AND NEW YORK SKIN AND CANCER HOSPITALS.

(Continued from page 119.)

### II. CYSTOSCOPY WITH REFERENCE TO DISEASES OF THE BLADDER.

To give an accurate account of everything of interest that has so far been seen in the bladder and published is a difficult task and one of no intrinsic value. The literature

on cystoscopy, which has appeared mostly within the last three years, is already very large. Nitze's so often mentioned fundamental and instructive *Text-book on Cystoscopy*, Hurry Fenwick's valuable, lucid, and extremely interesting work, *The Electric Illumination of the Bladder and Urethra*, as well as also many other articles bearing on the same subject, written by different men, fully cover the ground. The appearance of these writings within the very last years renders an attempt in this direction at my hands a work of supererogation. The manifold brilliant results as enumerated in this part of medical literature demonstrate how often and sometimes easily an exact diagnosis of a previously obscure urinary disease can be and has been established with electric illumination of the bladder. These results fully sustain Nitze's original statements and predictions in every particular—namely, that the present electric illumination of the bladder gives us the means of establishing a strict differential diagnosis between the various forms of catarrh of the bladder—acute,\* chronic, hæmorrhagic, diphtheritic; that it is easy to see with it ulcerations, to demonstrate diverticula, to find and localize foreign bodies; that it seems almost unnecessary to mention how plainly we can now see stones, make out their number, size, shape, and mobility, and percuss them with the beak of the instrument; how encysted stones, too, will not escape the examining eye; that especially the diagnosis of tumors of the bladder is now easy and can be made early.

It is obvious how strongly this exact diagnosis at once reflects upon prognosis,† indication, and treatment. Not infrequently an unnecessary operation can thus be avoided. Certainly it has been sufficiently established that if any doubt exists of the diagnosis in a case of vesical disease and the three cardinal conditions which enable a cystoscopic examination to be made ‡ are fulfilled, it is the duty of the attending physician to submit his patient as early as possible to this ocular inspection. This on the same ground as he would look with the help of a mirror at the interior of the larynx, eye, nose, or ear in their respective disorders.

A few cases of my own, each representing a different chapter of vesical disease, selected from a large number of interesting cystoscopies, perhaps deserve to be briefly reported in this place. In every one of them (the one sub *a* alone excepted) the cystoscopic diagnosis was verified in the subsequent operative interference. I shall omit cases illustrating the various forms of catarrh (localized and general) and the hypertrophy of the lateral lobes of the prostate, although they were frequently met with.

\* In cases of acute catarrh the use of the cystoscope is, of course just as much to be prohibited as that of a catheter or sound.

† Fenwick believes he has seen and found a peculiar condition of the vesical mucous membrane which he calls "pre-cancerous." *The Elect. Illum.*, etc., p. 153; also *Brit. Med. Journal*, September 22, and October 13, 1888.

‡ 1. The caliber and shape of the urethra must permit of passing the cystoscope into the bladder. 2. There must be sufficient capacity of the bladder (average = 5 ounces). 3. The fluid in the bladder must be transparent, at least during the time of examination (cf. irrigating cystoscope). See author on Cystoscopy and the New Cystoscopy of Nitze and Leiter, with a Demonstration of the Same, *N. Y. Med. Journal*, April 21, 1888, p. 429.

*a. Tuberculous Ulceration.*—Mr. H. C. E., aged forty-five years, married, came to me for examination through the courtesy of Dr. L. G. N. Deanslow, of St. Paul, in April, 1890.\* Twelve years ago first pain in glans penis, which in the following ten years often gave rise to trouble. Two years and a half ago first appearance of blood and mucus in urine, with increased pains in glans. November, 1889, a large, painful swelling in the right lumbar region, which had formed under considerable rise of temperature, nearly disappeared after the passage of a large quantity of pus with the urine. One month later last hæmaturia at the end of micturition. Present condition: Greatly reduced man; pains in glans penis if bladder is full. Urinates every two hours day and night. No tenesmus, no stoppage. Right kidney palpable, slightly painful on pressure. Urine only slightly turbid; contains a large amount of tubercle bacilli in every microscopical specimen. Cystoscopy (Nitze's cystoscope, No. 1): Immediately above the swollen mouth of the right ureter and its elevation of mucous membrane an ulcerated spot of about the size of two silver dollars appears. Purplish-red, broad elevations (evidently the inflamed fibers of the detrusor muscle) cross each other in different directions. Small particles of snowy, shining mucus, adherent to their surface, float in the fluid. The depressions between these elevations are of a lighter hue, also covered with mucous flakes. In between them numerous very small and larger sessile growths of grayish coloring are plainly visible, a few about as large as a pin's head, undoubtedly *miliary tubercles*. On one spot a small rhomboid-shaped, dark-red (hæmorrhagic) spot can be seen. The entire other inner surface of the bladder is perfectly normal, of grayish-white color, rather anæmic, corresponding with the condition of the patient† As I was informed by Dr. D. some time ago, the right kidney was lately removed, with great benefit in regard to the patient's general condition. It had been converted into a large pus-sac.

*b. Diverticulum.*—Mr. J. P., aged sixty-four, had come under my care in the summer of 1888 on account of an intense catarrh of the bladder, due to hypertrophy of the prostate of long standing. Urine of fætid smell, voided every few minutes. Cystoscopy (Leiter, No. 1). Mucous membrane of dark-grayish appearance, nearly black. Shreds of mucus and necrotic tissue adherent to the wall, floating in the injected water. No diagnosis made. Subsequent examination of urine showed a far advanced diabetes which so far had not been diagnosticated. Strict antidiabetic regimen brought comparatively quick relief. Cystoscopic (probable) diagnosis then advanced: diabetic superficial gangrene of the mucous membrane of the bladder.‡ About one year later cystoscopy (Nitze, No. 1) was again performed: All symptoms of chronic catarrh, *vesicæ à colonnes*; a little out-

\* Cf. the author's review of Nitze's *Text-book on Cystoscopy*, *Annals of Surgery*, June, 1890.

† It has to be stated that the cystoscopic picture of a tuberculous infiltration has not yet been established. A failure in making the diagnosis of tuberculous non-ulcerative cystitis with the cystoscope before the suprapubic incision is resorted to for clearing up the obscure trouble is no reproach to this mode of examination. If tubercle bacilli have been found in the urine before cystoscopy is tried—and they will be by far easier found, even in a relatively clear urine and if present in a very minute quantity, by the centrifugal method of Stenbeck, modified by v. Frisch (*Zur Diagnose der tuberkulösen Erkrankungen der Urogenitalsystems*, *Internat. klin. Rundschau*, 1891, Nos. 28–30)—a localized hyperæmic spot of the vesical mucous membrane seen through the cystoscope has to be diagnosticated as being most probably one of tuberculous character (tuberculous infiltration). It is to be hoped that such cases, if made out in this manner, will henceforth be published in detail.

‡ Author, *N. Y. Med. Journal*, February 23, 1889, p. 20.

ward of the mouth of the left ureter a large, dark spot of about a five-cent piece is seen. Its lining mucous membrane is wrinkled. The light of the cystoscope is then turned off and the tip, posted right in front of this spot, gently pushed forward. It evidently enters a cavity but touches no concrement. Diagnosis: diverticulum. Operative interference for the hypertrophy of the prostate is not proposed, as patient is satisfied with the use of the catheter. Strict antidiabetic regimen. Two years later patient has to catheterize himself every fifteen to twenty minutes; constant pain, fever, seven per cent. sugar. Epicystotomy becomes imperative and shows a large diverticulum at the diagnosticated spot filled with phosphatic *débris*.

*c. Foreign Bodies.*—B. v. P., aged forty-one, was admitted to the German Hospital on May 22, 1888.\* He had always been a healthy man up to three years ago, when left renal colic with hæmaturia had first appeared. The latter had been intermittent since then. Frequently the first drops were mixed with blood during micturition; then the urine was clear. Now and then he passed pure blood. According to the advice of one of the gentlemen whom he had consulted abroad, he had for a long time had his bladder flushed daily with a mild solution of permanganate of potassium. Two months before entering the hospital a severe catarrh of the bladder had set in. With great strain small particles of a semi-solid substance had now and then been voided through the urethra. Frequent stoppage of flow of urine; great pains; morphine habit. On examination, the searcher did not strike stone. Urine, muddy and of alkaline reaction, contains three per cent. albumin. Under the microscope: red blood-corpuscles, pus and mucus, no casts. A tumor of about two fists' size with a smooth surface, evidently belonging to the left kidney (tumor or pyonephrotic stone-kidney?), can be palpated in the left hypochondrium of the anæsthetized patient. Cystoscopy under chloroform (Nitze, No. 1): As soon as the instrument had entered the bladder and the light had been turned on, I saw a few (six to eight) curiously shaped more or less flat curved bodies of black color, covered with whitish deposits of phosphates. Stirred up by the outflowing streams of urine from the ureters, they constantly tumbled over each other and were thrown against the beak. No click, however, was noticed; their consistence was soft. Besides these bodies there was no stone, no tumor, only evidence of catarrh.

To establish a diagnosis with reference to the nature of these bodies from this cystoscopic picture was entirely impossible. None of those present had ever seen anything like them. The most probable supposition seemed to be that of coagulated blood, which had descended from the left kidney. Still the semi-solid condition and peculiar shape of the bodies remained unexplained. Nevertheless the result of cystoscopy was highly satisfactory. The cause of all the vesical trouble had been found. No searcher, no bimanual palpation could ever have accomplished anything like it. When the bladder was incised—above the pubes—about eight bodies of various size could be easily extracted. They were of a semi-solid, black substance, flexible, and covered with phosphatic deposits, just as they were made out through the cystoscope. Chemical analysis showed that they consisted of sixty per cent. fibrin and forty per cent. permanganate of potassium.

*d. Stones.*—CASE I.—Mr. D., fifty three years old, † merchant, for several years troubled with chronic gastritis, was seized with pain in the glans penis and in his left lumbar region in the fall of 1886. After three days the pain left him and did not return until a year later, September, 1887, when he developed symptoms of stone in the bladder. Neither hæmaturia nor stoppage

\* *N. Y. Med. Journal*, 1889, p. 198.

† *Ibid.*, p. 199.

of the flow of urine had ever been present. A thorough examination with the searcher repeatedly performed at that time by a very able surgeon failed to detect stone, and the patient was therefore put on suitable internal medication. But as his condition got steadily worse, his family physician courteously sent him to me for cystoscopy June 11, 1888. The patient's bladder being extremely irritable, and examination with the searcher having been accompanied and followed before by great agony, I yielded to the patient's urgent request and immediately introduced the cystoscope (Leiter, No. 1). Having turned the instrument 180°, thus directing the prism toward the fundus of the bladder, I saw at the first glance in brightest illumination an oval-shaped, brownish body covered with white spots (evidently phosphatic deposits) of the size of an almond, lying in the pouch behind the enlarged prostate. It threw a distinct shadow upon the opposite wall of the bladder. I then turned off the light and touched the body with the tip of the instrument. I got an unmistakable click. The bladder otherwise presented symptoms of catarrh. The ureteral openings emitted a clear and transparent fluid. No further special attention was paid to the character of the jets of urine coming from the ureters at that time, as no symptoms indicated a diseased kidney.

Suprapubic lithotomy was performed and the stone easily removed. It presented the characteristics as seen with the cystoscope.

CASE II.—Mr. X., always healthy, is suddenly unable to urinate. A doctor tries to introduce a soft-rubber catheter, but does not succeed. When I saw the patient in consultation my perforated sound struck a hard substance just at the neck of the bladder, which slipped back into the viscus. Nearly two quarts of urine were voided. The patient then was all right. Three days later retention for a second time set in, and was again relieved by catheterization. I was convinced that there was a small stone in the bladder, but was unsuccessful in striking it with the searcher. The cystoscope (Nitze, No. 1), of course, gave at once evidence of a small, uneven concretion, about half an inch long, not unlike a small dried bean. I proposed to try and aspirate it with Otis's evacuator. Meanwhile the stone again blocked the urethral canal, but, with the help of a sudden forcible strain, was expelled, to the greatest delight of the patient. Its characteristics were found as stated in my letter to the colleague.

*e. Hypertrophy of the Median Lobe of the Prostate.*—X., aged seventy, relies entirely upon catheter, which has frequently to be passed. Passage attended by difficulty and pain. Two strictures—one in the anterior, the other in the posterior portion of the urethra—had been divulged about a year before, and then the bladder carefully washed for some time. Urine was clear—no blood, no pus, no albumin, no casts; great local distress. Cystoscopy (Nitze, No. 1, long): In introducing the instrument its handle had to be pressed far down before the beak enters the bladder. A slightly hypertrophied third lobe, of about half to three quarters the size of the third phalanx of the middle finger, is easily diagnosed; the bladder presents a *vesicæ à colonnes* in a most beautiful manner. Soon afterward suprapubic cystotomy was performed by another surgeon. The third lobe was found as diagnosed, and pinched off with the rongeur.

*f. Tumors.*—Out of a greater number of these cases I cite the following two, which may serve as paradigms:

CASE I.—Mr. X., aged fifty-three years,\* was seen by me in consultation on March 20, 1890. For six months he had nearly continuously passed bloody urine without submitting to a close

examination. He had suffered from frequent forcible micturition and intermittent pain in the glans; otherwise he had felt comfortably. Repeated careful chemical and microscopical examination only showed red blood corpuscles and mucons cells, never a particle of a new growth. Bimanual palpation was very difficult, and also promised no result on account of the patient's great corpulence and marked hypertrophy of the prostate. I therefore immediately resorted to cystoscopy. As a hypodermic of morphine, with local cocaine anæsthesia, did not quiet the irritable bladder, the patient was narcotized. Now I saw in brightest illumination a round sessile growth with an uneven surface, not unlike a large round strawberry, on the left wall of the bladder, about an inch above the mouth of the left ureter. I very plainly observed that blood was oozing out of its surface. The other portion of the interior of the bladder appeared to be healthy; there were symptoms of a slight catarrh.

Diagnosis.—Cancerous sessile tumor of the bladder.

Suprapubic cystotomy, March 25, 1890 (performed as usual in Trendelenburg's posture). Growth, on the spot localized before, presented all the characteristics as formerly diagnosed with the cystoscope. It was, with the adjacent parts of the wall of the bladder, cut out with the knife by an ellipsoid incision. The base was then carefully burned with Paquelin's thermo-cautery. Uninterrupted recovery. No recurrence till date.

CASE II.—Mr. J. B., aged forty-eight years, had been in perfect health up to May, 1889. At that time he had a sudden and causeless attack of hæmaturia, which ceased as suddenly after forty-eight hours, but only to return after a few weeks. The bleeding then became intermittent, appearing first about every one, two, or four months, later in as many weeks. Pain in glans and frequency of micturition also were experienced. January, 1890, retention caused by clots. The catheter brought relief, but started catarrh. The patient had consulted different doctors, but only irrigation had been advised. One colleague proposed suprapubic incision without having strictly diagnosed the case. Cystoscopy on May 12, 1890 (Nitze, No. 1); five ounces thrown in. On turning the beak to the left side and slightly directing the prism toward the floor, a large, cock's-comb-like, pinkish-red tumor is at once detected. Deep, irregular furrows divide the surface into larger and smaller, uneven, and lobulated areas, which bleed when touched with the beak of the instrument. The growth is planted on a thick and succulent base, a little outside of the left ureteral orifice, and embraces an area of at least a silver dollar. Illuminated by the electric light—the peaks and plateaus in brightest sunshine, the many irregular wounded valleys, out of which a few trickling streams of blood slowly find their way, in dark shade—the appearance of the whole succulent, erect, and pulsating growth was picturesque in the extreme. Nearer to the fundus and the median line a second smaller tumor is seen about as large as a cherry. The interposed portion, as well as the whole of the interior of the bladder, appears healthy.

Diagnosis.—Cancer of the bladder, still extirpable.

When the bladder had been opened above the pubes, the condition corresponded exactly to my cystoscopic diagnosis, which I had before explained to the gentlemen who kindly assisted me during the operation. The large tumor was shelled out in healthy tissue with Paquelin's thermo-cautery knife. Two large spurting arteries which entered the base of the growth and fed it were ligated with medium-sized silk, as catgut seemed unreliable and the bladder was to be drained. They could be easily tied, as they had been torn about an inch above the inner bladder surface. The smaller cancer was cut out with the knife and its insertion carefully burned. Tamponade with iodoform gauze; drainage for twelve days. Quick recovery. Seven

\* Cf. *Annals of Surgery*, l. c.

months later I had to extract a longitudinal small stone from the patient's urethra. Nucleus: a silk ligature! Seven weeks later the patient again called on me on account of great distress and hæmaturia. On introducing the cystoscope I saw in the fundus a stone, of at least almond-size, covered with mucus and phosphates, and in the upper inner angle of the flat, whitish, shining scar (the result of the former operation) a small, stalked recurrent growth, of cauliflower shape, overhanging the mouth of the ureter and swaying at every eddying rush of the ureteral streams.

In view of this complication, I proposed and performed suprapubic cystotomy for a second time. The stone was easily removed (its nucleus was the other silk ligature), and the bleeding spot, where the recurring tumor had been inserted, thoroughly burned. To-day patient is doing well. (This case will soon be published *in extenso*.)

Before closing this section I ought to say that the cystoscopic diagnosis in bladder diseases is not at all always so easily made. First of all, it must be borne in mind that this ocular inspection can not be applied in every case, and that, if it can be resorted to, it requires *in praxi* a great deal of patience and, to avoid mistakes, also experience. The three cardinal conditions which alone guarantee a successful examination should be carefully investigated *before* the instrument is introduced. If one of them can not be fulfilled, a failure may be expected. Although I am well aware that we may be able to make a correct diagnosis, after some experience at least, with only from three to four ounces of water in the bladder, still I have made it a point—and I would especially give this advice to the beginner—always to try and have five ounces thrown in. We know, from Nitze's investigations, that this amount just expands all the folds and grooves of the intravesical surface. The only exception from this rule I make is in cases of supposed tumor of the bladder with obstinate hæmaturia, but without a marked vesical catarrh. Here the cystoscope is introduced as soon as the bleeding has ceased, and probably a sufficient amount of urine is in the bladder. Washing will frequently start the hæmorrhage again. (If we wish to increase the capacity of the bladder, we must inject the fluid forcibly with the syringe, and not use the irrigator; and even then we may sometimes be unsuccessful.) Only in this way, by training our eyes to inspect the surface of the properly and more or less always equally expanded viscus, can we hope to learn by and by how to avoid the many pitfalls which await the cystoscopist. If the surface of the prostate begins to bleed at the slightest touch of a solid instrument, I at once try to examine with the irrigating cystoscope and have the nurse throw water in while the beak passes the posterior urethra and neck of the bladder.

We also have to pay attention to the magnifying power of the Nitze telescope as well as to the fact that the nearer the prism the larger the object. If after a careful examination and deliberation there is still doubt with reference to explaining and identifying the image observed, a second cystoscopy should be insisted upon.

Lastly, the cystoscopist should accustom himself, especially in cases which he sees in consultation, first to obtain a thorough history, then to make a general examination, especially with reference to tuberculosis, to carefully analyze

the urine, to palpate the lumbar region of each side, the testicles, and the prostate, and test the caliber of the urethra. The operator should always start with the case as if he did not yet possess the cystoscope to enable him to view the interior of the bladder. He should push his means of diagnosis as far as possible by rational signs and examination of the urine. But the first instrument he then takes in hand should be not the sound, but the cystoscope. Only when a stone in the bladder is strongly suspected should the sound be used first.

Here are a few examples, for the beginner as well as for him who uses the cystoscope without a previous general examination, as just explained, and also possibly fails to read the literature beforehand and thus benefit by the experience of others:

He will easily take the taggy shreds of necrotic tissue, hanging at the edge of a tuberculous ulcer and floating in the fluid, for a polypus, without at all noting the ulcer, especially if the prism is brought close to it (the experienced and careful examiner has probably found before tuberculosis of the testicles, or an enlarged kidney, or tubercle bacilli in the urine, or such a detritus under the microscope which will lead him to suspect the existence of an ulcer and thus make him look out for it); he will take the prolapse of the ureter for a sessile growth (but if the prism is carried near by, this growth is entirely transparent, and on careful inspection it will be seen that out of one spot of its perfectly round and smooth surface a whirl of urine will suddenly be expelled).

He will take an incrustated growth for a stone (a touch with the beak will quickly dispel any doubt); a deposit of coagulated blood around one of the ureteral cones will perhaps puzzle him (the experienced will take it as a hint at hæmaturia of renal origin, most probably on the same side), as will also the picture of the enlarged median lobe of the prostate.

Success will not be with him if the just injected clear fluid turns murky at once after a long-continued irrigation, or is found to be so as soon as the cystoscope has entered the bladder. (The experienced man at once suspects kidney trouble, will exchange the ordinary for the irrigating cystoscope, and watch, after a quick glance at the interior of the bladder, the ureteral orifices. Most probably pains or the already palpated swelling in one lumbar region will guide him on which side to look first.)

Of course an infiltrated spot in the wall of a bladder which can not be properly distended, or greatly hypertrophied and easily bleeding rugæ in a case of localized chronic catarrh, will also easily mislead the well-trained eye and induce one to diagnosticate a tumor where the suprapubic incision will merely show infiltration. Also many other mistakes may occur. But they will become rarer with increasing experience; and if, nevertheless, they still occur, the physician may console himself with the reflection that mistakes occur just as often and as easily in the other and older branches of surgical diagnosis.

(To be concluded.)

## DISEASES OF THE URINARY APPARATUS.

By JOHN W. S. GOULEY, M.D.,  
SURGEON TO BELLEVUE HOSPITAL.

(Continued from page 128.)

## PART I.—PHLEGMATIC AFFECTIONS.

## SECTION II.—SPECIAL CONSIDERATIONS.

## XI.

CONSEQUENCES OF ACUTE URETHRITIS CONTINUED; GONOCYSTITIS, TRACHELOCYSTITIS, PYELITIS, SEPTICÆMIA, PYOSAPRÆMIA, AND RHEUMATISM.

THE investigations upon which is based the part of this conference relating to the seminal vesicles began in 1879, but were interrupted by other occupations, and were not resumed until the year 1889. The majority of the dissections exhibited were made during 1889, 1890, and 1891. The specimens for dissection were kindly contributed by a number of medical friends interested in pathology.

GONOCYSTITIS—phlegmasia of the seminal vesicles—is of much more frequent occurrence than is generally supposed. It exists more commonly as a chronic affection, often associated with trachelocystitis and prostatitis, for both of which it is very frequently mistaken.

Most practicing physicians have had their share of cases of chronic urethral discharge accompanied with phenomena variously styled “genital hypochondriasis, sexual neurasthenia, diurnal spermatorrhœa, sterility, impotency,” etc. The majority of these are cases of chronic gonocystitis. Their cure is very difficult, slow, uncertain, and sometimes impossible. It is not easy to persuade the patients that the disease is local and that there is no great danger of implication of other organs. Dwelling much upon and magnifying their infirmity, their moral condition is soon not a little impaired. They are often unheeding of good advice, and, after having “gone the rounds” of the regular profession, fall into the meshes of greedy charlatans, while some of them end their days in asylums for the insane.

In its acute type gonocystitis frequently occurs as one of the consequences of urethritis with orchitis. It is then very often overlooked, because the phenomena of the orchitis occupy so much of the attention of the patient that the subjective symptoms referable to the region of these vesicles are masked by those of the orchitis. Therefore, in order to ascertain the existence or non-existence of acute gonocystitis, it is necessary to put well-directed questions to patients suffering from urethritis and consecutive orchitis accompanied by abnormal sensations in the intrapelvic organs. Prior to the further study of this phlegmasia it may be advantageous to rehearse the main points of the anatomy of the parts involved.

THE SEMINAL VESICLES, PHYSIOLOGICALLY CONSIDERED, are diverticula of the spermatic canals serving as reservoirs of the semen in man and most of the mammalia, notwithstanding the opinion of John Hunter to the contrary. The assertion that the seminal vesicles are physiologically diverticula of the spermatic canals is based upon the following

facts: The dilated part of the spermatic canals corresponding in longitudinal extent to the seminal vesicles is identical in structure with the seminal vesicles; the same kind of fibrous, muscular, and mucous coats exist in both; the mucous coat is rugous and reticulated and lined with the same kind of epithelium in both; the same kind of mucus is secreted by the same kind of mucous glands in both; certain expansions and diverticula are found in both; concretions abound in both; and both are tubular in character. The anatomical differences are: The tube of the vesicles is more convoluted than the spermatic canals; the walls of the vesicles are thinner than those of the spermatic canals; the caliber of the tube of the seminal vesicles is greater than that of the spermatic canals; and the seminal vesicles have twice as many pouches as the spermatic canals. Each vesicle is therefore only an extension of the spermatic canal. In some animals—the dog kind, for instance—there are no seminal vesicles, the slightly expanded extremity of the spermatic canals doing all that is necessary toward diluting the semen before it reaches the prostatic region of the urethra. The seminal vesicles of a horse dissected in 1890 do not consist, as in man, of a single convoluted tube with diverticula, but each vesicle is an oblong sac capable of containing at least two ounces of fluid. The mucous membrane is rugous at the posterior extremity of the sac; the remainder is smooth.

One vesicle lies on the right and the other on the left of the median line, each with a spermatic canal on its inner border, widely separated posteriorly and converging anteriorly to the base of the prostate, which is traversed by their excretory ducts, and to which their anterior extremities are closely united; the vesicles and accompanying spermatic canals forming two sides of an isosceles triangle, and being attached to the lower fundus of the bladder, with its rest upon the rectum. The close relations of the vesicles to the prostate, bladder, rectum, and peritonæum explain how these parts are liable to be reciprocally involved in disease. When, in health, the bladder is empty, the space between the posterior extremities of the seminal vesicles is two inches and three quarters in extent, but while this part of the bladder is thus increased in width it loses in antero-posterior extent, for the peritonæum descends to within half an inch of the base of the prostate; and in some cases even overlaps the base of the prostate. When the bladder fills up with urine the peritonæum ascends with it and this antero-posterior space is more than doubled, while the transverse—*i. e.*, the space between the posterior extremities of the seminal vesicles—loses three quarters of an inch.

Each vesicle has a proper fibrous tunic, and the two have besides a common fibrous envelope containing a considerable amount of smooth muscular tissue, which connects them superiorly with the bladder, while they are attached to the rectum by loose connective tissue. The vesicles derive their nutrition from branches of the inferior vesical and middle hemorrhoidal arteries. Their veins are large, and form a plexus which pours its blood into the efferent veins of Santorini's plexus, and which renders excision of the vesicles so bloody and dangerous an operation as it has proved to be. The lymphatic vessels are abundant and end

in two or three trunks on each side, which enter certain glands on the sides of the pelvic excavation. The nerves are derived from the hypogastric plexus.

The seminal vesicles are conical in general outline, their bases are rounded and in close proximity to the recto-vesical *cul-de-sac* of the peritonæum, and their apices are buried in the base of the prostate. They are slightly flattened superiorly and convex inferiorly, and when distended show very distinctly their convolutions, which are bound together by connective tissue. They measure five centimetres (about two inches) in length and when unraveled twelve centimetres (about four inches and three quarters) in extreme length, exclusive of their eight or ten diverticula. The caliber of the tube of the vesicles averages six millimetres. This tube, like the spermatic canal, is made up of three layers—an external fibrous, very thin layer; a middle, consisting of smooth muscular tissue, the thickest of the three; and an internal, mucous layer. The mucous layer is rugous, alveolar, lined with a cubical epithelium, and contains caecal glands—such as are found in the terminal part of the spermatic canals. These glands are parallel to each other, are ordinarily single, but here and there are double, triple, quadruple, or even quintuple, converging to a common duct which opens between the rugæ, the clear mucoid substance they secrete serving to dilute the semen.

Each vesicle has its excretory duct, which, uniting with the spermatic canal, forms the common ejaculatory duct, which is about sixteen millimetres in length, slightly conical in form, and opening by a slit on each side of the *veru montanum* on the floor of the prostatic region of the urethra. The caliber of the common ejaculatory duct is about two millimetres at its upper extremity, decreasing to about one millimetre at its terminal extremity in the urethra, and is extensible to a considerable degree. Its parietes are very thin as compared with those of the seminal vesicle, and its mucous membrane is smooth.

The seminal vesicles, as is seen from their peculiar construction, serve the double purpose of reservoirs of the semen and of accessory glands to the genital apparatus, their alveoli, diverticula, and convolutions preventing them from completely emptying themselves during ejaculation. In them the semen is detained long enough not only to be diluted by their mucoid secretion, but for the spermatozooids to attain full maturity. In the semen of men given to excessive sexual intercourse, immature spermatozooids have been found still inclosed in their parent cells. This seems to sustain the view that the spermatozooids do not reach perfection until they have lingered for a time in the lower part of the spermatic canals and in the seminal vesicles.

Besides secreting the mucoid substance already referred to, the seminal vesicles contain certain very small calcareous concretions, few in number and not constantly found except in disease. Civiale mentions Carmann, Riedlin, Stalpart Vander Wiel, Hartmann, Meckel, Hemman, and Baillie as having cited examples of calculous concretions formed in the seminal vesicles, and likewise names Mitchell as having found two hundred small calculi, of earthy appearance, in the right seminal vesicle of a phthisical subject. Rokitsky also speaks of the presence of calculous concretions in the semi-

nal vesicles. In addition to these calculous particles, there is a great abundance of other concretions, irregular in form and size, nearly colorless in health, amber-colored in disease, very friable, and resembling inspissated mucus. These last-named concretions, whose use is unknown, were carefully studied by Ch. Robin, who called them *sympexia*, which means concretions, and who thought them analogous to the concretions found in the thyroid body, the spleen, the glands of the uterus, the lymphatic glands, and the prostate. These *sympexia* are found in great quantities also in the expanded extremities of the spermatic canals. Microscopic in dimensions, they are lodged in the alveoli of the mucous membrane, increase in size from phlegmasia of this membrane, and become sources of further irritation, and even obstruct the excretory duct, as observed in some of the specimens exhibited. In these specimens they vary from one to four millimetres in mean diameter, and among the specimens illustrating chronic gonocystitis many are oblong, like grains of rice, three by eight millimetres in dimensions. The large *sympexia* sometimes consist of aggregations of small concretions cemented by pus and imprisoning spermatozooids, blood, and epithelial cells. They fly to pieces on slight pressure.

The normal seminal vesicles of a man, aged thirty-nine years, who died of pneumonia, were carefully dissected and the contents of the left vesicle examined microscopically, with the following results: The fluid was viscid, of a brownish color, and consisted of mucus, with innumerable spermatozooids, spermatic cells, leucocytes, a few cubical epithelial cells, and great numbers of *sympexia* of a yellowish color, globular in form, some of them about half the diameter of red blood-corpuscles, others of nearly the size of red corpuscles. Here and there these *sympexia* were aggregated in masses from the one five-hundredth to the one three-hundredth of an inch in size.

The viscid, brownish contents of the seminal vesicles of a man, seventy-three years of age, who died of a head injury, examined microscopically, twenty-four hours after death, consisted of epithelial cells of different form; some were polygonal, some cubical, some oval; a few spermatic cells, many *sympexia* of amber-color, varying in size from one third the diameter of red blood-cells to the size of leucocytes; some of them were round, the majority polyhedral and irregular, and the smallest were often aggregated in masses of four, six, eight, or ten. No spermatozooids were discerned. Other observations gave similar results. The cubical character of the epithelium and the existence of mucous glands were verified in the vesicles as well as in the spermatic canals.

GONOCYSTITIS does not appear to have attracted much attention until Lallemand published his observations of this affection in connection with "spermatorrhœa," which is often one of its phenomena, while some form of urethritis is almost invariably its exciting cause. Civiale, Vidal, Gosselin, Verneuil, Fournier, Rapin, and other authors, French, German, English, and American, have, to a greater or less extent, discussed the question of phlegmasia of the seminal vesicles in special essays, general surgical treatises,

inaugural theses, or journal articles. Among the essays that have appeared in the last few years upon this topic is a paper with the title of Seminal Vesiculitis, by Mr. Jordan Lloyd, of Birmingham, in the *British Medical Journal*, April 20, 1889. Each of these writers has contributed his share toward the elucidation of the subject, but much remains to be done by other laborers.

Gonocystitis seems to occur with greatest frequency among men who habitually commit venereal excesses, and among those addicted to inasturbation, either rendering the seminal vesicles more or less vulnerable. This vulnerability generally consists in abnormal expansion of the ejaculatory ducts, or in persistent erethism of their mucous membrane and that of the seminal vesicles. Acute phlegmasia of the urethra in such subjects is thus propagated through the ejaculatory duct to the seminal vesicle and spermatic canal on one or both sides, generally accompanying orchitis, but sometimes without the association of orchitis, just as orchitis often occurs without involvement of the vesicle. It arises most commonly as a consequence of chronic urethritis, but violent catheterism is not infrequently its exciting cause, particularly when a very small instrument enters or tears the ejaculatory duct.

In the acute types of gonocystitis the mucous membrane of the ejaculatory duct may be swollen to the extent of occluding its lumen, or a large sympexion may be dislodged from the vesicle, forced into, and plug the ejaculatory duct, so that in either case pus may accumulate and greatly distend the vesicle whose attenuated, or perhaps ulcerated, walls are finally perforated, possibly at several points, allowing this pus to infiltrate the ambient connective tissue and to form a vast abscess pointing in the direction of the ischio-rectal fossa, of the bladder, of the rectum, or even of the peritonæum. This process belongs generally to superacute or to acute phlegmasia. In the case of subacute phlegmasia there is a minor degree of swelling; resolution being slow or failing, there follows chronic gonocystitis, interstitial as well as parenchymatous.

In the chronic type there is sometimes ectasia of the vesicles, which contain large sympexia, as shown in several of the thirty-four carefully dissected specimens exhibited, or the vesicle shrivels sometimes in an extraordinary degree, as seen in three of the specimens, and becomes useless. One specimen illustrates three interesting points: occlusion of the right spermatic canal, shriveling of its accompanying seminal vesicle, and apparently compensatory enlargement of the left vesicle and spermatic canal. Another specimen also illustrates occlusion of the right spermatic canal, but probably of recent date, because the seminal vesicle does not appear to have undergone the shriveling process.

Interstitial is generally secondary to parenchymatous phlegmasia of the vesicle and is characterized by plastic infiltration of the intertubular connective tissue. Suppuration may take place primarily in the intertubular connective tissue, but this can occur only from the destructive action of a sudden and superabundant exudate. Generally the exudate becomes imperfectly organized, undergoes sclerous degeneration, and the vesicle shrivels. Sometimes the exudate is better organized and the vesicle remains large and is some-

what indurated. Several of the specimens presented illustrate this point and show both vesicles to be considerably enlarged, hard, and filled with large sympexia. The shriveled condition of the seminal vesicles is common in cases of prostatic enlargement demanding frequent evacuative catheterism of the bladder for several years, the patients having had repeated attacks of orchitis with involvement of both vesicles.

Of sixty dissections of the seminal vesicles made in cases of prostatic enlargement, three fourths of these vesicles were shriveled and hard. The remainder, though not diminished in size, were more or less indurated. In a few instances they were enlarged, and in one case they were cancerous. In a specimen recently dissected, both vesicles were found reduced to less than half of their normal size and were nearly as hard as cartilage. A longitudinal incision made into the left vesicle showed the lumen of its tube to be reduced to about two millimetres in diameter, except at the posterior extremity of the vesicle, where its walls were attenuated, translucent, and expanded into a cyst containing three grammes of limpid fluid. The right vesicle, which was not incised, presented the same external appearances as the left. The prostate was considerably increased in size, very hard, and had for several years impeded urination. The patient died in consequence of pyelonephritis.

The symptoms of acute gonocystitis so far observed are: Almost constant painful erections of the penis; frequent and painful ejaculations of semen mixed with pus and blood, until the ejaculatory duct is occluded, when spermatic colic occurs; pain extending along the urethra to the extremity of the penis (this, however, is an index of coexistent trachelocystitis); difficult, painful, and frequent urination; burning pain in the perinæum, at the anus, and at the lower end of the rectum; a sense of tension in the rectum; rectal tenesmus; and very painful defecation. Rigors and febrile reaction, and throbbing pains in the rectum indicate suppuration. Retention of urine sometimes occurs in case of great tumefaction of one or both vesicles.

The diagnosis of acute gonocystitis is arrived at by an analysis of the symptoms, by digital examination through the rectum, and by intra-urethral instrumental exploration. The digital examination reveals more or less tumefaction, heat, and tenderness in the region of the vesicles on one or both sides as the case may be. If the swelling is in the form of a single, hard, oblong tumor extending from the base of the prostate upward, backward, and outward, the presumption is that the phlegmasic process has not extended beyond the proper capsule of one seminal vesicle. If, however, there is a diffuse, doughy swelling extending beyond the median line, it is likely that both vesicles are involved, that perforation of their walls has taken place, and that the ambient connective tissue is infiltrated. When one vesicle only is involved in suppuration together with the pre-rectal connective tissue, the pus sometimes points in the direction of the ischio-rectal fossa. In such cases the digital examination indicates the lateral deviation of the abscess. The instrumental urethral exploration should be made first by introducing a gum catheter with the object of emptying the bladder. This done, a moderate-sized rectangular steel

sound should be carefully introduced. Though the first catheterism may have given some pain, the moment the sound reaches and distends the prostatic region of the urethra and passes over the veru montanum the most acute burning pain is experienced and continues as long as the instrument is retained. Without loss of time a finger should be passed into the rectum and pressure made along the median line of the prostate in order to break up and cause the expulsion of a sympexion which may be plugging the ejaculatory duct. Several of the symptoms being common to acute prostatitis, the rectal and urethral explorations are necessary to distinguish acute gynecystitis from acute prostatitis. The connections of the ejaculatory ducts with the urethra, the seminal vesicles, and the spermatic canals explain how gynecystitis and orchitis may occur at the same time. But, as before stated, the phenomena of the orchitis are generally such as to mask those of the gynecystitis. It is therefore wise in most cases of orchitis to make by the rectum a digital exploration of the seminal vesicles, which, if found tender to pressure, swollen, and hot, should be treated accordingly.

*In the treatment of the acute types of gynecystitis* the chief indication is to prevent interstitial suppuration. For this end a similar course to that pursued in acute prostatitis should be adopted. After thoroughly cleansing the rectum, three or four leeches may be applied to its mucous membrane in the region of the affected vesicle, with the aid of a tube such as that recommended by Dr. Hughes, of Dublin, for leeching in acute prostatitis. When the well-gorged leeches have cast themselves away, irrigation of the rectum with warm water should be made until it is judged that a sufficient quantity of blood has been lost. If it is found impracticable to leech by way of the rectum, a greater number of leeches—ten or twelve—may be applied to the anal and perineal regions. Enough blood will thus be drawn to unload the congested prerectal plexus of veins. As soon as possible after either of these modes of local depletion, the lower end of the rectum should be packed with cracked ice. When the ice melts, the water is allowed to flow out, while the anus is stretched open for the introduction of more ice suppositories, a process to be repeated at least every hour while the patient is awake. These frequent applications of ice should be continued two or three days, and longer if necessary.

This antiphlogistic treatment is valuable only during the period of increase or of stasis of the phlegmasia. Begun later, it is apt to be worse than useless. If, however, it is employed at the right time and faithfully carried out, much suffering is prevented, and resolution is likely to be hastened. Otherwise suppuration occurs, and, to prevent the pus from finding an outlet which may be dangerous to the patient, the sooner a free exit is artificially given to this pus the better for his safety. The particular process of relief should be adapted to the condition of the individual and to the extent of the abscess. When it is ascertained by digital exploration that the abscess is not large but well defined on one side or the other of the median line, the presumption is that the pus has not passed beyond the boundary of the proper fibrous capsule of one vesicle. In

such a case aspiration through the rectal walls is indicated. The parts should be brought to view by means of a Sims speculum, and a slightly curved aspirating needle, not less than two millimetres in caliber, should be thrust into the abscess and the cavity quickly emptied and then well irrigated with a warm sublimate solution (one to five thousand). A single aspiration may suffice; but in case the cavity refills, the aspiration and irrigation should be repeated. If from superacute phlegmasia there is reason to believe that much necrosis of the tissues has occurred, or if the pus has broken through all barriers and has already infiltrated the prerectal connective tissue, a Sims speculum should be introduced, and a free incision through the wall of the rectum should be made into the abscess, whose cavity should be well disinfected and lightly packed with a tent of antiseptic gauze. This dressing to be renewed every day. Whenever the abscess is large, and this is generally the case when it has been of very slow development, almost chronic, it is likely to point laterally toward the ischio-rectal fossa. In that case it should be reached by the way of the perinaeum, as suggested by Mr. Lloyd. The incision may be central or lateral, and directed so as to avoid the urethra and rectum. In case of doubt—that is to say, in case, from the extent of the purulent collection, there is a suspicion that both vesicles are affected—it is wise to make a crescentic incision three quarters of an inch in front of the anal margin and deepen the cut by careful dissection between the rectum and prostate, care being taken to avoid wounding the urethra. After giving free vent to the pus, the abscess cavity should be disinfected and very loosely packed with a tent of antiseptic gauze, so that the healing process may begin at the bottom of the cavity.

**CHRONIC GONECYSTITIS.**—Though acute gynecystitis often resolves without suppuration, it becomes chronic in a considerable proportion of cases, while in a great majority of instances chronic gynecystitis begins independently of the acute types.

*The common causes* of chronic gynecystitis are venereal excesses and masturbation, both giving rise to chronic urethritis, which is the immediate cause.

*The symptoms* of the chronic are similar to those of the acute type, but the suffering is less, and there is no febrile reaction. One of the most constant symptoms is a burning, itching sensation in the perinaeum, anus, and rectum, such as occurs in the acute type, but not so intense, though continuous in some cases, and very harassing month after month and year after year. Another phenomenon is painful spasmodic contraction of the anal sphincter. When a seminal vesicle is in a chronic phlegmasiac state, there is often a persistent urethral discharge consisting of pus, a little blood, some epithelium, and a few dead spermatozooids.

Spermatic colic is another, though not very frequent, symptom of chronic gynecystitis. It is due to the lodgment of a large sympexion in the ejaculatory duct and consequent retention of semen, mucus, and pus in the seminal vesicle.

Pus intimately mixed with semen is regarded by Chris-

tian Smith as a pathognomonic symptom of chronic phlegmasia of the seminal vesicles. The only means, says Dr. Smith, of ascertaining the source of this pus is by examining the semen that has dried on the patient's linen after coitus or after an involuntary pollution. "The stain made upon linen by normal semen is of a uniform grayish-white with a darker border, which never contains any element of yellow, while in case of phlegmasia of the seminal tract the dried stain presents a more or less yellow coloring, either throughout or at the border, which is the most highly colored. When the pus originates in the urethral or prostatic crypts, its mixture is never so intimate as in the first case, and the yellow coloring shows itself in minute zones or in disseminated spots upon the gray stain."

*Progress.*—When, in the chronic type of gonocystitis, the ejaculatory duct becomes occluded, the secretions gradually accumulate and cause ectasia of the vesicle and sometimes also of the spermatic canal. Such cases are of rare occurrence, and their symptoms are not easily interpreted.

Dr. Nathan R. Smith, of Baltimore, reported in the *Lancet*, 1872, vol. ii, p. 558, with the title of Hydrocele of the Seminal Vesicle, a case of cyst of the left seminal vesicle which filled the pelvis and extended into the abdominal cavity to a point above the umbilicus, and was at first mistaken for retention of urine. The cyst was tapped by the rectum and ten pints of a brown serous fluid were drawn. In four weeks the cyst filled again and was again tapped. This time it did not refill. Reference to this case is made by Mr. Lloyd.

A remarkable example of ectasia of the spermatic canal is recorded by Troussel-Delvincourt in the *Nouveau journal de médecine*, October, 1820. The right spermatic canal formed a cylinder measuring nearly two inches in diameter, soft, smooth, filled with a thick, pulpy, yellow material, similar to that of softened tubercle. The seminal vesicles contained a similar but less consistent material.

These two are very exceptional cases, the ectasia rarely exceeding twice the normal caliber of the vesicle and canal, as shown by the specimens exhibited.

*Subacute and chronic phlegmasia* sometimes end in calcareous infiltration of one or both vesicles and spermatic canals. Among the specimens exhibited is a good illustration of calcareous infiltration of the spermatic canals.

Since *phlegmasia of the spermatic canal* is ordinarily associated with gonocystitis, sterility is one of the sequels of the chronic type when both sides are affected, the spermatozooids being destroyed by the abnormal secretions of the spermatic canals and seminal vesicles. When the two spermatic canals or the two ejaculatory ducts are permanently occluded, impotency is the result, erection of the penis being imperfect and sexual desire finally extinct.

In elderly men, as seen by the results of the dissection of sixty pairs of seminal vesicles, there is often shriveling of the vesicles from chronic phlegmasia. In younger subjects the chronic phlegmasia is generally confined to the mucous membrane and the vesicles are more likely to be dilated and filled with large sympexia. In several of the thirty-four dissections first mentioned a sympexion was found blocking the ejaculatory duct. In these younger

subjects the symptoms are ordinarily distinct, while in elderly persons they are frequently wanting, and the altered condition of the vesicles is ascertained only at the necropsy.

*The treatment of chronic gonocystitis* should consist in endeavors to cure the existing chronic urethritis, and in emptying the distended vesicle every day by pressure with the finger passed into the rectum. This may be followed by very warm enemata and the occasional use of rectal suppositories containing half a grain of belladonna extract and one grain of opium. From time to time the passage of a steel sound and digital pressure thereon through the rectum should be resorted to for the purpose of effecting the expulsion of sympexia from the ejaculatory duct. The process should be employed as well for purposes of diagnosis as for relief at the same time, the extraction of the sympexion allowing the distended vesicle to be emptied and relieving a painful spermatic colic.

TRACHELOCYSTITIS—phlegmasia of the neck of the bladder—having already been examined, needs now only to be named.

PYELITIS AND NEPHRITIS very rarely occur in consequence of acute urethritis and are generally indirectly caused by urethritis—that is to say, they are among the ill effects of imprudent treatment, such as the long continuance of balsamics in excessive doses, particularly copaiba balsam, which has been known to cause acute parenchymatous nephritis and pyelitis, and finally chronic diffuse nephritis with albuminuria. Balsamics can not be too cautiously employed in the treatment of urethritis. The use of copaiba, or any other balsamic, should be discontinued, and on no account resumed, in the cases which show their susceptibility to its toxic effects by a profuse exanthem, an articularia, or a papular eruption on the face and body. These are the cases which are likely to be complicated with nephritis. Some observers think they have detected a mild subacute pyelitis in the majority of cases of urethritis, whether acute or chronic. May not this pyelitis be owing to the heroic treatment too often employed in the management of the several types of urethritis?

SEPTICEMIA AND PYOSAPRÆMIA very seldom occur as consequences of urethritis.

*Septicæmia*—putrid infection of the blood—is due to the evolution of ptomaines or of leucomaines, the first being the product of bacterial ferments developed in parts of the body that have become putrescent from injury, the second indigenous to the body and evolved in disease independently of bacterial ferments. Septicæmia consequent upon urethritis is probably sometimes a leucomainal intoxication, and is manifested by a violent rigor with much constitutional disturbance in some cases of superacute urethritis. This intoxication may be so profound as to be uncontrollable. In all cases there is constitutional disturbance, but in the majority it is of comparatively minor intensity. The poison is apparently less virulent, but this lesser virulence is rather in degree than in kind. Nevertheless, the poison is very gradually eliminated, and the suf-

ferer—pale, emaciated, and feeble—makes a slow, lingering recovery, convalescence requiring six or eight weeks. In the first-named type of cases the indication is to insure rapid elimination of the poison. To that end free catharsis, diuresis, and diaphoresis should be promptly established, and during the action of the remedies employed the vital powers should be sustained by stimulants and reconstituents. If these means are successful, the case may be managed as in the second type, which permits the more deliberate selection of agents likely to safely expedite the elimination of the poison. The cathartics should be replaced by aperients, and the diaphoretics and diuretics should be mild, but continued two or three weeks. Five grains of chloride of ammonium thrice daily, and ten minims of tincture of chloride of iron, both largely diluted, should be given from the beginning to the end of convalescence. The diet should be mild, but nourishing and easily digested. Milk at first, then more substantial food, and generous wines.

*Pyosapræmia*—putrid pus infection of the blood—differs from septicæmia clinically and pathically. Septicæmia often occurs before the formation of pus, while pyosapræmia may not be manifested until several weeks after the infliction of a wound or the formation of an abscess. In septicæmia there are generally no secondary abscesses. In pyosapræmia, infective thrombi swarming with micro-organisms are found in the neighboring veins and carried into the circulation to cause multiple abscesses, sometimes in the viscera, sometimes in other parts of the body distant from the point of injury. These thrombi contain great numbers of staphylococci and streptococci. The favorable cases are generally those in which the viscera have escaped contamination, and the thrombi have lodged in muscles or in superficial connective tissue.

Pyosapræmia occurs as a consequence of urethritis in case of a solution of continuity, as occurs from "breaking the chordec," or from some other injury, or in case of abscess in any part of the urogenital tract. In these two circumstances infective thrombi are formed in the ambient veins and their migration begins. Septicæmia is manifested by one violent rigor and much febrile reaction, while pyosapræmia is characterized by recurring slight rigors of short duration, with less febrile reaction than septicæmia. When death occurs in consequence of acute urethritis there is either septicæmia or pyosapræmia. It is almost impossible to ascertain the percentage of mortality from these causes, for such cases are very seldom reported.

A few years ago, at Bellevue Hospital, a death occurred, which may be regarded as an excellent illustration of pyosapræmia originating from urethritis. The subject of this affection was a boy, seventeen years of age, who was suffering from superacute urethritis and a consequent perineal abscess. He had slight recurring rigors and other signs of profound pyosapræmia, and died three weeks after his admission to the hospital.

RHEUMATISM as an occasional consequence of urethritis, occurring in a little less than two per cent. of all cases, was first specialized in the latter part of the last century (1781)

by Swediaur and by Selle. Swediaur's chapter on the subject is short, bears the title of *Arthrocele, Gonocele, or Blennorrhagic Swelling of the Knee*, and begins as follows: "A very considerable swelling of the knee, sometimes of both knees and the heel at once, attended by excruciating pains in the joint, sometimes occurs in men after a blennorrhagia. These pains, accompanied by more or less symptomatic fever, continue for two or three weeks, and gradually go off, leaving a stiffness in the joint, which lasts for many months. The disease particularly affects young men who, after a debauch, have been infected with blennorrhagia, with which it seems to be intimately connected. . . . It is not very uncommon, for in the course of my practice I have seen six or eight cases, each of which came on about the eighth or sixth day of the blennorrhagia, and in every instance the discharge from the urethra was either sensibly diminished or totally suppressed. For want of sufficient observation, I have not been able to determine the character of this disease; but in all the cases which have come within my knowledge the disease appeared to partake of the character of gout, with this exception, that all the persons were about the age of twenty-three or thirty, that the color of the skin was not changed, and that the swelling bore handling without exciting pain. The swelling gradually disappears by the free use of diluting drinks and by frictions with the ammoniacal liniment. . . ." This laconic description contains nearly all that is now known of the gross pathology, ætiology, diagnosis, and therapeutics of the affection. Additions, but no subtractions, have been made to Swediaur's chapter by more than three hundred writers on the subject since his time.

The character of these additions is far from exhibiting a general consensus of views respecting the nature of "urethral rheumatism," which still remains unexplained.

A synoptical presentation of a few of these diverse views will answer the purpose of this conference.

Swedianr, Lagneau, and Cullerier attributed "urethral rheumatism" to metastasis, and the affection was afterward treated in accordance with that hypothesis.

There are others who thought "urethral rheumatism" to be the effect of the cubeb and copaiba treatment of urethritis. Still others, among whom are several French, English, and American writers, have regarded "urethral rheumatism" as one of the effects of pyosapræmia.

Féréol spoke of a blennorrhagic diathesis analogous to, but not identical with, the syphilitic diathesis, and of an acquired diathesis corresponding to an individual predisposition, which individual predisposition Fournier admits.

Tixier, who has written an extended essay on the subject, also believes in a blennorrhagic diathesis.

Bonnière asserts that arthropathy and blennorrhagia are nothing more than the expression of the same vice—the rheumatic diathesis.

They believed that the so-called blennorrhagic arthritis is merely coincident with urethritis, without being related to it in the slightest degree.

It has been noticed that individuals suffering from "urethral rheumatism" are often affected with eczematous and other cutaneous eruptions.

Ample experience has shown that simple non-virulent urethritis is as liable to be accompanied by "urethral rheumatism" as the virulent species.

While Fournier, the highest authority on the subject, believes in the existence of a "blennorrhagic rheumatism," he admits that rheumatism arises also from non-venereal urethral phlegmasia, and for that reason gave it the name of "urethral rheumatism," which, after all, is no better than gonorrhœal, blennorrhagic, or genital rheumatism, and in reality means simply rheumatism of the urethra.

These views, the outcome of one hundred years of discussion of the question of rheumatism occurring among individuals suffering from genital phlegmasia, are all inconclusive, for they fail to explain the true nature of the affection, and seem to relate more to its phenomena than its essence.

Of the many arguments made to establish a distinctness of "genital rheumatism" from common rheumatism, not one seems to adduce evidence sufficient to warrant such specialization. Nor do the contrary arguments seem better founded. A critical examination of both sides of the question brings into bold relief their weak as well as their strong points. Both strive to prove too much and thereby injure their cause. Those who wish to specialize "genital rheumatism" make urethritis its essential cause, and assert that it has few if any of the characters of common rheumatism, though they acknowledge that it is sometimes acute, the great majority of cases being subacute, and often chronic and affecting the knee. They further acknowledge that it affects parts which are just as commonly involved in ordinary rheumatism, and some of the contestants even point out sequelæ which belong to ordinary rheumatism. They thus enumerate the parts affected in "genital rheumatism," arthritis, hydrarthrosis, and arthralgia of the large and small joints, bursitis, sciatica, myalgia, ophthalmia, and affections of the heart, of the membranes of the brain, spinal cord, etc. Those who take the contrary side say that the rheumatic manifestations are merely coincident and do not bear the slightest relation to genital phlegmasia.

It seems that the extreme views of both contesting sides should be rejected, because the assertion that genital phlegmasia is the essential cause of the rheumatism is not proved, and because it is not proved that the rheumatism bears no relation to the genital phlegmasia.

Is it not likely that the affection is ordinarily a subacute rheumatism, excited in a vulnerable subject by the genital phlegmasia, just as it might be excited by any other phlegmasia, and that it therefore does bear a distinct and close relation to its exciting cause?

It is hoped that bio-chemists and patho-histologists will re-examine the lactic-acid and other questions, and ere long enlighten the profession respecting the essence of what is called rheumatism, and help to determine if its association with genital phlegmasia is or is not a coincidence.

Whatever may be the nature of the ailment commonly styled "gonorrhœal rheumatism," its treatment differs little if at all from that of acute or that of subacute rheumatism.

## GALLACETOPHENONE, A NEW DERMATO-THERAPEUTIC AGENT.

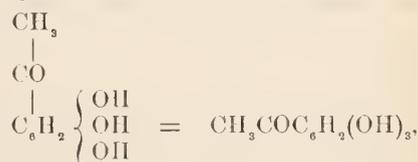
BY HERMANN GOLDENBERG, M. D.

THE object of this article is to introduce and recommend a new remedy for psoriasis and similar skin diseases, with the hope that it will not share the fate which falls to the lot of so many new drugs.

In the September number of the *Therapeutische Monatshefte* Dr. L. von Rekowski recommends "gallacetophenone" (I suppose erroneously spelled) as a substitute for pyrogallie acid. The commercial name of this new drug is "alizerine-yellow C." It is prepared by treating pyrogallie acid with acetic acid in the presence of chloride of zinc. It is a yellowish powder which readily crystallizes in yellowish needles, scarcely soluble in cold water, easily soluble in hot water, alcohol, ether, and glycerin.

Messrs. William Piekhardt & Kutroff, of New York, the general agents of the "Badische Anilin- und Sodafabrik," were kind enough to supply me with a quantity such as is used as a dye-stuff, which was converted into pure gallacetophenone by my friend Dr. H. Schweitzer.

Gallacetophenone has the formula—



and is pyrogallie acid in which  $\text{CH}_3\text{CO}$  are substituted for H. It differs from pyrogallie acid in that it is oxidized in alkaline solutions so slowly that its reducing abilities are much less.

It is well known that pyrogallie acid is by no means a harmless drug. After its introduction into dermatological practice Neisser lost a patient after one application. The patient died on the third day with symptoms of intoxication. Vidal has likewise reported the death of a patient, eighteen years old, who had used a ten-per-cent. pyrogallie ointment for two weeks. This poisonous effect of pyrogallie acid is to be attributed to the great readiness with which it is oxidized in alkaline solutions (being so intensely reducing).

The new drug does not possess this quality and is absolutely harmless, as has been proved by experiments on animals.

It displays strong antiseptic qualities. A one-per-cent. solution added to chopped meat prevented its becoming putrid for twenty-one days, and destroyed the *Streptococcus aureus* within twenty-four hours.

Since the middle of October I have employed gallacetophenone, both in private and in dispensary practice, on at least thirty patients suffering from various skin diseases.

On account of its resemblance to pyrogallie acid, it seemed to be indicated in psoriasis. I have been so much more inclined to use it in that disease, since von Rekowski, who tried it in a few cases only, maintains "that the effect of this new preparation (used as a ten-per-cent. ointment) is noticed within twelve hours."

Altogether, I have thus employed it in twelve cases of psoriasis—in all of them with good results. Within a few days the patches became paler and thinner, the desquamation ceased or became less, and involution took place in the centers. Usually after the lapse of from ten to twelve days only a slight hyperæmia was left. Within from two to three weeks the patches disappeared entirely without leaving any pigmentation.

A ten-per-cent. ointment did not produce any marked irritation or discolor the skin. It stains the clothes slightly yellowish, much less than pyrogallic acid or chrysarobin. I do not wish to go into the details of the cases, but would like to state that in a case of psoriasis of the face and scalp it really acted like a specific. The eruption, which was quite profuse, disappeared within five days. A ten-per-cent. ointment was applied twice daily. There was no other treatment.

Another patient with a universal psoriasis of sixteen years' standing, who applied to my department at the Mount Sinai Dispensary for some other trouble, was induced to use a ten-per-cent. salve of gallacetophenone for the forehead and scalp, which were thickly covered with psoriatic patches. When he returned, two weeks later, there was nothing left but a pigmentation of the forehead, while the psoriasis of the body which had not been treated was *in statu quo ante*.

My friend Dr. G. T. Elliot has, at my request, used gallacetophenone on a patient with psoriasis of eight years' standing, distributed over the trunk, knees, elbows, scalp, and face in patches of various sizes. The case had been under treatment the whole time and had proved exceedingly rebellious. Arsenic caused an increase of inflammatory symptoms. Pyrogallic acid had been used with but moderate success. Chrysarobin did well, if used persistently. At the time (November 21st) when the use of a ten per-cent. gallacetophenone ointment was begun, the patches were bright red, burning, and with abundant desquamation. A week later the patches were paler and breaking up into small papules. The centers had undergone involution and the desquamation was very little. Under the further use the improvement continued. Dr. Elliot concludes his report with the following words: "From this slight experience, gallacetophenone appears to me to promise to be the most satisfactory local remedy for psoriasis and superior to all others. It produces no inflammatory reaction or pigmentation, but seems to influence immediately the lesions."

From my experience, I feel justified in recommending gallacetophenone as an excellent remedy for psoriasis, for it acts in some cases more promptly than chrysarobin—in all the cases which I have treated, as well if not better than the other remedies at our disposal. As it is harmless and does not discolor the skin or hairs, I hope it will be found to be one of the best local remedies for psoriasis of the body, face, and scalp.

My results in a number of cases of eczema psoriaticiforme and seborrhoicum have been so gratifying and encouraging that I should like to include these affections in its field of usefulness.

Messrs. Breyer and Schweitzer, consulting chemists, 159 Front Street, will furnish the chemically pure gallacetophenone to physician and druggist.

26 EAST SIXTY-SECOND STREET.

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THE AMBULANCE SURGEONS OF NEW YORK.

It rarely seems necessary or desirable to take notice of the misapprehensions or misrepresentations of medical matters in the public journals. They usually carry, for professional readers at least, such evident marks of error that they are their own antidote. But a recent occurrence has been so grossly misrepresented, and such vile assaults have been made upon innocent persons, that it becomes a plain duty to state the facts and to take an open stand in support of our fellows.

The story, as told, is that between six o'clock in the evening and eight o'clock the next morning an ambulance was called three times from one of our hospitals to a man who had had a fall; that each time the ambulance surgeon refused to take the man, giving as the reason that he was drunk; that the man was then taken to the Tombs and sent thence to Bellevue Hospital, where he died twelve hours later; and that the autopsy showed that he had died of a fractured skull.

The facts, very briefly stated, are these: The man, a sailor, had been drinking at the time of his fall; when first examined he showed no other injury than a bruise of the forehead and an abrasion on the nose; he was not only conscious, but violently abusive; the ambulance surgeon, who had a woman with a broken leg in his ambulance, told the man's employers to notify the police to take charge of him. The second call, three hours later, was sent from the station-house because the doorman noticed fresh blood about the man's mouth. The ambulance surgeon washed the man's face, wiped out his nose and mouth, and found that the blood came in part from a broken tooth and in part from the abrasion on the nose. During his stay of twenty-five minutes he was steadily cursed by the patient, who actively opposed his ministrations. The occasion of the third call, at eight o'clock the next morning, was the patient's allegation that his leg was painful and that he could not walk to the police court. The surgeon was asked for an opinion as to the leg. Again he made a careful examination, spending nearly an hour in the station-house, for the man was still intractable and resisted examination. The surgeon pronounced the leg sound.

The man was then taken to the Tombs, and thence sent as a vagrant to Bellevue Hospital, where he was placed in the "alcoholic" cells. About three hours after his admission he became unconscious, and was transferred to the wards, where an exploratory incision was made and a stellate fracture of the frontal bone, without depression, found. He died during the night. The post-mortem examination, which was limited to the head, disclosed the fracture that had been found before death, and in addition fissures running across the orbital plates and the mid-

dle fossa of the skull. There had been no intracranial hæmorrhage and no laceration of the dura or brain. The deputy coroner who made the autopsy stated at the inquest that the fracture could not have been recognized without an incision, and that none of the usual signs of fracture were present.

It is easy to be wise after the event; it is easy to say that the man should have been taken to the hospital, drunk or sober; but who would have taken a different course from that taken by the ambulance surgeon, on the facts and the information obtainable at the time? The coroner's jury recommended that all drunken men who had met with any injury should be taken to a hospital, a recommendation which not only is utterly impracticable and impertinent, but which, if the attempt should be made to carry it out, would cause greater scandal and noisier remonstrances than even the occasional failure to recognize a fractured skull.

Advantage has been taken of this occurrence to abuse not only the ambulance surgeons of the hospital concerned in it, but the ambulance surgeons of New York as a class; they have been held up to the scorn and reprobation of the community. It is high time that a word should be spoken, and loudly spoken, in behalf of the young men in our hospitals. A more meritorious, intelligent, hard-working, conscientious set of young men can not be found. They work hard and long to obtain their positions, which they do by giving proof of superior intelligence and acquirements, and they work hard and long while they hold them, in order the better to fit themselves for the practice of their profession. In a word, they are the flower of the younger men, and in a few years they will stand fully ahead of the best of the older ones. If they can not do the work well, it can not be done well. But, notwithstanding all that has been said, notwithstanding their liability to error, and notwithstanding their inability to see what is invisible, and to touch what is intangible—an inability which they share with the rest of mankind—their work is well done. The superintendent of one of our largest hospitals, when recently asked by a reporter if the present system of ambulance service was satisfactory, replied that it was, and "eminently so." And in this opinion of an impartial, and necessarily even an exacting, superior we are confident that all who have personal knowledge of the matter will heartily concur.

MINOR PARAGRAPHS.

THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

THE eighty-sixth annual meeting was held in Albany this week. The programme was long and sufficiently attractive, but many of those who were expected to read papers, on the first day, at least, were absent. Especially was there on that day an absence of many of the well-known New York men whose custom it has been for many years to be present. Of the papers that were presented it can fairly be said that there has been no deterioration as to quality in comparison with the experience of previous years, and we can infer from this fact that the work done by the members of the society is still such as would be creditable to any meeting of this kind. We wish to note particularly the unusual excellence of the president's

address. It was broad and scholarly, embracing in its scope subjects that are of interest to every member of the profession who has regard for its well-being and usefulness.

COMPARATIVE ANATOMY AND ZOOLOGY FOR MEDICAL STUDENTS.

WE have received a pamphlet containing two addresses by Dr. Harrison Allen, of Philadelphia, advocating the teaching of comparative anatomy as a part of the medical curriculum, and on the teaching of anatomy to advanced medical students. Dr. Allen has recently reassumed the chair of zoology and comparative anatomy in the University of Pennsylvania. The object of the papers is to excite an interest in the study of zoology and comparative anatomy by medical students. The broader the learning and greater the erudition the better the physician, and we commend most highly Dr. Allen's efforts to introduce these studies into the medical curriculum in this country. Dr. Allen is a competent and conscientious instructor, and those who come under his teaching will have advantages which can be obtained in few if any other schools.

THE HARRIS CASE.

IN view of the possibility of a new trial of Carlyle W. Harris, who on Tuesday was convicted of having murdered his wife by morphine poisoning, it would be improper for us to comment on the character of the medical testimony in the case. We think it proper, however, to express our sense of the excellence of the Recorder's charge to the jury, and to congratulate the medical profession on the probability that Harris will never be able to enter its ranks, for, whatever disposition may finally be made of him with reference to the crime for which he is awaiting sentence, he is branded as a thoroughly bad man.

ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending February 2, 1892:

DISEASES.	Week ending Jan. 26.		Week ending Feb. 2.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	8	2	11	2
Scarlet fever.....	211	26	192	19
Cerebro-spinal meningitis.....	2	3	2	1
Measles.....	128	9	137	12
Diphtheria.....	122	38	87	30
Small-pox.....	11	0	5	0
Erysipelas.....	5	0	0	0
Varicella.....	18	0	0	0
Pertussis.....	0	2	0	0
Leprosy.....	1	0	0	0

**The Cartwright Lectures of the Alumni Association of the College of Physicians and Surgeons** will be delivered at the Academy of Medicine on the 12th, 19th, and 26th inst., at 8 P. M., by Professor Henry F. Osborn, of Columbia College. The general title of the lectures is Present Problems in Evolution and Heredity. The purpose of these lectures is to discuss fairly the theory of the transmission of acquired characters (effects of habit, use, and disease) and to show how it simplifies the problem of evolution and renders much more difficult the problem of heredity. The *evolution of man* as going on at the present time is discussed in the first lecture, in order to show that this is following various changes of habit connected with civilization and that each organ in the body has a distinct line of evolution of its own. The laws of variation (anomalies) and reversion are thus brought out as part of the elements of a complete heredity theory. The second lecture traces the *history of the theory of heredity* as considered by Lamarck, Darwin, Galton, and Weismann. The advantage of Weismann's continuity of the

germ-plasm idea as an explanation of the phenomena of repetition and reversion are contrasted with the difficulties in which evolution by natural selection only involves us. On the other hand, it is shown how far we are at present from a heredity theory which will explain the transmission of the effects of use and disuse. In the third lecture the discussion is turned upon the ova and spermatozooids, the origin of sex, and the meaning of the metamorphoses in these cells in relation to heredity. The studies of Balfour, Van Beneden, Hertwig, Boverie, and Weismann are reviewed to show what portion of the cell bears the hereditary characters and how they reach various portions of the body.

**The Harlem Medical Association.**—The programme for the meeting of Wednesday evening, the 3d inst., included a paper on The Treatment of External Injuries to the Eye, by Dr. G. H. Cocks; also the presentation of a patient with an aneurysm of the supra-orbital artery, by Dr. O'Brien.

**The New York Surgical Society.**—Dr. Robert H. M. Dawbarn has been elected a member. At the next meeting, to be held at the Academy of Medicine, on Wednesday evening, the 10th inst., Dr. V. P. Gibney will read a paper on The Prognosis in Compression Myelitis from Pott's Disease, to be followed by a discussion on its surgical treatment.

**The Lenox Medical and Surgical Society.**—At a meeting to be held on Monday evening, the 8th inst., Dr. J. Blake White will read a paper entitled Pneumonotomy Twice on the Same Patient for the Relief of Tubercular Abscess of the Lung; Recovery.

**The Society of Medical Jurisprudence.**—At a meeting to be held on Monday evening, the 8th inst., the Hon. Austin Abbott, LL. D., is to read a paper entitled Physicians on the Witness Stand.

**The New York State Medical Association.**—The eighth annual meeting of the Fifth District Branch will be held in Brooklyn on Tuesday, May 24, 1892. All fellows desiring to read papers will please notify the secretary, Dr. E. H. Squibb, P. O. box 94, Brooklyn.

**The Death of Sir Morell Mackenzie, of London,** the well-known laryngologist, is announced as having taken place on Wednesday, the 3d inst. He was fifty-four years old.

**Changes of Address.**—Dr. J. T. Clegg, from Siloam Springs to No. 121 Thomas Avenue, Dallas, Texas; Dr. Wilbur P. Marple, to No. 29 West Thirty-first Street; Dr. Albert C. Stannard, to No. 119 West Thirty-fourth Street.

#### Society Meetings for the Coming Week:

**MONDAY, February 8th:** New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private—anniversary); New York Academy of Sciences (Section in Chemistry and Technology); Lenox Medical and Surgical Society (private); Boston Society for Medical Improvement; Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

**TUESDAY, February 9th:** New York Medical Union (private); Medical Societies of the Counties of Delaware (semi-annual) and Rensselaer, N. Y.; Kings County Medical Association; Newark, N. J., and Trenton (private), N. J., Medical Associations; Baltimore Gynecological and Obstetrical Society.

**WEDNESDAY, February 10th:** New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Medical Society of the County of Albany; Pittsfield, Mass., Medical Association (private); Franklin, Mass., District Medical Society (quarterly—Greenfield); Philadelphia County Medical Society.

**THURSDAY, February 11th:** New York Laryngological Society; New York Academy of Medicine (Section in Pediatrics); Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; Medical Society of the County of Cayuga; South Boston, Medical Mass., Club (private); Pathological Society of Philadelphia.

**FRIDAY, February 12th:** Yorkville Medical Association (private); Medical Society of the Town of Saugerties, N. Y.; German Medical Society of Brooklyn.

**SATURDAY, February 13th:** Obstetrical Society of Boston (private).

## Proceedings of Societies.

### NEW YORK SURGICAL SOCIETY.

*Meeting of October 28, 1891.*

The President, Dr. CHARLES K. BRIDGON, is the Chair.

#### Rupture of the External Popliteal Nerve in Jumping.

—Dr. L. A. STIMSON presented a patient, twenty-seven years of age, who, on July 22, 1890, had ruptured the right external popliteal nerve during the effort of making a running jump; he fell at the end of the jump, but the fall was apparently the result, not the cause, of the rupture. When he rose there was pain and powerlessness below the knee. This patient had come to the speaker six months after the injury. There was then well-marked paralysis of the anterior and external groups of the muscles of the leg. Sensation was lost, in part, over the region supplied by branches of the cutaneous nerve. An incision was made behind the tendon of the biceps and the nerve was exposed. A mass of cicatricial tissue was found, and imbedded in this were the ruptured ends of the nerve, separated from each other about an inch. There was considerable loss in freeing the nerve, and its ends could not be approximated, sutured, and maintained in place without flexing the knee. The leg was accordingly dressed in this attitude and kept so until some time after healing of the wound. Dr. Starr had kindly seen the patient some six weeks after the operation, with a view of hastening, if possible, restoration of nerve function by electrical treatment. Before beginning this it was found that the reaction of degeneration was present in the tibialis anticus, while the peronei were still normal. The man received electrical treatment once a week for several months. It would be seen that his present condition was extremely satisfactory. The only symptom of the previous trouble was inability to raise the front part of the foot actively, though the foot did not drop at all in walking. The case was interesting as demonstrating that such an injury was possible as the result of jumping, and that an operation six months after the rupture of the nerve had given complete restoration of function for all practical purposes.

**Prolapse of the Rectum.**—Dr. F. KAMMERER showed a man, forty-five years old, upon whom he had operated for prolapse of the rectum according to Robert's modification of Diefenbach's method. The condition had existed since boyhood, and the patient had been subjected to a great deal of medical treatment. The rectum protruded for about three inches and a half from the anal orifice. When the bowel was replaced three fingers could with ease be introduced into the rectum through the much-relaxed sphincter. This, then, seemed to be a suitable case for a narrowing of the sphincter and lower part of the rectum. An incision was carried in the median line from the coccyx to the upper border of the sphincter, and then along the latter to both sides for about an inch. These incisions were now carried down to the rectum, separating the levator ani muscle, which was drawn to either side. Thus, a V-shaped portion of the posterior rectal wall was laid bare, the point of the V lying at the coccyx. This was excised, corresponding to about four inches of the rectal wall and an inch and a half of the sphincter. The walls of the rectum were first united by a running catgut suture, and then the remaining soft parts in a similar manner, but it was impossible, however, to entirely close that part of the wound cavity lying under the coccyx. This was packed with iodoform gauze. The sutures through the sphincter were strengthened by several deep silk-worm threads, externally as in Robert's case, and also in Bell's, both lately reported in the *Annals of Surgery*. A rectal fistula developed at the upper

angle of the wound, which was definitively closed only at the end of the third month after the operation. In the two other cases referred to it existed even a longer time. The result of operation, which was done about six months ago, had been a complete success; no recurrence of the prolapse, cessation of catarrh and ulceration of the rectum, and perfect control over feces and flatus.

**The Treatment of the Graver Forms of Pelvic Suppuration by the Intraperitoneal Iodoform Tampon.**—This was the title of a paper by the PRESIDENT. (See vol. liv, page 561.)

Dr. J. A. WYERN said that his experience with the iodoform tampon was limited to its use in some half-dozen cases, in which the operations had, for the most part, been done in the neighborhood of the vermiform appendix. The inflammatory processes were, of course, acute, and he could hardly call them abscesses, although in one case pus was present, but without limitation or encapsulation. The tampon had been invariably satisfactory when he had used it. In one instance a fecal fistula had been established, which had to be watched. In another case, in which he had removed the appendix twelve hours after the occurrence of perforation, he had come upon some fluid that looked like pus. The tampon was used and removed on the tenth day. He considered the iodoform tampon of great value in this class of cases, and believed that nothing else in the way of dressing gave such security.

Dr. PARKER SYMS thought that this was the only practical way of draining the abdominal cavity. In the cases treated by him he had removed the gauze on the fifth day and had found adhesions fully formed by this time.

The PRESIDENT said he now used the tampon in all cases of appendicitis where he found suppuration, and had in no instance regretted doing so, but he had regretted its omission in some cases.

**Cleft Palate.**—Dr. WYERN presented photographs of a case of cleft palate affecting the anterior half and not the soft parts in which there was complete lateral hare-lip. He said he had mentioned the case to call attention to a little point in correcting the deformity of the nose. When the bone was deficient on one side, the ala nasi resting upon the short side was always flattened out and reeeding. In order to correct this it was necessary to divide the upper maxilla on the short side, bring the anterior fragment forward to the level of the normal bone of the opposite side, and wire or pin it in this position until it united with the opposing maxilla. The ala nasi of both sides then rested on the same plane, and the deformity disappeared. When there was a projecting process of bone on one side, his practice was to crush this piece back and suture it in line with the short maxilla. In the case reported this operation had met with success.

Dr. STIMSON had obtained good results in cases of double cleft palate by dividing the premaxillary bone a little posteriorly and dropping it back to the line of the other two and fixing them in place. He thus saved all the lip and often some of the incisor teeth.

**Tubercular Pyelitis; Nephrectomy; Death** (reported by HENRY H. FORBES, M. D.)—The PRESIDENT showed a specimen and narrated the case of Joseph G., thirty-five years old, who had been admitted into his service in the Presbyterian Hospital on October 8th. There was no morbid family or personal history, save of a gonorrhœa three years before, the discharge lasting about a year, with bladder symptoms. The patient was suffering from pain in the right lumbar region, which radiated down the front of the thigh. It was present nearly all the time, and was sufficiently acute to interfere with sleep. Bimanual palpation detected tenderness and a tumor in the right costo-iliac region; the tumor had the configuration of the kid-

ney and was of considerable size. The diagnosis was made of pyelitis from infection ascending from the bladder, and the man was put upon treatment with fluid extract of iichi. The urine was acid, of a sp. gr. of 1.013, and contained traces of albumin, with twenty per cent. of pus, by volume. His condition remained unchanged, save that there was a slight diminution in the quantity of pus, but he had nightly elevations of temperature to between 103° and 104° F. He also complained of cough, and on questioning him it was found that he had suffered more or less from the same for some time. His chest was examined by the attending physician, who said there was slight consolidation at the left apex, which would not contra-indicate nephrectomy. It was done by a vertical incision. On opening the capsule, the surface of the enlarged kidney was found studded with tubercular foci, and the operator thought it better to remove the organ; so the pedicle was transfixed below the distended pelvis and securely tied with a heavy silk ligature. On making the section on the distal side of the ligature, the pelvis was found distended with pus. The specimen showed innumerable foci of tubercle, with deposits of the same character on the lining membrane of the pelvis. The patient never rallied, and died from the effects of shock forty hours after the operation. No examination of the body was permitted, which was much to be regretted, as the condition of the kidney made it not probable that its fellow was unsound.

**Tumor of the Thyroid Gland; Thyroidectomy; Recovery** (reported by HENRY H. FORBES, M. D.)—The PRESIDENT then showed another specimen and detailed the following history: Jane H., twenty-six years old, single, a domestic, Irish, was admitted into his service in the Presbyterian Hospital on September 29th. There was no morbid personal or family history, and her menstruation regular. A year and a half before, she had first noticed a lump in the front of the left side of the neck; it had not been painful or tender to the touch, but had caused considerable inconvenience in swallowing and impairment of phonation. She was also troubled with palpitation and giddiness. She had tried internal and external medication for some time without effect, and the rapid increase of the tumor of late had made her nervous and desirous of an operation. Examination revealed a tumor of about half the size of a billiard ball on the left side of the neck, moving with the trachea during the act of swallowing, and manifestly a part of the thyroid body; it felt solid and the case was believed to be one of struma hyperplastica fibrosa. On September 29th a long vertical incision was made just internal to the anterior border of the sternocleido-mastoid muscle, the tumor was exposed by a careful dissection, and, when exposed, was examined for fluctuation, which was not discovered. The superior thyroid artery was tied *en masse*. The inferior thyroid was isolated and tied. The isthmus was secured and the tumor removed with the loss of scarcely any blood. On section, it was found to contain a cyst, which probably could have been enucleated without sacrificing half of the gland. Recovery was uninterrupted and the patient was discharged, cured, on October 15th.

*Meeting of November 11, 1891.*

The President, Dr. CHARLES K. BRIDGON, in the Chair.

**Talipes Equino-varus.**—Dr. CHARLES MCBURNY showed a patient to illustrate a result after an extensive operation in a case of highly developed talipes equino-varus. The boy had for seven years previous to active surgical interference been under careful treatment at different institutions, and had undergone five operations, such as tenotomies, division of fascia, etc. This had gone on for seven years with the use of various forms of apparatus. Finally the conclusion was reached that nothing

more could be thus accomplished, and the patient had come under the speaker's care. At this time he was walking on the outer edge and dorsum of the feet. About a year ago the speaker had done a quite extensive cuneiform osteotomy upon each foot, which had enabled the feet to be drawn into very good position. Still, though the wounds healed well, yet after the splints were removed there was a slight degree of the original varus position. A second operation was therefore done six months subsequently. Another wedge was removed, almost on the line of the original operation, which allowed the deformity to be completely corrected. It would be seen that the result was very satisfactory, considering the condition which had previously existed. No mechanical apparatus had been used since the operation; the patient had now very useful feet. The more cuneiform osteotomy was done the more it would impress surgeons with its advantages over division of tendons and the long-continued use of apparatus in these aggravated cases.

**Dislocation of the Head of the Fibula.**—Dr. L. A. STIMSON presented a man, twenty-three years of age, who had been admitted into the House of Relief, Chambers Street, on the 26th of October, about an hour after an injury to the left leg. The patient, while hauling a heavy box, had slipped, and had then found himself unable to walk. There was no external evidence of violence, but a very marked prominence on the outer side of the upper part of the leg. Examination showed that the head of the fibula was dislocated outward and forward. All attempts at reduction by manipulation failed. The speaker therefore made an incision over the dislocated head of the fibula and then endeavored to pry the head of the bone back into place with a periosteum elevator. After further division of a strong fibrous layer running from the head of the fibula to the front of the tibia the reduction was effected. The wound united primarily, and the patient was discharged in a week. The injury was a very rare one, some eight or ten cases only having been chronicled. The speaker had already presented a similar injury to the society. As to the mechanism of the luxation, he was in doubt. It might arise through traction by the anterior and peroneal group of muscles, or possibly through the pressure of the astragalus against the lower end of the fibula.

The PRESIDENT, speaking of Dr. McBurney's case, thought that it was a success, and commended cuneiform resection. He had also done the operation with good results after various tenotomies had been performed and apparatus worn to no purpose.

**A Contribution to the Surgery of the Œsophagus.**—This was the title of a paper read by Dr. A. G. GERSTER. (See page 141.)

Dr. STIMSON thought that, even if feeding was carried on through a tube, regurgitation was possible, with the result of sepsis of the trachea. In a case under his observation, in which a tooth-brush was removed, the wound had been closed and the patient fed by a catheter, perhaps too heartily. At any rate, after the third day the food had shown itself in the wound.

Dr. MCBURNEY was surprised to note how little the practice obtained, after operations of the class under consideration, of employing rectal alimentation exclusively for a period. He had found it altogether the best thing to do. The wounds did better, the stomach had complete rest, and there was really no difficulty in securing to the patient ample nourishment for from three to five days. The introduction of the catheter was not without objections, while its withdrawal favored the introduction of deleterious matters into the wound in the neck. He thought the method of sewing up the œsophageal wound and packing the external one covered the ground, provided the œsophagus was left at rest, and the patient nourished for several days by the rectum.

Dr. F. LANGE suggested the method recommended by Langenbeck as worthy of trial in cases where the foreign body was of a certain shape and was located in certain positions. He had lately been successful in dislodging a whistle, of the diameter of a twenty five-cent piece, from a child's throat by this plan. By pressure against the lower circumference of the body it was dislodged and withdrawn through the mouth. He did not think that the act of swallowing could be excluded in these patients; mucus would always accumulate, and it seemed hard to debar them so long from fluids. Of course, a great deal depended upon the extent to which the œsophagus had been exposed to contamination during the operation. If septic trouble was apprehended, special care must be taken to guard against it.

Dr. GERSTER said he had stated in his paper that leakage was frequently observed during the first few days after sutures had been applied. In spite of this, union took place unless septic complications arose. Healing was hastened by the mechanical approximation of the edges of the wound, even if primary union did not take place. He believed the success of the suture depended upon the condition of the parts.

**Appendicitis.**—Dr. STIMSON showed an appendix vermiformis that he had recently removed. The patient had come to the hospital a week ago and had given a history of previous attacks of appendicitis. On operation, the appendix was found lying behind the cæcum, and closely adherent to it without a mesentery. Microscopical examination had demonstrated that the mucosa was lost and replaced by fibrous tissue and small, round cells. The follicles of Lieberkühn were also destroyed.

Ten cases of acute appendicitis had come under the speaker's notice lately. All of these had been treated expectantly, some of them by himself. In three suppuration had occurred. Two of the patients had died. Operation had apparently saved the third. He thought the facts worth consideration when the propriety of early operation was under discussion.

Dr. LANGE thought that statistics were very deceiving, and from such a small number of cases it was impossible to draw conclusions. The number of such cases, in order to decide whether early operation or the expectant plan should be the rule, was too small. He was inclined at times to agree to the expectant plan, and did not see the use of operating on an abscess through the free peritonæum at an early stage, which he thought was hardly likely to cause mischief. He thought that if at the end of the first week an operation was done, pus would most probably be found in contact with the anterior abdominal wall or could be reached through the rectum or by a lumbar incision. It would then be found unnecessary in by far the majority of cases to do a serious operation. The question was, any way, not yet solved, but by temporizing treatment in a large number of cases nothing was likely to be lost. There was a minority, however, in which operation could not come too early, and to distinguish those was a trial more worthy of surgical science than indiscriminate laparotomy, which for some time past had promised to become the fashion of the day.

Dr. STIMSON said he had not offered his cases as general, but as individual statistics. The two fatal cases had been treated expectantly by others and then sent to him for operation after general peritonitis had developed.

Dr. PARKER SYMS thought that some sort of ability to classify these appendicitis cases was essential before formulating rules as to operating. In cases which required operative interference at all the early operation was the proper one. In cases that had gone on to suppuration and in those that were dealt with by simple incision, extraperitoneally, the patients were not necessarily in a safe condition. He did not think the patient who had gone on to extraperitoneal abscess and had escaped the early

dangers was by any means in a safe condition. If we could ascertain by symptoms what cases were going to call for operation, the early one would be the one to choose.

Dr. F. KAMMERER thought that cases in which circumscribed suppuration had taken place about the appendix, which afterward led to general peritonitis, did not argue for early operation; when suppuration had started in the peritoneal cavity, on whatever day, we ought to interfere surgically. To diagnose this condition in its incipiency was of greatest importance. Then we should not meet with cases of general peritonitis from primary circumscribed abscess.

Dr. F. W. MURRAY cited a case in which he had just operated. The patient had had two attacks previous to the operation—his first attack seventeen and his second fifteen years ago. This case simply illustrated that under the expectant plan of treatment one could never be sure that the patient was permanently cured, a fact which decidedly lessened the value of the statistics quoted by advocates of this form of treatment.

Dr. R. F. WEIR did not think enough was known as yet on this subject to warrant the formulation of a hard and fast rule which could be adapted to the doubtful cases. The natural history of the catarrhal form was yet incomplete. He was yet unwilling to believe that this variety had such danger connected with it as the perforative and gangrenous forms. Each case in its acute stage required so far a special judgment. The question of an operation hinged, then, largely upon the presence of the signs of advancing peritonitis.

**Gangrene of the Testicle.**—Dr. GERSTER reported the following case: George O., a butcher, aged thirty-nine, was admitted on February 2, 1880, into the German Hospital, with an enormous emphysematous swelling of the left testicle. The organ had nearly the size of a man's head, was dusky, red, and hot, showed crepitus, and gave a tympanitic percussion sound. The patient, a powerfully built man, showed symptoms of most acute septic intoxication. He stated, on being shaken out of his stupor, that the swelling had come on three days before, suddenly, with much pain, after an exploratory puncture. Immediate ablation of the organ was done. The skin was preserved, and a very large wound cavity was filled with a packing of carbolized gauze. An almost immediate improvement of the patient's general condition had followed. The wound had healed rather rapidly by granulation. On February 26th the patient was discharged, cured.

The speaker also showed a specimen of a testicle, recently removed, with the following history: Abraham G., aged twenty-eight years, married, a peddler, was admitted into Mt. Sinai Hospital on November 11, 1891. He had had a chancre about three years before, and five months later a gonorrhœa. Had never noticed any evidence of secondary syphilis. Shortly after his attack of gonorrhœa he noticed that the right testicle was beginning to swell, but was not painful, and there was no fever. This swelling had increased slowly until it had attained nearly the size of his fist, when it remained stationary, and had been so for about a year.

His present illness had begun five days before. On returning home from his day's work, he began to have pain along the right spermatic cord, and the next day it was so bad that he went to a dispensary, where the doctor aspirated the tumor three times, drawing off a bloody fluid, but did not inject anything into the scrotum. That evening the pain became very severe and the testicle increased to nearly twice its size; he also had a chill, fever, and headache, and felt generally weak. He had had a chill every day since, and fever. The pain had been very severe, so that he had been unable to sleep. There had been no trouble in urination. The bowels were regular. The patient had vomited once. On his admission, his pulse was 100,

his respiration 26, and his temperature 103.4°. His general condition was good. His tongue was a little coated. The scrotum was of about the size of a large coconut. There was no impulse on coughing. The scrotal wall was tense, inflamed, and quite tender on pressure. There was slight tympanites. The left testicle, of normal size, was felt posteriorly and freely movable.

The operation consisted in ablation of the gangrenous testicle, the parenchyma of which was found converted into a brittle, semi-liquid pulp of a brownish-red color, containing abundant bubbles of gas. The tunica albuginea was throughout very much thickened, of a dirty greenish-yellow, and evidently necrosed. The necrosis was apparently extending here and there into the scrotal tissues, which were oedematous and also contained gas around the necrosed areas.

In four hours after the operation the temperature was 99° and he was feeling better. (*Note, January 29, 1892.*—The patient made a rapid recovery.)

Dr. WEIR had seen several cases in which the introduction of a fowl aspirator needle had been followed by necrotic processes. Two instances followed puncture for serous pleuritic effusion, and in two other cases the testicle became gangrenous from a similarly badly conducted exploratory puncture. He had also seen gangrene of the testicle from other causes.

Dr. F. LANGE had operated in one case where previous surgery had not led to infection. There was some constitutional disturbance and subacute fever. This condition had lasted for some time. The speaker had seen the patient in the second week. At that time the organ was considerably enlarged. On removal, it was found to be necrosed. There was no pus formation, there were no symptoms of decomposition, but there was considerable bloody infiltration. Embolism of a nutrient artery, most probably of a spermatic artery, seemed to have caused the trouble.

Dr. GERSTER added the history of another case of spontaneous gangrene of the testicle in a young man who, about nine months after castration, was readmitted into the German Hospital with an evident renal tumor to which he succumbed. Post-mortem examination revealed an enormous renal sarcoma involving more or less of the adjoining tissues, of course also the radical portion of the spermatic artery. There was no evidence of sarcoma about the scrotal cicatrix, but the assumption was very plausible, in view of the sudden, apparently embolic character of the gangrene, that a sarcomatous plug might have been carried into the terminal part of the spermatic artery, thus causing acute gangrene. The speaker referred to an excellent paper on the subject of spontaneous gangrene of the testicle by the late Professor Volkmann, of Halle.

#### NEW YORK NEUROLOGICAL SOCIETY.

*Meeting of January 5, 1892.*

The President, Dr. LANDON CARTER GRAY, in the Chair.

**Thomsen's Disease.**—Dr. C. L. DANA exhibited a male patient, thirty-three years of age, who presented the typical phenomena of this disease. The family and personal history of the patient were good. There was no specific trouble and had been no previous nervous disturbances. The first symptom noticed had been a weakness of the muscles, which had come on at the age of seventeen. Three years subsequently it had been found that, when the fists were closed, they could not be opened again voluntarily for some little time. These conditions had increased until at the present time the only muscles not involved in the process were those of the thighs and upper arms. The myotonia was most marked in the muscles of the forearms and legs. No

contractions of the pillars of the fauces were observed. There were no sensory disturbances. Reflexes were nearly abolished and could only be obtained by re-enforcement. There was slight increase of reaction to the galvanic current, but not to the faradaic. The author felt convinced, from very careful tests of the muscles, that the phenomena were confined to the muscles themselves, and that it was not due to a reflex influence, but that the disease was a purely muscular one.

**Peripheral Neuritis, or Possible Lesion of the Posterior Nerve Roots.**—Dr. W. M. LESZYNSKY presented a patient with the following history: A woman, fifty-three years of age, while trying to raise a heavy weight had injured the shoulder joint. Neuritis of the brachial plexus had developed within a few days. When she had first come under treatment, nearly six months after the accident, she had been suffering from extreme pain and tenderness in the course of the median and musculo-cutaneous nerves. There had been no circumscribed paralysis, but a general weakness of the entire limb. The pain had been relieved by treatment. Within two weeks the entire extremity had gradually reached a condition of complete anesthesia, including loss of muscular sense. Subsequently the adductor pollicis and the flexor longus pollicis had become paralyzed. This paralysis had disappeared, however, within ten days, and simultaneously there had been a restoration of all forms of sensibility, including the muscular sense, over the thenar group of muscles and the entire thumb, the rest of the limb remaining anæsthetic. There had been diminished faradaic irritability in the thenar, hypothenar, and interossei muscles. Any hysterical element could be excluded. He thought the diagnosis rested between a peripheral neuritis affecting the sensory nerve branches and a possible lesion of the posterior nerve roots.

Dr. MARY PUTNAM JACOBI did not see why Dr. Leszynsky was so positive in excluding hysteria as the probable cause of the condition in his case. The distribution of the anæsthesia was such as one might expect in an hysterical patient. The fact that there had been no other exhibition of any recognized symptoms of hysteria did not exclude the disease in such a case as just presented.

**Spasmodic Screaming.**—Dr. J. A. BOORN presented a patient, aged seventy-three, a peddler by occupation, who had been under observation in the Nervous Department of the Manhattan Eye and Ear Hospital for the past four years. He had also been a frequent visitor to the various clinics in the city. The patient had enjoyed good health up to nine years ago; about that time, after a week of great headache, he had had an attack of left hemiplegia with disturbance of speech. He had been ill in bed fourteen weeks, and during this time had suffered intense and constant pain in the head. The paralysis had gradually improved; the disturbances of speech had disappeared and he had returned to his business of peddling one year after the attack. Ever since the onset of illness he had had more or less head pain, localized over the right parietal region, and this he described as appearing in a spasmodic manner, shooting up to that portion of the head. The attack had been ushered in by a flexion of the ring and middle fingers of the right hand, the other fingers being straight; the whole hand had then been rapidly rotated, the attack culminating in a loud scream and the placing of the hand on the right side of the head. He had also complained of not being able to sleep, and his wife had corroborated this statement by adding that he was a nuisance to her and the neighbors by these attacks of screaming at night. These paroxysms could also be brought on apparently by suggestion, although the speaker had never been able to get the patient under the hypnotic influence. After going over the case carefully the speaker was inclined to believe that at the present time the patient was more of a simulator than anything else.

**Debate on the Therapeutic Value of Hypnotism.**—The CHAIRMAN said that his object in calling for such a discussion was to ascertain the opinions of New York neurologists in regard to the value of hypnotism therapeutically. He did not want to hear any historical data on the subject, but the personal experience of those who had given the matter serious attention.

Dr. DANA referred briefly to the work of the late Dr. Beard as being the only contributions made by an American author on this subject. From a long series of experiments that writer had been convinced that hypnotism was a real condition and not a myth. He had not been able, however, to produce complete hypnosis, although he had attached some value to suggestive therapeutics. The speaker had been able to produce complete hypnosis in fifteen per cent. of the cases submitted for experiment and only a partial state in from thirty to fifty per cent. As to its value as a remedy in any of the known neuroses, it was doubtful if it had any efficacy. There were many therapeutic measures which were so much easier of application and which possessed recognized virtues, that it seemed to the speaker unwise to exchange them for something with such subtle power and so difficult of control as was hypnotism. Taken altogether, it was a remedy that could rarely, if ever, be used with benefit.

Dr. G. W. JACOBY said that he had been through two epidemics of hypnotism, the first lasting from 1880 to 1884, and the second in 1888. In order to indicate just what position he occupied in regard to the value of hypnotism as a therapeutic remedy, it was necessary for him to review his work in this direction. In old note-books he had found a record of nine cases marked "cured" in which hypnotism had been the remedy. On following out the further histories of these cases, which had been of various forms of hysterical neuroses, it had been found that in every instance there had been relapse of the trouble. This result had been the cause of the speaker's abandoning hypnotism as a therapeutic agent. While it might possibly be good for some subjects, for the control of some symptoms temporarily, why should we use a method that was laborious and surrounded by mysticism and charlatanism, when other remedies had to be resorted to ultimately anyway? The only way in which any conclusion could be arrived at in regard to the therapeutic value of hypnotism was by means of statistics, and these so far had been more or less unreliable.

Dr. WALTER VOGHT described the method of producing hypnosis employed at the Vanderbilt Clinic. Some bright object was held before the patients' eyes, and at that they were told to gaze while the physician encouraged them to try and sleep. Such means had rarely failed to produce the desired hypnotic condition. In no instance had had effects been observed to follow its use; in some a slight pallor had come on, but nothing of further consequence. The therapeutic application of hypnotism was successful in most of the cases—such as neuralgias and persistent pain. The speaker thought that it was to be recommended in this class of cases.

Dr. E. D. FISHER said that, so far as his experience and personal observation went, he did not favor the use of hypnotism as a therapeutic remedy. He had not as yet seen or heard of any permanent successful issue from such procedure. He thought that it might also be a dangerous measure in many cases, especially in certain mental conditions. At any rate, if hypnotism was to be used at all, it should be only with the greatest precaution.

Dr. J. W. COLLINS had used hypnotism in thirteen cases, and was able to report a cure in five of these. It was not his practice to use the remedy promiscuously, but when he had decided that the case was suitable for hypnotism he had carried out the system of mental suggestion, and had been able to get good results

from it. While he did not maintain that hypnotism was a remedy for all nervous diseases, he was satisfied that it possessed therapeutic value in certain cases. He thought that it was a great mistake to say that patients were non-hypnotizable if they did not succumb to the influence in a short time. He had seen the masters in this branch at work at patients one and two, and even three, hours in some instances before they could be brought under the hypnotic influence. He did not want to appear as an enthusiastic advocate for hypnotism, but he was convinced that it had a field in certain psychical conditions, and especially in moral perversions. Considering the fact that the present method of dealing with these cases offered but little in the way of cure, there should be no hesitancy in at least giving hypnotism a fair trial, and not being satisfied with simply an attempt or two, but persisting until such a condition of the patients was brought about, so that mental suggestion could be responded to. If carried out consistently, the speaker was sure that hypnotism would offer more as a moral educator than any other measure that had ever been advanced.

Dr. LESZYNSKY thought that the length of time that it took to get the patient under the hypnotic influence was a matter of indifference. As yet there were no statistics to show the bad influence of hypnotism, but in cases where he had failed to produce hypnosis the patients had been left in an uneasy, uncomfortable state. He did not think hypnotism by any means devoid of danger. He reported the case of a child twelve years of age whom he had treated for hysterical attacks of laughing and crying. She had improved very much under ordinary attention, and had finally passed out of his hands. Some time subsequently there had been a slight return of the trouble, and the mother had taken the child to some one who had tried hypnotism, the first attempt being unsuccessful; but it had been persisted in until complete hypnosis had been brought about three or four times. From this time on all of the symptoms had become exaggerated, and when the author had seen the patient again she had developed all of the phenomena of hysteria. He felt satisfied that hypnotism was responsible for the deterioration in the nervous tone and the development of hysterogenic zones. It had been two years since he had practiced hypnotism. The last patient upon whom he had tried it had been suffering from singultus; during the hypnotic state the spasm had been abolished. Suggestion at this time that the paroxysm would not return when consciousness was restored had proved a failure, as the spasm had returned in an aggravated form. As for hypnotism being applicable in insanity, it was thought rather doubtful that it could be done at all, for the reason that the degree of concentration necessary could not be obtained in this class of patients.

Dr. BOOTH had during the past four years made use of hypnotism in twenty-four cases—fifteen in females and nine in males. Of the fifteen females, ten had been hypnotized easily and had responded to suggestion; in five no hypnotic effects had been produced, although repeated attempts had been made. Of the nine cases in males, six had been failures. The histories and treatment of four cases were then read in detail. Case I.—A young girl, aged seventeen years, suffering with tremor of the left upper extremity, had been hypnotized daily for a week, during which *séances* proper suggestion had been made. At the end of that time the tremor had entirely disappeared and had not returned a year after treatment. Case II.—Hysteroid attacks in a girl aged nineteen years. She had been easily hypnotized, and had been markedly lethargic, going into a deep sleep from which it had been difficult to arouse her either by suggestion or strong measures. Subsequent *séances* had not produced such marked effects, and had been successful in lessening the number of attacks. One attack only had occurred during the past year. Case

III.—Double ptosis. The patient had been easily hypnotized, and after fourteen *séances* there had been marked improvement. Case IV was another patient with hysteroid attacks, which had been ultimately cured by hypnotism.

Dr. B. SACUS had not been able to do much with hypnotism, and as yet had accomplished nothing therapeutically. He had tried the method in cases of hystero-epilepsy and where persistent pain had existed for years; in every instance the therapeutic effect had been absolutely *nil*. The only two cases in which a certain amount of benefit had seemed to be derived from hypnotism had been of nerve-deafness occurring in two young women. The improvement had continued during four weeks in one case, and three months in the other. He thought, however, that hypnotism, so far as any real therapeutic value was concerned, was only a fashion at present, and that it would soon be laid on the shelf.

Dr. JACOBI described a case which had recently come under her observation, the course of which possibly bore some analogy to the way in which hypnotism operated upon the nutritive states through some controlling mental emotion. The patient, a woman of emotional characteristics, had complained of severe pain in the shoulder joint. There had been present much swelling and anæsthesia. Despite all treatment, the condition had increased in severity. After the tenth day hysterical attacks of screaming had come on, followed, fourteen days after the onset of the trouble, by considerable vomiting of blood. About this time the patient's child had become dangerously ill and had died in a few days. From this time on all her symptoms connected with the shoulder and the general condition had gradually subsided and had finally disappeared. Health in a short time had been completely restored. The speaker thought that this was a clear case of great mental emotion having the power of reorganizing and controlling the nutritive states, as shown in the rapid recovery when the mind was concentrated on the illness and death of the child.

The CHAIRMAN had practiced hypnotism since 1886 in hundreds of cases in his hospital wards, but had finally given it up in this class of patients, as he had found that it had a demoralizing influence, and that moral control over them was lost by persisting in its use. In some cases where he had tried hypnotism he had found that his patients would leave him and go to some one else. He thought, however, that in the present study of hypnotism we were only on the verge of a great developmental knowledge of psychical laws which might prove to be of great value. From his experience in the use of this agent as a therapeutic measure he was not able to say in what class of cases or individual case it would or would not be beneficial. If he could draw any deduction, he would say that the hysterical cases offered the best results. No one understood the nature of hysteria, and there were no conclusive criteria by which hysteria could be diagnosticated; but in the symptoms laid down as such, hypnotism had produced some amelioration, although relapses occurred. In functional symptoms, such as delusions of fear, fright, timidity, and so forth, good results were obtained by hypnosis. In other neuroses, such as neuralgias and organic diseases of the nervous system, the benefits were not so good as from other known remedies. The speaker had never been able to hypnotize an insane patient, and the practice had filled paranoiacs full of delusions. Altogether, no good results were obtained in these two classes of patients, but much harm in the latter. There need be no difficulty in hypnotizing patients; if it could not be done in one way it could be done in another. The author had found that, where patients were hard to get under the influence, they were apt to sink into coma afterward. He had had such a case, where the patient, when observed for a short time after being hypnotized, had been al-

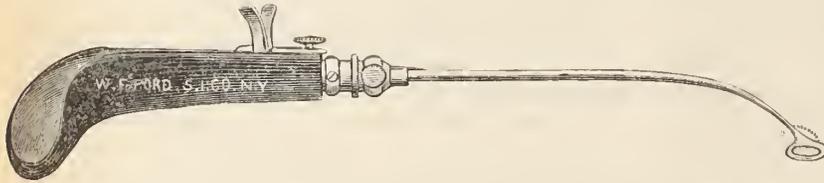
most in a comatose state, and had been very ill for the remainder of the day. He had never heard of a death being produced by hypnotism, but did not think it unlikely that it might happen. He would not, however, condemn hypnotism until it had had a further and more conscientious trial.

## New Inventions, etc.

### AN INSTRUMENT FOR THE REMOVAL OF HYPERTROPHIED TISSUE FROM THE BASE OF THE TONGUE.

By WALLIS F. CHAPPELL, M. D., M. R. C. S.

THE increased glandular tissue so often found at the base of the tongue is usually treated by the cautery, caustics, and astringents. These methods are not so satisfactory as we could wish, on account of the frequent applications necessary and the unpleasantness to the patient from the tardy healing of the cauterized surface. The instrument shown in the accompanying cut is intended to take the place of the cautery in most cases. It should not be used where there is a collection of vascular nodules accompanied by a varicose condition of the vessels at the base of the tongue, but on the large pale masses which so often completely surround the epiglottis. It is not necessary to remove



every particle of this tissue, but simply to pare off sufficient to relieve the symptoms. Before using the instrument the throat should be sprayed with a one-per-cent. solution of cocaine and then, either by the guidance of a laryngeal mirror or after pulling the tongue forward, the instrument is placed in position and the necessary amount of tissue removed. The hæmorrhage is slight and the cut surface heals rapidly. This instrument will also remove the uvula more satisfactorily than anything I know of, and, with a little experience in using it, is invaluable for the removal of adenoid or granular tissue from the posterior wall of the pharynx.

22 EAST FORTY-SECOND STREET.

## Miscellany.

### The Nervous and Mental Phenomena and Sequelæ of Influenza.

—At a meeting of the Philadelphia County Medical Society held on January 13th, Dr. Charles K. Mills read the following paper:

All practitioners have been struck by the prominence of nervous and mental phenomena in influenza; and much has been written, but mainly in a desultory way, about the symptoms of the disease which are referable to the nervous system, and its more or less persistent nervous and mental sequelæ. The part played by the nervous system in the ætiology and history of the disease has been variously interpreted. One holds that it is a "nervous disease," without explanation; another describes it as a pneumogastric neurosis; another as a neuropathy due to ptomaine poison. According to Bloec, cited by Church,\* the primary infectious action takes place upon the nervous system during the disorder, while sequelæ are to be attributed to secondary infection from ptomaines. Cheston Morris,† of Philadelphia, advances the

theory that the general symptoms of influenza may be traced to a derangement of function, or partial paralysis of the pneumogastric nerve, and that the affection is brought about by conditions of the atmosphere which particularly tax the cardio-pulmonary apparatus which is regulated by this nerve, a view which, after all, relegates the disease to an atmospheric or infectious cause. Graves long ago referred the bronchial and pulmonary symptoms of grippe to lesions of the nervous power of the lungs, and Blakiston regarded it as a disorder of the nervous system, with concomitant derangement of the organs of digestion, circulation, etc. Levick,\* who cites the last two authorities, holds that certain symptoms are produced when the poison is expended on the sensorium, and certain others when its influence is chiefly exerted on the respiratory centers.

The analogies or relationships between influenza and other diseases generally recognized as belonging to the nervous system, either primarily or because of the situation of their most notable lesions, have been strongly brought out by able writers, as by Levick, for example, who has even suggested that epidemic cerebro-spinal fever, or cerebro-spinal meningitis, may be simply a malignant form of influenza, a view to which he was led because of the resemblance in the symptoms of the two diseases, which differ in degree rather than in nature, and also because for three centuries the two have occurred coincidently or in close sequence.

Grasset and Rauzier,‡ in a monograph on the grippe of 1889-'90, lay great stress on the enormous predominance of the nervous over the catarrhal elements in the epidemic, as evidenced in the high fever, great cephalalgia, the marked delirium, the widespread pain, and the excessive nervous irritability. They refer to cases communicated by M. Coustan, in which the entire symptomatology of the disease seems to have reduced itself to a horrible migraine. They review the literature, which shows that writers of various countries are unanimous in proclaiming the importance of the nerv-

ous element—referring to Austrian, Russian, Belgian, German, English, and Polish contributions.

According to Schmitz,‡ who read a paper on the subject before the Psychiatric Society at Bonn, influenza is a disease of the nervous system with secondary involvement of the heart, lungs, and digestive organs. In several hundred cases which he observed the nervous symptoms were always primary, followed in every case by secondary involvement of the other organs.

What seems to be needed is an analysis and practical grouping of the facts, almost too numerous to handle, which show the important part played by the nervous system in the development, progress, and results of the disease. How is the nervous system affected by influenza? What are its primary or direct effects on the nervous system, and what are some of the more persistent and permanent impairments, and how are these determined by the disease? What are its acute nervous and mental phenomena, and what are the most common sequences? What is the probable pathology of these states, and what treatment is best in view of the neurotic characteristics of the affection?

The briefest consideration of the subject brings forcibly to mind the fact that all diseases of infectious or toxic origin—epidemic, endemic, sporadic, or accidental—may strike any or all parts of the nervous system with a result which will be proportionate, first, to the virulence of the infecting agent; and, second, to the resistance of the individual, whether this is due to constitutional predisposition or to reductions, the result of previous injury or disease. The microbes may differ, but a bond of union and close resemblance can be recog-

\* Levick. *Am. Jour. of the Med. Sci.*, January, 1864, and republication in pamphlet form, with notes of the influenza of 1889-'90.

‡ Grasset and Rauzier. *Leçon sur la grippe de l'hiver 1889-'90*. Montpellier and Paris, 1890.

‡ Schmitz. *Allgemeine Zeitschrift für Psychiatrie und psychisch-gerichtliche Medizin*, 179, 1891. Cited in *American Review of Insanity and Nervous Disease*, December, 1891.

\* Church. *Chicago Med. Record*, 1891.

† Morris. *American Lancet*, March, 1891.

nized between the effects on the nervous system of all contagious and infectious diseases, as variola, scarlatina, diphtheria, measles, whooping-cough, typhoid or typhus fever, leprosy, mumps, cholera, erysipelas, puerperal fever, influenza, or cerebro-spinal meningitis; of all of such constitutional and diathetic affections as tuberculosis, gout, rheumatism, and diabetes; and of all such toxic agents artificially introduced into the system as alcohol, mercury, lead, arsenic, copper, and poisonous gases. These diseases, these diatheses, and these poisonous metals and gases produce, or may produce, nervous and mental phenomena of the same character, differing in degree in particular cases and for special reasons.

In all these affections at the time of acute onset, if the illness is of a serious character, such symptoms are present as great mental and nervous debility, irritability, restlessness, sleeplessness, or the opposite states of torpor, stupor, hebetude, or coma; delirium; vertigo or syncope; headache, browache, napeache, backache, and limbache; pains of all degrees of severity referred to various nerve areas; hyperæsthesia of the skin, of muscle-masses, or confined to nerve-trunks or branches; spasms, local or general, and with or without unconsciousness; sometimes mental disturbance amounting to a true mania or melancholia. During the progress of such affections any one or several of these enumerated symptoms may be present. Supra-orbital pain, for example, may be the only prominent nervous symptom in a case of influenza; headache and backache in diphtheria; hyperæsthesia in mumps, diabetes, or gout; and mania in a case of puerperal infection. Any infectious or toxic disease may, in brief, produce the same symptom, syndrome, or train of phenomena; and—which is the main point—for the same reason, namely, because of the introduction into the system of an agent which directly and powerfully poisons nerve centers, and possibly also nervous conducting tissues.

Following all infectious, diathetic, or toxic diseases, moreover, or directly springing from them, common experience teaches that we may have great nervous or general weakness; forms of insanity of the depressive type; paresis and paralysis of every grade from an affection of a single muscle to that of all the extremities, and even more; localized spasm or cramp; general convulsions; pains in nerves, muscles, and joints; and losses or perversions of sensation.

These symptoms and conditions, which may occur at the onset, during, or after the subsidence of any infectious or toxic disease, are those which constitute the nervous features of the prevailing epidemic. I have introduced the subject in this way because it seems to me that it is this comprehensive grouping of generically similar phenomena which enables us to most readily grasp a subject even for practical purposes. We differentiate phenomena in our daily labor, which we can only understand by properly grouping them, and by referring them to a common or to related causes.

Any attempt to classify the nervous and mental phenomena of influenza must be attended with great difficulties. These are, in the first place, symptoms and conditions which, although manifested in non-nervous organs, are directly traceable to a nervous origin; secondly, affections which would be recognized by all as properly referred to the nervous system; and, thirdly, affections occurring in nervous tissues and organs, although, strictly speaking, not nervous diseases.

I will refer very briefly to the first of these classes, although of much importance. I will not, however, discuss the nervous origin of the fever of influenza, nor will I attempt to explain the catarrh, indigestion, etc., on some neurotic theory, as such a method might lead us anywhere, and for our present purposes would be unprofitable. I wish simply to emphasize the fact that some of the most prominent pulmonary, cardiac, and vascular affections of influenza can best be explained on neural theories. Many personal observations have led me to the conclusion, not new, which has recently been well presented by Elliott,\* of New Orleans, that the pneumonias of influenza are often due to vaso-motor paralysis, that they are, in fact, forms of blood stasis or passive congestion from vaso-motor paralysis, which in its turn is dependent upon the action of the infection upon the pneumogastric centers and the nervous system in general. A distinct difference can be made out between the true pneumonic lung and this "grip-lung," as it has been

termed by Elliott. Graves long ago attributed the œdema of the lungs which occurs in influenza to an affection of the vagus.

"The grip-lung," according to Elliott, "has a long and very varying condition of passive blood stasis unaccompanied by râles. If resolution occurs within three or four days, it is accompanied by large mucous râles, and no time is given for the slow appearance of bronchial breathing or bronchophony; but during the long continuance of the blood stasis an exudation occurs, increasing slowly, which will give, in time, some bronchophony and bronchial breathing, but never so complete as in pneumonia. Resolution never occurs in these cases with the suddenness that characterizes it in acute pneumonia. The condition passes off as gradually as it formed. The sharp, clear-cut, and sudden phases of the pneumonic attack separate it clearly from the obscure, irregular, and slow phases of the *grip-lung*."

Many disorders in various parts of the body are best explained on this theory of local vaso-motor paralysis, although it is not necessary to attempt to force this explanation for all. Hæmorrhages, minute, or even of considerable size, occurring in diverse localities, as in the retina, membrana tympani, and internal auditory apparatus, or in the skin, or mucous or serous membranes anywhere, may be due to deficient vaso-motor tonus. Brain, kidneys, liver, or pelvic organs may suffer from forms of passive hyperæmia, subacute or chronic, which are in fact due to forms of vaso-motor palsy. Occasionally we meet with cases of vaso-motor disorders of the extremities, such as flushed or pallid fingers.

Even trophic affections have occasionally been observed. Wilson,\* for example, refers to gangrene of the lungs as one of the less common complications. Abscesses of the limbs have been recorded. Grasset records two observations of eschars occurring in young subjects in the absence of prolonged decubitus. The greater tendency in surgical cases to suppuration may have its best explanation in the depression of healthful vaso-motor and trophic influence.

The peculiar forms of pulse, and the uncertain or perverted action of the heart, extending in some cases to cardiac palsy and death, are in a strict sense nervous phenomena due to paralysis, partial or complete, of the inhibitory apparatus of the heart.

Let me take up those symptoms and affections which would clearly be recognized as belonging to the nervous system.

I believe, with Church, "that the infection of influenza has a marked action upon the nervous system which may give rise to immediate acute manifestations or to remote and persistent conditions; and that in the predisposed, grippe is competent to cause marked excitement or great depression of the motor, sensory, and mental nervous apparatus."

Great nervous and mental prostration, both as an acute manifestation and as a persisting sequel, has engaged the attention and required the treatment of all practitioners. The mental depression often present as an initial symptom has been in some cases simply overpowering. Some of the patients are affected like individuals whose mental and motor centers have been poisoned to the limits of human endurance, while still permitting the retention of consciousness. In other cases even consciousness itself has been overwhelmed.

Not a few patients who suffered from attacks of influenza during the early period of the present epidemic are still victims of profound neurasthenia. I refer now to cases which are not distinctively of the melancholic type. These neurasthenics are unable to endure a fair amount of work; their nervous forces are soon routed; they are weak, worrisome, and unrecuperative. The cardiac weakness which has been left is undoubtedly in part the cause of this neurasthenia, and with reference to this Church says that "the persisting neurasthenic condition which so usually follows influenza is attributed by some to cardiac weakness of nervous origin, and this contention is not without weight, if it is observed that, even after appetite, sleep, body-weight, and physical functions have long been restored, the slightest exertion immediately produces disproportionate fatigue, accompanied almost invariably by either a retarded or more frequently accelerated pulse, and rarely by præcordial distress and even by angina pectoris."

Curtin and Watson,† whose experience in influenza has been con-

\* Elliott. *Climatologist*, i, 1, August, 1891.

\* Wilson. *American System of Practical Medicine*, vol. i, p. 870.

† Curtin and Watson. *Climatologist*.

mous, say that, although general nervous prostration often extended over long periods without any discoverable local cause, it was always worth while to examine the urine with care. "Sometimes a nephritis, sometimes a faulty digestion or hepatic inaction, seemed to underlie the general condition in latent form. These cases, by enforced rest and attention to local complications, gradually recovered. These cases, and nervous cases generally, were very disappointing when sent to the seashore during convalescence."

Among organic nervous diseases which have developed during the influenza or have been left in its wake are in the order of their frequency, so far as my personal observation has gone, neuritis, meningitis, myelitis, and cerebritis, or various combinations of these inflammatory affections—as, for example, concurrent neuritis and myelitis, meningo-myelitis, or meningo-encephalitis.

Probably no single affection of the nervous system has been so common during and after the grippe, and particularly as a sequel of the disorder, as neuritis. Almost every variety of neuritis as regards location and diffusion have been recorded, and have come under my personal notice. Multiple neuritis, while not common, has not been rare; and I have seen a concurrence of this affection with poliomyelitis in the same case. Isolated neuritis of almost every cranial nerve has been recorded, with such resulting conditions as optic atrophy, loss of smell and of taste, ophthalmoplegias, both internal and external; oculomotor, facial, and bulbar, or pseudo-bulbar palsies of various types, including true pneumogastric paralysis. Several cases of specially located affections of the sympathetic ganglia or nerves have been recorded. Of the forms of local neuritis most common might be mentioned the supra-orbital, intercostal, sciatic, and plantar.

An interesting case of neuritis with a myxœdemoid condition of the limbs presented herself at the Philadelphia Polyclinic recently. She had a sharp attack of influenza five weeks ago, having been in good health up to that time, except five years since, when she suffered for several weeks with inflammatory rheumatism. On recovering from the influenza, the attack not having been especially marked with nervous symptoms, she was extremely weak in the legs, and was scarcely able to drag herself around. In a few days her feet and legs began to swell and to be painful, and soon became of enormous size and exquisitely tender. She has gradually improved, but still has a condition of firm swelling, which does not pit on pressure, from her knees to her ankles, and she also still has great tenderness on squeezing the feet or ankles, or in handling the nerves or muscles of the limbs. She has no cardiac affection.

The articular pain and other so-called rheumatic manifestations so numerous during and after attacks of the grippe are, after all, best explained on the theory of infectious neuritis or myositis.

These cases with articular and other pains, and with swelling, recall the endemic or epidemic form of multiple neuritis known as beri-beri, in which the chief phenomena are œdema and paralysis of the limbs, with marked pain, hyperæsthesia and paræsthesia, followed later by anæsthesia, lost knee-jerk, and depressed electrical reactions. Myositis certainly, and probably also periostitis, occur as complications or sequences of the influenza, and usually in association with neuritis of some type.

Many of the reports speak of the frequent occurrence of various neuralgias. Doubtless a distinction is seldom made by observers and recorders between neuralgia and neuritis, which are or may be separate affections. Practically these cases should be regarded as neuralgic, in which pain is referred to certain nerve lines or radiations, but in which pain on pressure, and the other phenomena of neuritis, such as anæsthesia, vaso-motor and trophic disorders, and even paralysis, are absent. In my own experience the cases which could properly be diagnosed as neuritis are by far the most common. The distinctively neuralgic pains are probably due to toxæmically depressed or exhausted sensory nerve-roots or centers in the cord and bulb.

Of diseases of the spinal cord proper, occurring as complications or consequences of influenza, the reported cases are not numerous, but they are none the less important. A few cases of myelitis have been put on record by native and foreign observers—one that I recall in which all four extremities were paralyzed. As would be expected, in accordance with the analogies with other infectious and toxic diseases,

anterior poliomyelitis is the most common type. I have had several cases of temporary paralysis of one or more limbs, which, owing to the absence of pain and of cerebral symptoms, were apparently spinal in their origin, and probably light forms of inflammation. Concurrent multiple neuritis and poliomyelitis has already been referred to as having been observed by me in one case, in which the neuritis, which was not severe, soon disappeared, but a limited paralysis, evidently spinal in character, was left behind.

Several observers have reported cases of bulbar paralysis, and one striking example of this disease, attributed to the grippe, has come under my own observation, although exactly how far the influenza was responsible it is difficult to say. This patient, a clergyman, had a severe attack of influenza in May, 1890, and during its progress continued to work, and ate but little. In a very short time he noticed he was losing power in his hands, which soon atrophied. In January, 1891, he began to have difficulties of speech, and, briefly stated, the case went on until November, 1891, when he was first seen by me; his symptoms were those of well-marked bulbar paralysis, with progressive muscular atrophy, chiefly involving the upper extremities.

In accordance with analogy, we would expect the occasional occurrence both of nuclear polio-encephalitis, and even rarely Strümpell's cortical polio-encephalitis. One or two of the few cases of probable polio-encephalitis of the latter type have occurred in patients suddenly stricken with fever, loss of appetite, and other symptoms which may have been due to infection.

Priester\* has reported the case of a man, fifty-four years old, who was taken with influenza in February, and in the beginning of March was seized with extremely violent headache which resisted all medication, and later the patient became deeply somnolent, remaining in this condition for four weeks; he could be aroused, but was apathetic and soon slept again. Reflexes and temperature were normal; pulse from 40 to 60. The patient had no paralytic symptoms, and slowly improved. His affection, according to the reports of the case, closely resembled Gerber's disease—paralyzing vertigo—although the latter is a disease of the warm weather. Tumor could be excluded by the absence of all focal symptoms a year before the attack. The most probable cause he believed was a pathological process, involving the central gray matter of the third ventricle, which would bring the disease into close relation with polio-encephalitis of the nuclear type. Dr. G. J. Kaumheimer, who translated this report for the *Review of Insanity and Nervous Disease*, December, 1891, observed an exactly parallel case which originated in April, and lasted into July before recovery took place.

That meningitis, either cerebral, spinal, or cerebro-spinal, occurs during the decline of the influenza can not be doubted in the light of the evidence which has been presented by various observers, and particularly during the epidemic of the last three years. It is, however, a comparatively rare concomitant or complication. Some of the facts adduced as proofs of the existence of meningitis, and some of the cases reported as examples of the disease, are clearly instances of improper interpretation. The intense cephalalgia and rhachialgia; the atrocious pains variously localized in the face, trunk, limb-nerves, muscles, or joints; the vigilant delirium, with hallucinations and delusions, sometimes assuming great gravity; the intense vertigo, with or without nausea and vomiting—these and other well-known nervous manifestations which are so prominent in many cases at the initiation of the disease are not necessarily evidences of meningitis, or even of meningeal hyperæmia. Rather they are due to an overwhelming toxæmia of the nerve centers and of the brain. Severe and terrible in character at first, they frequently pass away almost as rapidly as they came, which would not be the case if they were the evidences of a true meningitis. The enormous prostration which is left behind shows that the centers of nervous energy have been subjected to a depressing agency of great virulence, not that merely enveloping membranes composed mainly of fibrous tissue and blood-vessels have been congested or inflamed. No

\* Priester. *Wien. med. Woch.*, No. 27, 1159. In *American Review of Insanity and Nervous Disease*, December, 1891.

reason could be given why such congestion or inflammation should leave such results.

The reports of cases terminating fatally because of meningitis, and even the reports, personal or official, of the frequent occurrence of this affection, must be received cautiously, and sometimes incredulously. They are only to be relied on when confirmed by autopsies, or when from observers who are accustomed to closely differentiate the meaning of nervous symptoms, and particularly of pain.

It may also be worth while at this point to refer to the somewhat frequent diagnosis of chronic meningitis as one of the sequelæ of the disease. This diagnosis is usually made because of the presence of more or less persistent pain in or on the head. Experience has led me to believe that this pain is usually neuritic rather than meningeal. Even deep-seated intracranial pain does not necessarily indicate meningitis. It may be due to neuritis, just as certainly as a pain in the hand or foot. The fifth nerve has an immense distribution within as well as outside the cranium, largely to the dura mater but also to other tissues and parts. It is a pathological possibility to have dural neuritis without a pachymeningitis, and this is the true explanation of some pains, both acute and chronic, which are present in other diseases as well as in influenza.

The form of meningitis most likely to be present in influenza is inflammation of the pia-arachnoid or soft membranes, now often designated leptomeningitis. From observations, corroborated by autopsies, I know that this affection may exist without pain, while pain of varying degree of severity, and usually intense, is practically invariable in pachymeningitis. Leptomeningitis, however, is not usually without pain and hyperæsthesia as symptoms, but it may be absent, and its presence or absence will depend upon the location, extent, grade, and complications of the meningitis.

While believing that these criticisms upon the sometimes hasty and the too frequent diagnosis of meningitis in influenza, and indeed in many other infectious and febrile diseases, are just, and can be sustained, it remains true that a genuine meningitis, sometimes of malignant type, may appear during the progress or closely following influenza. Some very competent observers have reported cases of this character, and in a very few instances the diagnosis has been confirmed by autopsies. The diagnosis should be made to hinge upon the signs and symptoms which would be satisfying as to the occurrence of meningitis from any cause; not alone on the presence of such phenomena as headache, vertigo, and vomiting, but on such more convincing manifestations as optic neuritis, and localized spasms or palsies, either cortical or of cranial nerves.

The fact that meningitis, and even the cerebro-spinal form, does occasionally occur in influenza, is by no means proof that this disease and epidemic cerebro-spinal fever are identical. It simply emphasizes the point with which I started—namely, that every infectious or poisonous agent introduced into the economy may produce the same or similar pathological results in the nervous system. Largely according to the vulnerability, special or general, of certain tissues and organs, will be the preponderance of this or that form of so-called disease—for instance, of neuritis, myelitis, meningitis, cerebritis, or of combinations of these affections. All infectious and toxic diseases give neuritis as the most common acute or chronic inflammatory manifestation, although myelitis, cerebritis, and meningitis may occur. Even in cerebro-spinal fever, as I was perhaps the first to point out, multiple neuritis is a common complication; but the infection being virulent and overwhelming, we may not only have meningitis, but even meningo-encephalitis, or meningo-myelitis, with all their malignant phenomena and permanently disastrous results.

Vertigo is another symptom like pain, often improperly referred to meningeal or cerebral inflammation. It is sometimes due to such disease, but, occurring in influenza, it may arise from other causes, as, for instance, from extravasations into the labyrinth or other portions of the auditory apparatus.

Müller\* reports the case of a man, fifty years old, who after influ-

enza presented great physical exhaustion. In a few weeks his mind seemed affected and he became somnolent, so that he could be roused only with difficulty and would then fall asleep again. In this respect the case was much like the one reported by Priester. Pain upon pressure was present over the vertebrae, the neck was rigid, the pulse was small and irregular, the skin reflexes were diminished, and the tendon reflexes were absent. In two weeks he began to improve. The author believed the case was one of spinal cerebro-spinal meningitis, similar to that seen after infectious disease.

Without entering into a discussion of their pathology or their peculiarities, I will briefly mention a few other forms of nervous disorder occurring during or as apparent sequelæ of the influenza, examples of which have come under my personal observation. Convulsions have been reported by various observers, and in a few instances the convulsive habit has been established, and the patients have remained up to the time of report as cases of epilepsy. I have seen two such cases. Hystero-epilepsy and other grave hysterical phenomena have been initiated, or have recurred in cases in which the symptoms had long been dormant. Of local spasmodic affections I have seen no records, but one case of persistent tonic torticollis, with some pain and tenderness in the spinal accessory distribution, has been in attendance at the Philadelphia clinic. Two cases of facial paralysis, occurring immediately upon the heels of influenza, have come under observation.

Many affections not of, but occurring in, the nervous system have been reported as complications or sequences of the influenza. These include such affections as apoplexy, due either to hæmorrhage, thrombosis, or embolism. One of my Polyclinic patients, a man thirty-seven years old, was attacked with influenza in January, 1890. He was not confined to bed, but suffered severely from headache, cough, and persistent general weakness, and in February he was suddenly paralyzed in the right half of his body, and completely aphasic. Well-marked cardiac murmurs were present, and the grippe in this and similar cases is probably causative by lighting up old endocardial trouble, or through the blood dyscrasia and general prostration which it leaves.

Various observers have reported cases of monoplegia and hemiplegia, without indicating the pathological character.

Recently, in consultation, I saw a typical hæmorrhagic apoplexy occurring in a case of influenza in a woman, about sixty years old, who had previously been in fair health, and was not known to have had any disease of the kidneys or heart, although her vessels were somewhat atheromatous. Dr. S. S. Prentiss,\* of Washington, has reported three cases of cerebral apoplexy occurring during the progress of the influenza: one was a man of fifty-seven years of age; another in a man of eighty-seven; a third in a woman of sixty-seven. One of these was probably hæmorrhagic; the other two, from the histories, were probably from thrombosis. In cases of this character the infection of the disease acts to bring about an apoplexy both by the changes which it produces in the blood, by its effects upon cardiac action, and by the general debility induced. Such apoplexies might occur from other depressing causes; they are to be regarded not as phenomena, but rather as accidents of the epidemic.

Uræmic convulsions in patients suffering from chronic Bright's disease have been precipitated by the influenza, and it has seemed to me to have been active in lighting up lurking syphilitic diseases.

In one case of parietic dementia of somewhat irregular type, seen in consultation, the initial symptoms of the disorder were observed soon after recovery from a severe attack of grippe, the wife and friends of the patient, in fact, attributing the mental disorder to this attack. The probabilities are that syphilis was present, but latent, prior to the epidemic.

Purulent meningitis and brain abscesses have been somewhat frequently noted in connection with the numerous instances of purulent otitis media.

The relations of influenza to insanity have not received much attention from writers. Mairet,† of Montpellier, has recently published a

\* Prentiss. *Medical News*, August 29, 1891.

† Mairet. *Grippe et aliénation mentale*. Montpellier and Paris, 1890.

\* Müller. *Berlin. klin. Woch.*, No. 37, 1890. Cited in *American Journal of Insanity and Nervous Diseases*, December, 1891.

lecture on the subject delivered at his clinic for mental and nervous diseases. Rush, who is referred to by Mairet, speaking of the epidemic which lasted from 1789 to 1791, and particularly of the year 1790, mentions that several persons were stricken with symptoms of insanity, and that one attempted suicide; he also speaks of several having had hallucinations of sight. Bonnet, reporting on the epidemic of 1837, cites one case which was stricken with a furious mania as the result of the grippé; and Petrequin, referring also to the same epidemic, records several patients tormented by melancholy ideas, and states that four or five suicides were accomplished or attempted at the hospitals in Paris.

The following conclusions compress into small compass so much that is valuable with reference to the relation between influenza and the psychoses that I can not do better than quote them. They are reported as the conclusions arrived at by Dr. Leledy, and were presented to the Medical Society of London by Dr. Savage: \* 1. Influenza, like other febrile affections, may establish a psychopathy. 2. Insanity may develop at various periods of the attack. 3. Influenza may induce any form of insanity. 4. No specific symptoms are manifested. 5. The rôle of influenza in the causation of insanity is a variable one. 6. Influenza may be a predisposing or exciting cause. 7. In all cases there is some acquired or inherited predisposition. 8. The insanity is the result of altered brain nutrition, possibly toxic. 9. The onset of the insanity is often sudden, and bears no relation to the severity of the attack of influenza. 10. The curability depends on general rather than on special conditions. 11. The insane are less disposed to influenza than are the sane. 12. In rare instances influenza has cured psychoses. 13. The insane may have mental remission during the influenza. 14. There is no special indication in treatment. 15. Influenza may lead to crimes and to medico-legal issues.

I can indorse from experience almost every one of these conclusions. With reference to the statement that no specific symptoms are manifested, it should be said that while this in a general sense is true, the most frequent type is a form of melancholia.

The cases of active insanity have been observed at the onset of influenza and during its height, but more particularly during its period of decline and convalescence. The published cases have been recorded chiefly as instances of acute mania or melancholia. The commonest type of grippé mental disorder, as I have just stated, is a form of melancholia or lypemania; but as this not infrequently assumes the form of melancholia agitata, it is often regarded as mania by practitioners not accustomed to differentiate the varieties of insanity. These patients are intensely depressed and emotional; they are filled with apprehensions of disgrace and ruin; they believe that they will never recover their former health; they are suspicious and delusional with reference to those who surround them; they are frequently unwilling to eat, or to rest, or to take medicine; and in some cases they have definite delusions of terrible character, for the most part hypochondriacal or religious. They are frequently plagued with the thought of suicide, and sometimes make successful or unsuccessful suicidal attempts. They have been deprived by the ravages of the disease of mental and moral stamina. In the majority of these cases, but not in all, some hereditary or acquired predisposition is present. While, however, the grippé usually gives us mental disorder of special type—a form of delusional melancholia—under special conditions it may be the starting-point or exciting cause of any variety of mental disorder, as mania, paranoia, parietic dementia, hebephrenia, etc., but I can no more than glance at this phase of the subject.

The investigations of Church show that in each year in Cook County, Illinois, the epidemic of influenza has been attended by an increase in the number of proceedings for the commitment of the insane, which he believes can not be explained by increase or movement of the population of the county.

Of the influenza occurring in hospitals for the insane, I have had no opportunity for observation except in connection with the insane department of the Philadelphia Hospital. A great disproportion has been observed between the number of cases occurring among the women

and the men. One hundred cases are recorded as having occurred among four hundred and sixty female patients; and only three in a larger number of men. The disease did not prove particularly disastrous among these patients, only three deaths having occurred from pulmonary complications. The cases were, as a rule, not of severe type; less severe than in an equal number of sane patients.

K. Helweg\* has recorded the results and action of influenza in the Asylum at Aarhus, Denmark, and Pritchard has translated and summarized this paper for the *Review of Insanity and Nervous Disease* for December, 1891. The account is of such interest that I will give it in detail: "The disease appeared in the asylum January 4th, a few weeks after it had first been observed in the neighborhood. Out of 520 insane, 41 were so severely attacked that they were confined to their beds. The disease seemed decidedly contagious. It spread with difficulty on account of the wards being divided one from another. Eight of the twenty-five wards were spared altogether. When a ward would be invaded, the disease would rapidly run its course to proceed to another. The transmission of the contagion could be distinctly seen in the sick wards where those stricken down in the other wards would bring the disease with them and transmit it to patients there. Seven patients had pneumonia. A relatively large percentage (six) died, of which four were from pneumonia. Among these was a man with such a severe cerebral disease that he must be excluded (the post-mortem results in the remaining five, which were women, were all more or less similar). The most essential results were extreme hyperæmia of the cranial bones and membranes, where the dura and the brain mass itself twice presented fresh and strongly vascular pseudo-membranes with small hæmorrhages as well. The veins and arteries of the thinner cerebral membranes were filled to bursting with blood; the large basal arteries were so filled with coagula that they stood out like cords, or those of an injected specimen. The brain substance itself was very hyperæmic, and its consistence increased. The average weight of these brains was about the ordinary of those of Aarhus. The writer also gives the history of the man mentioned, and those of the three other cases where influenza could not be diagnosed during life, including the post-mortem findings of a case of influenza in a (sane) nurse who died of pneumonia. Here also was great hyperæmia of the brain and its membranes, yet not so pronounced as in the insane cases. The writer has seen influenza accompanied by severe psychic symptoms. In a few cases the condition resembled acute delirium, which, however, is transient, and seems easily controlled by antifebrine. On the contrary, in two hopeless cases of insanity the disease had such a favorable and curative action that they may be regarded as cured. In both cases there was pneumonia."

The epidemic influenza has impaired the *morale* of the community. Lack of spirit in work, and an apprehensiveness with reference to health, business, and all matters of personal interest, are abnormally prevalent. The hysterical have become more hysteric; the neurasthenical more neurasthenic. Hypochondria has displaced hopefulness in individuals commonly possessed of courage and fortitude. In brief, certain neuropathic and psychopathic features have been impressed upon the community. We can not afford even to dismiss entirely from consideration the bearings of the epidemic upon the increase not only of suicides, but of other grave crimes.

Many interesting questions in connection with treatment might be discussed; but as the subject of treatment has been assigned in this discussion to Dr. Hare, I will only speak of one point.

The use in influenza of hypnotics, narcotics, sedatives, and motor depressants is a question of particular interest in connection with the study of the nervous and mental phenomena of the disorder. The views of practitioners and writers are here decidedly at variance. Serious mental and nervous complications or actual insanities occurring during influenza have been attributed to the too free use of such chemically powerful remedies as ihenacetin, antiptyne, antifebrine, chloral, bromides, sulphonal, and paraldehyde; and our older narcotics—such as opium, hyoscyamus, conium, and cannabis indica—have also come in for a share of blame. Persisting conditions of nervous prostration, and

\* Savage. *Lancet*, No. 3558; and *Medical News*, January 16, 1892.

\* Helweg. *Hosp.-Tidende*, R. 3, Bd. viii, S. 729.

chronic respiratory and cardiac neuroses, have also been charged to drugs. Undoubtedly such criticisms have some foundation, but it remains true that each of the remedies named has proved itself of some value in the treatment of influenza, and particularly of its nervous types. The enormous consumption of a drug like antipyrine is a practical argument both for and against its use. What Grasset has said of this remedy might with almost equal truth be said of almost any of the rest. "This agent," he says, "vaunted by some as a panacea against all manifestations of the disease, is considered by others a remedy absurd and irrational in all cases. The truth would seem to reside between these two extreme opinions."

**The Influenza Bacillus.**—The *British Medical Journal* for January 16th contains the following articles, translated from advance proof-sheets of the *Deutsche medicinische Wochenschrift*:

*I. Preliminary Communication on the Exciting Causes of Influenza.* By Dr. R. PFEIFFER, Chief of the Scientific Section.—(From the Berlin Institute for Infectious Diseases.) The following results are based on the accurate examination of thirty-one cases of influenza, in six of which a necropsy was made. A complete report will be published as soon as possible.

1. In all the cases of influenza a bacillus of a definite species was found in the characteristic purulent bronchial secretion. In uncomplicated cases of influenza these tiny bacilli were found in absolutely pure cultures, and mostly in immense quantities. They were very frequently situated in the protoplasm of the pus corpuscles. If the influenza had attacked persons whose bronchial tubes were already otherwise diseased—as, for example, phthisical patients with cavities—other micro-organisms besides the influenza bacilli were found in the expectoration in variable quantity. The bacilli may penetrate from the bronchial tubes into the peribronchitic tissue, and even reach the surface of the pleura, where, in two cases examined post mortem, they were found in pure cultures in the purulent exudation.

2. These bacilli were found exclusively in cases of influenza. Very numerous control examinations proved their absence in ordinary bronchial catarrh, pneumonia, and phthisis.

3. The presence of bacilli kept equal pace with the course of the disease; with the cessation of the purulent bronchial secretion the bacilli began to disappear.

4. I had already seen and photographed similar bacilli in the same enormous quantities two years ago, during the first epidemic of influenza, in preparations of the sputum of patients suffering from the disease.

5. The influenza bacilli appear as very tiny rodlets, of about the thickness of the bacilli of mouse septicæmia, but only half the length of these. One often sees three or four bacilli strung together in the form of a chain. They stain with some difficulty with the basic aniline dyes. Better preparations are obtained with dilute Ziel's solution and with hot Loeffler's methylene blue. In this way it can be seen almost as a rule that the two ends of the bacilli take the stain more intensely, so that forms are produced which can only with great difficulty be distinguished from diplococci or streptococci. In fact, I am inclined to believe that some of the earlier observers also saw the bacilli described by me, but that, misled by their peculiar behavior with regard to staining agents, they described them as diplococci or streptococci. They can not be stained by Gram's method. In hanging drops they are immobile.

6. These bacilli can be obtained in pure cultures. On 1.5-per-cent. sugar agar the colonies appear as extremely small droplets, clear as water, often only recognizable with a lens. Their continued culture on this nutrient medium is attended with difficulties, and up to the present I have not succeeded in carrying it beyond the second generation.

7. Numerous inoculation experiments were made on apes, rabbits, guinea-pigs, rats, pigeons, and mice. Only in apes and rabbits could positive results be obtained. The other species of animals showed themselves refractory to influenza.

8. In view of these results I consider myself justified in pronouncing the bacilli just described to be the exciting causes of influenza.

9. It is very probable that infection is produced by sputum charged with the germs of the disease; and the disinfection of the sputa of

patients suffering from influenza is therefore urgently required as a prophylactic measure.

*Addendum.*—Dr. Kitasato has succeeded in cultivating the influenza bacilli to the fifth generation on glycerin agar.

*II. On the Influenza Bacillus and the Mode of cultivating it.* By Dr. S. KITASATO.—(From the Berlin Institute for Infectious Diseases.) Gentlemen: It is, perhaps, remarkable that in the case of a disease which in the last few years has attacked hundreds of thousands of persons, the specific exciting causes have, in spite of extremely numerous investigations, only lately been discovered. The cause, in my opinion, lies in the extreme difficulty of cultivating the tiny bacilli here before you; and, without pure cultures, a bacteriologist can not, of course, come before the public with a new specific micro-organism.

The difficulty of obtaining cultures of specific bacteria present in the sputum depends chiefly on the great contamination of them with micro-organisms from the mouth, etc. The latter, in consequence of their more luxuriant and abundant growth, can, on our artificial nutrient media, completely overgrow and hide the particular parasites sought for. This occurs all the more easily the longer the specific parasitic micro-organism in question takes to form colonies, as in fact happened in the case of the tubercle bacillus.

With the view of avoiding the obstacles standing in the way of a successful cultivation, Privy Councillor Koch has devised a method, which has not yet been published, which enabled him many years ago, and myself again quite recently, to obtain pure cultures of tubercle bacilli directly from the sputum, and which has also been followed by me in the pure cultures of tubercle bacilli here before you. The method to which I have just referred will be published in full detail in an early number of the *Deutsche medicinische Wochenschrift*.

With regard to the characteristics of the pure cultures of influenza bacilli here before you, I may emphasize the following points: On a sloping surface of set glycerin agar the individual colonies present themselves as extremely small points like droplets of water, recognizable during the first twenty-four hours only with the aid of a lens, so that macroscopically a test tube containing them can scarcely be distinguished from a sterile one. The individual colonies are, as has been said, so unusually small that they may easily be overlooked, and it may thus have happened that previous investigators have overlooked them.

If a culture obtained from such a colony is placed on a new nutrient agar medium, numerous small colonies arise on the moist agar surface, as may be seen in this tube. A particularly remarkable point about them is that the colonies always remain separate from each other, and do not, as all other species of bacteria known to me do, join together and form a continuous row. This feature is so characteristic that the influenza bacilli can be thereby with certainty distinguished from other bacteria.

The possibility of continued cultivation is now demonstrated, and the tubes here before you already form the tenth generation in pure cultures. On gelatin they do not grow, as they do not generally multiply at a lower temperature than 28° C., which is the temperature at which gelatin solidifies. In *bouillon* they grow scantily. In the first twenty-four hours single white particles are seen swimming in the *bouillon*, the intervening fluid being perfectly clear. Later, they sink to the bottom, and there form a white woolly mass filling the end of the test tube, whilst the supernatant *bouillon* remains entirely clear—a proof that we have to deal with an immobile bacillus. In conclusion, I may remark that I have accurately studied with the microscope and by culture for a long time back the sputa of tuberculosis in respect to all the micro-organisms occurring therein besides the tubercle bacillus, and also the sputa of pneumonia, bronchitis, etc.; but the present bacillus, so extraordinarily characteristic in its cultures, and so easy to be recognized, has not come within my experience except in influenza patients.

*III. On a Micro-organism in the Blood of Influenza Patients.* By Dr. P. CANON, Assistant Physician, Berlin.—[From the Municipal Moabit Hospital (Section of Internal Medicine—Director, Dr. P. Guttmann).] During the last few weeks I have, under the direction of Dr. Guttmann, examined the blood of twenty influenza patients in stained preparations, and in almost all cases I have found in the blood one and the same micro-organism. The examination of the blood was made in the following way: A drop of blood, obtained by pricking the finger, was

received on a perfectly clean cover-glass; this cover-glass was placed upon another one, and the two then drawn apart. The preparations, after they had been thoroughly dried, were placed in absolute alcohol, in which they were left for at least five minutes. They were then taken out and placed in the following staining solution (Czenzynke's solution):  $\frac{1}{2}$  Concentrated watery solution of methylene blue, 40 grammes;  $\frac{1}{2}$ -per-cent. eosin solution (dissolved in 70 per cent. alcohol), 20 grammes; distilled water, 40 grammes. The cover-glasses, immersed in this staining solution, were placed in an incubator at a temperature of  $37^{\circ}$  C., and left there from three to six hours, when they were washed with water, dried, and imbedded in Canada balsam. In the preparations of blood made in this manner where the red blood-corpuscles were red and the white ones blue, I found the above-mentioned micro-organism. It is found stained blue, sometimes in large quantities, but mostly sparingly, and only to be identified after a long search (about four to twenty in the preparation). Sometimes it appears as a small diplococcus, sometimes, especially when it is more deeply stained, as a short bacillus. In six cases I have found it also in numerous larger and smaller heaps of from five to fifty individual microbes with a very characteristic appearance. In these six cases the blood was drawn during a fall of temperature or shortly afterward; in three of these no further rise of temperature occurred. From three to six days later I failed again to find the micro-organism in the blood in these three last cases. Sometimes I have been able to make the diagnosis of influenza when clinically it was not certain, by means of preparations of the blood alone. I have also found the bacteria in the blood, and indeed in considerable quantities, in cases where there was no appreciable local lesion, and especially no cough or expectoration. While making the preparations I have generally at the same time made streak inoculations of the blood on agar, glycerin agar, sugar agar, and *bouillon*. In six cases the *bouillon* was injected into mice, partly at once, partly on the following day after it had been in the incubator. These inoculations and experiments on animals always yielded a negative result. As on the basis of my researches I am of opinion that this micro-organism occurs in the blood of all persons suffering from influenza (at least in that of those who have fever), and as it is not found in the blood of other persons, and as it is a micro-organism hitherto unknown, I believe that it stands in direct relation to influenza.

Privy Councilor Koch had the goodness to examine some of my preparations—for which I tender him my best thanks—and pointed out that the micro-organism visible in them was identical with the bacterium found by Staff-Surgeon Dr. Pfeiffer, which has been described in the preceding paper, which is published at the same time as mine. I began these researches about the middle of December; I have, however, still a large number of preparations to stain and to examine. I propose to publish the results of the further research in a later communication. I have to thank Dr. Guttman and Professor Dr. Sonnenburg, director of the surgical section of the hospital, for kindly placing patients at my disposal.

**The New York Academy of Medicine.**—The following is the present list of officers: Dr. Alfred L. Loomis, president; Dr. R. C. M. Page, Dr. E. L. Keyes, and Dr. Charles McBurney, vice-presidents; Dr. Richard Kalish, recording secretary; Dr. O. B. Douglas, treasurer; Dr. M. A. Starr, corresponding secretary; Dr. Everett Herrick (chairman), Dr. Gouverneur M. Smith, Dr. Abraham Jacobi, Dr. Laurence Johnson, Dr. F. A. Castle, and Dr. W. F. Cushman (treasurer), trustees; Dr. T. R. French, chairman of the committee on admissions; and Dr. T. M. Cheesman, chairman of the committee on the library.

The special order for the meeting of Thursday evening, February 4th, was a paper by Dr. J. West Roosevelt, entitled *Practicable and Impracticable Plans for diminishing the Spread of Phthisis Pulmonalis*.

**Section in General Surgery.**—Dr. J. D. Bryant is the chairman, and Dr. W. W. Van Arsdale the secretary. At the next meeting, on Monday evening, the 8th inst., Dr. T. H. Manley will read a paper on *Primary Amputation, Consecutive Amputation, and Resection in Traumatism of the Extremities*, and will show patients illustrating the subject; Dr. R. H. M. Dawbarn will read a paper entitled *Experience*

with Senn's Hydrogen Gas Test for Wounds of the Gut, and show a patient illustrating a cutting operation for the relief of an old dislocation of the inferior maxilla; and Dr. C. A. Powers will show specimens of an elbow joint two years after resection, of a conical stump (physiological) from a child of three years, and of melano-sarcoma of the lower jaw from a child of four months.

**Section in Paediatrics.**—Dr. W. P. Northrup is the chairman, and Dr. F. M. Crandall the secretary. At the next meeting, on Thursday evening, the 11th inst., papers pertaining to the management of diphtheria will be read by Dr. J. E. Winters, Dr. H. D. Chapin, Dr. L. E. Holt, and Dr. Abraham Jacobi.

**Section in Genito-urinary Surgery.**—Dr. E. L. Keyes is the chairman, and Dr. Samuel Alexander the secretary. At the next meeting, on Thursday evening, the 11th inst., papers (titles to be announced) will be read by the chairman and by Dr. Otis.

**Section in Ophthalmology and Otology.**—Dr. T. R. Pooley is the chairman, and Dr. J. E. Weeks the secretary. At the next meeting, on Monday evening, the 15th inst., Dr. J. H. Claiborne will read a paper on *The Axis of Astigmatic Glasses*, and Dr. R. C. Myles will read one on *The Normal and Pathological Anatomy of the Ear*.

**To Contributors and Correspondents.**—*The attention of all who propose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

## Original Communications.

CLINICAL OBSERVATIONS ON THE  
TREATMENT OF TRACHOMA BY EXPRESSION.

BY THOMAS R. POOLEY, M. D.,

NEW YORK,  
PROFESSOR OF OPHTHALMOLOGY IN THE NEW YORK POLYCLINIC;  
SURGEON-IN-CHIEF TO THE NEW AMSTERDAM EYE AND EAR HOSPITAL.

AMONG the most unsatisfactory cases to treat in the whole domain of ophthalmic therapeutics, trachoma may justly be placed in the very front rank, and any plan of treatment which will shorten the chronic duration of this disease must be considered a boon. That this has been accomplished by the recent revision of an old plan of treatment, the experience of ophthalmologists both in New York and elsewhere, who have tried it in a large number of cases, would seem to show, and the evidence that it cuts short the progress of these cases to a wonderful degree is fast accumulating. This much may fairly be said without running the risk (as is too often done in our enthusiasm) of being too sanguine about any new method of treatment. The purpose in this communication will be to set forth as concisely as possible the results obtained by the operation in a few cases, with such observations as the experience thus obtained would seem to suggest. These cases embrace all those operated on by this method since November, 1890, a period covered by one year, and in all cases only those were selected which seemed especially applicable to this method—*i. e.*, acute cases which showed a disposition to become chronic, and where the trachomatous bodies are more or less numerous, with but little irritation and moderate inflammatory reaction.

The method is not applicable to the third stage of trachoma, usually known as diffused, in which another one known as *grattage* is now employed by some operators. The cases from which the writer's experience has been gathered embrace but a limited number; nevertheless, they have all of them been followed to their ultimate conclusion, and afford, therefore, a good criterion of the results to be obtained by this method of treatment. Seven patients and ten eyes were operated upon. In all except one the patient was placed fully under the influence of ether; in one cocaine alone was made use of, while in several others cocaine as well as ether was employed. When ether alone is used the hæmorrhage is more profuse than when cocaine is also employed.

Most operators employed specially constructed forceps. At a recent discussion in one of the medical societies nearly all present had one of their own invention to show. That these are sometimes advantageous can not be denied, but the author greatly prefers for the expression of the contents of the granules to use the fingers and the thumb-nails, which should be thoroughly cleansed and scrubbed with a nail-brush. The lids are everted and then the granules squeezed out by the thumb-nail aided by the index finger in the *cul-de-sac*, or else both index fingers may be used, the left beneath, and the right—which does the most work—above the lids. The application of this method is especially difficult

in the angles, where the use of forceps may be needed, in which case either the forceps invented by Dr. Noyes or an ordinary cilia forceps was made use of.

The success of the operation depends upon the thoroughness with which every granule is expressed, or emptied of its contents, and is therefore an exceedingly tedious procedure. The eyes must be frequently cleansed during the operation by a solution of boric acid or bichloride of mercury. In six cases, after the lids had been thoroughly cleansed and dried, their surfaces were rubbed over very thoroughly with a crayon of sulphate of copper, as recommended by Dr. Gruening. In four cases this was omitted. At first the patients were always kept in the hospital for two or three days after the operation, but as more knowledge was acquired by experience as to the nature of the reactive processes, they were in some cases, where there were objections to this, allowed to return home. Cold compresses often changed were applied over the lids for about twenty-four hours—in some instances longer—to combat the reaction, which was usually severe, and in one case even threatened the destruction of the eye. It was usually, however, confined to swelling and œdema of the lids, which, under the use of cold compresses, rapidly subsided, and was always the most severe when copper was used. In a few days after the operation, if all the granulations had been expressed, no appearances of trachoma remained, but a good deal of conjunctival swelling and secretion, which continued for some time, gradually subsided, leaving the lids in a comparatively healthy condition. All of the cases were practically cured in from three to five weeks, except one in which there was dense corneal pannus and a good deal of reaction from the treatment as well; this case will be reported in full as Case III, and is the only one of the series in which the cornea was affected or the sight impaired; in all the others the disease was confined to the lids alone. In all but one instance only one eye was operated upon at a time. The experience of the operator in the one case where this was deviated from will probably deter him from repeating it again. Without going into a tedious detail of all the cases, it may be of interest to give briefly the notes of several, and a more extended account of the case in which the character of the reaction was alarming.

CASE I.—Anna Y., aged nine years, left eye operated on in the New York Polyclinic, November 20, 1890, under ether. Both lids, especially the lower, were studded over with large, fresh, spawn-like granulations, and were squeezed out by Noyes's forceps and the finger-nails, care being used to attack all the granulations. The upper lids operated in the same manner, but they were not so abundant. After the evacuation of all the granules the surfaces of the lid were thoroughly rubbed over with sulphate of copper in crystal. Patient was sent to the New Amsterdam Eye and Ear Hospital; cold applications made. There was but little reaction swelling of the lids and œdema. Right eye operated on in the same manner November 21st, but the expression was entirely accomplished by the use of the thumb-nails and fingers. There was a more brisk reaction than from the first operation, but under the same treatment it soon subsided, and November 23d the patient left the hospital. She was under treatment for about two weeks more in the dispensary, and then dismissed entirely cured.

CASE III is the one in which there was such excessive reaction.

Mary M., aged fifteen years, entered the New Amsterdam Eye and Ear Hospital March 18, 1891, with trachomatous pannus, and the upper lids, which were especially affected, studded over with large, fresh granulations. The granulations were less abundant in the lower lids. There was dense pannus of both corneæ, and vision was reduced to counting fingers. She had been practically blind for two years, and had already had the lids operated, probably by expression. With the patient thoroughly etherized, the granulations were expressed, in the manner already described, from both eyes, and then their surfaces rubbed over with the copper stick. The following morning, notwithstanding the use of cold compresses, both lids were terribly swollen, tense, and brawny, as seen in diphtheritic ophthalmia, so that it was almost impossible to evert them, on accomplishing which their inner surfaces were covered by a croupous-looking membrane, which could be detached with difficulty. Both corneæ were infiltrated, and in the left there was a deep ulcer. Cold applications were continuously applied both during the day and night until the next morning, reducing very greatly the excessive swelling of the lids, and atropine used as well.

November 20th.—There is now an ulcer of the right cornea as well, while that of the left seems about to perforate. A solution of eserine, one tenth of a grain to the ounce, was instilled every two or three hours, and atropine three times a day, while warm applications, fifteen minutes at a time three times a day, were substituted for the cold ones. She now began to improve rapidly, the corneal ulcers, which fortunately were not central, healed, the corneæ cleared, and she could see much better than before the operation.

March 28th.—She was discharged. Right eye, V. =  $\frac{5}{200}$ . L. V. =  $\frac{18}{200}$ . She came from this time on until April 7th to the clinic, and there was continued improvement without any further treatment. Vision rose to  $\frac{20}{200}$  in the right and  $\frac{27}{200}$  in the left eye. The lids were almost entirely free from any appearances of trachoma.

CASE IV.—Mary S. entered the hospital May 1, 1891, with recent trachoma of both eyes. The granulations were abundant, fresh, and covered the entire lower *cul-de-sac* of both eyes, the upper lids being comparatively free. The left eye was operated on in the same manner as already described, the operation followed by very considerable swelling and œdema of the lids, rapidly subsiding under the continuous use of cold applications. On May 3d the right eye was operated upon, and in like manner followed by a good deal of swelling of the lids, which, however, soon subsided. The patient was discharged May 10th, made thereafter occasional visits to the clinic, and was dismissed from treatment with the trachoma quite well in about three weeks.

To sum up the advantages of this method of treating trachoma, it seems not too much to say that by it we can cure in a few weeks cases which, under the old plan by the use of nitrate of silver and sulphate of copper, would last for months and years, and this, too, by an operation which is comparatively free from danger. The success of the operation will, no doubt, be in direct relation to the thoroughness with which it is done. Although many of the granulations may be absorbed by the reaction consequent upon the operation, still, should some of these remain, there will still be trachoma to some extent which may spread again over the whole conjunctiva. And it may even be necessary to resort to a second operation.

The operation in which the sulphate of copper is used

gives the best results, although a cure may be effected without it if care is taken to be thorough in the expression of the contents of all the granulations. It is desirable to operate upon only one eye at once, because of the possible dangerous reaction when both are done at once; besides, the operation, if carefully done, would be too tedious and long an operation. The treatment by this method is far less dangerous than inoculation of pus, sometimes practiced in severe cases of trachoma, and is also less dangerous and more efficacious than the treatment by jequirity. We may therefore hope that at last we have a means of effectually combating this hitherto intractable disease—and that our hospitals and dispensaries will soon cease to be crowded by the daily attendance of chronic trachoma patients—by a procedure which not only arrests but cures the disease in its first stages.

That the old cases—those which have been modified by a long course of treatment with caustics and diffused trachoma—will as readily be cured by the operation of grattage does not seem to the writer as probable; but should this be so, we shall then have at our command two procedures which will render us masters of the situation.

## THE PROGRESS OF CYSTOSCOPY IN THE LAST THREE YEARS.

BY WILLY MEYER, M. D.,

ATTENDING SURGEON TO  
THE GERMAN AND NEW YORK SKIN AND CANCER HOSPITALS.

(Concluded from page 146.)

### III. CYSTOSCOPY WITH REFERENCE TO DISEASES OF THE KIDNEY.

NITZE, Fenwick, Goldschmidt, Poirier, Tuffier, Janet, and many others have published interesting cases where negative vesical evidence gave a positive diagnosis of renal disease and where cystoscopy not only proved the formerly obscure trouble to be of renal origin, but gave the means for exactly locating the lesion and distinguishing which kidney is diseased or whether both are affected.

Under ordinary circumstances it is not difficult to determine whether the urine propelled from the ureteral cones is clear, murky (purulent), or bloody. We simply have to place our prism just opposite and comparatively close to the mouth of the ureter, and then carefully watch. Some experience and patience, a quiet hand, and close attention are all that is needed. But, as mentioned above, this task at once grows more difficult if the injected clear water rapidly becomes turbid. The inspection can then only be effected by means of the irrigating cystoscope.

CASE I. *Pyuria; Cystoscopy; Nephrotomy; Nephrectomy; Recovery.*—Mrs. X., aged forty-five years, had noticed since several years that her urine was now and then cloudy; had also occasionally experienced some pain in her left side. The latter was attributed to a fall the patient had received while out sleigh-riding in the country twenty years ago. Otherwise she had always been in apparently good health. At the middle of June this year she was suddenly taken very sick with high, continuous fever, enlarged spleen, and general symptoms, which were suspicious of typhoid. But a tumor was palpated in the left

lumbar region, and the urine contained pus. The gentleman who had been consulted proposed cystoscopy, and I was called in to perform it. After a short irrigation the water returned clear. Quickly the elements of the battery were screwed down into the acid, the full strength of the current allowable for getting a bright light determined, and the circuit broken. The catheter, corked, had been left in the bladder meanwhile. In extracting it then a few drops of water escaped, perfectly turbid. Of course only renal trouble could have done that. Again the fluid in the bladder was changed and the irrigating cystoscope introduced. One glance in bright illumination, showing a healthy bladder; and a dense fog suddenly came up and threw a heavy veil over the whole landscape. Now the irrigating cystoscope was put at work. The prism was turned to the left and the murky fluid allowed to run off, while the hand-syringe threw in short jets of clear water. The fog lifted, and I clearly perceived the left ureteral opening, and out of it nearly at the same moment a forcible eruption of a snowy-white, milky fluid. Spurting forward into the medium, which was contained in the bladder, in the shape of a fire-sheaf, the first rather thick mass at once dispersed and was dissolved into myriads of minutest snow-flakes, which slowly came down and at once put a stop to all further examination. The manœuvre was now repeated on the same side and the diagnosis of suppurating kidney clearly established. The very frequently descending jets, which always are pathognomonic of an irritative process in the pelvis of the respective kidney, could be attributed to the coexisting pyelitis or the presence of a stone in the pelvis. Of course the urine of the right kidney was now analyzed in the same manner. It was clear.\* A few days later I performed nephrotomy and found a pyonephrotic kidney with a large stone in the greatly enlarged pelvis. Only the debilitated condition of the patient prevented me from removing the diseased organ at once. Primary nephrectomy seemed to me to be fully justified in view of the cystoscopic result, and would have spared the patient a second operation. The kidney was, however, left in and drained, with the intention of extirpating it as soon as the lady's health would permit it. Nephrectomy was done by me four months later, on account of an annoyingly running renal fistula. To-day the patient is cured.

A number of patients with intermittent abundant hæmaturia have been under my care in whom the cystoscope demonstrated a perfectly healthy bladder. In only one of them have I been so lucky as to make the examination just at the time of the bleeding, and I then saw a red, rapidly propelled whirl crossing the prism, and slowly mix with the transparent water, slightly coloring the same. None of the patients, who just happened to be examined at the bloodless period, reappeared at the time of the next hæmaturia as ordered. Perhaps they were unable to come. The one in whom I had diagnosticated unilateral renal hæmaturia—which, according to the symptoms, was evidently caused by a new growth—declined the proposed operation. She died after an abundant hæmorrhage not long afterward. A few cases of this kind are published by Nitze, Fenwick, and others.

\* I want to state here that even with the able help of the irrigating cystoscope it is extremely difficult, if not in many cases impossible, to make out a urine which is only very slightly turbid or which is clear and contains long shreds of tissue, as I have seen it in one case. Generally a certain amount of turbidity is required before it becomes visually apparent and perceptible. Bimanual palpation of the suspected diseased organ or pressing it will frequently help in making the cystoscopic diagnosis of renal pyuria.

But the transparency, color, and frequency of the descending jets of urine are not the only points which have to be observed and noted in exploring the bladder with the electric light. We are able to still further analyze and specify the character of the whirls as they can be seen jetting from the ureters.

The history of a few more cases of renal disease, which lately occurred in my own practice, will well illustrate this.

CASE II.—*Cystoscopy; Suprapubic Lithotomy; Cystoscopy; Nephrolithotomy; Recovery* (the continuation of a case previously mentioned in this paper).\* On the 10th of March, 1891, Mr. D., of whom I had lost sight since the summer of 1888, again called upon me, a sick man. His stomach was entirely out of order. Every few days he vomited great masses of sticky mucus, and was only able to do so by first drinking a tumbler of very strong salt water. Cathartics were freely used. Entire loss of appetite. He had been for this trouble under a physician's care, who was, however, unable to improve his condition in spite of constant careful attendance. The doctor diagnosticated "nephrolithiasis on the left side" and sent the patient to me for operation. The history further revealed that not long after the suprapubic wound had definitely closed an attack of epididymitis on the right side had twice set in. The urine had never entirely cleared up. Last summer (1890) the left testicle became suddenly inflamed. At the same time, the former dull and constant pain in his left lumbar region, which had now and then troubled him during the entire last year, became more marked. For three days the urine was mixed with blood. A similar attack occurred in January, 1891. At present he had a constant pain and he was obliged to get up twice during the night to pass water. In the daytime he urinated about every four to five hours.

Cystoscopy (cocaine): Mucous membrane of the bladder comparatively healthy. No scar as a result of the operation visible. Prostate large, easily bleeding. Right ureter is pumping at regular, though rather short, intervals; ejects clear fluid. The whirlings propelled from the left ureteral opening are by far less frequent and last nearly as long as three of the opposite side combined. This phenomenon can be noticed with so much greater precision as the urine of the corresponding kidney is slightly turbid. No renal hæmaturia at present.

Considering all these facts, I diagnosticated "a stone in the pelvis of the left kidney large enough to partially block the upper ureteral opening." Taking this conclusion as correct, it was evident that the urine had to gather in greater quantity and had to distend the pelvis of the kidney more than ordinary before finding or rather making its outlet on one or more spots alongside the necessarily irregular surface of the stone. And this again explained best the curious character of the jets as observed at the left ureteral cone. Taking further into account that the patient had noticed his very first pain in the left lumbar region as early as 1886, and that I had to remove a stone from the bladder two years later, my diagnosis was well founded that nephrolithiasis had been the primary and constantly persistent trouble in this case. No doubt a small piece of the renal calculus had been broken off as early as 1886 and carried down to the bladder, and had there formed the nucleus of the stone which was removed by me in 1888. Was the other kidney healthy? I did not venture to answer this question on the ground of the cystoscopic result. Certainly the abnormal rapidity of the jets was suspicious and

\* Read before the Section in Genito-urinary Surgery of the New York Academy of Medicine, November 12, 1891, the patient being present.

pointed to an irritation in the pelvis of the right kidney. But the answer to this question was less important, as only nephrotomy on the left side seemed to be indicated.

I told the patient my diagnosis, and also my hope of being able to help him by operative interference. But, to confirm what I had just seen, I asked for a second cystoscopic examination. The patient at once agreed. When he returned for this purpose, he reported that in walking home from my office the other day he had felt a sharp pain in his right side. This had at first frightened him very much. But, as the pain had not reappeared, he felt easier now. The second cystoscopic examination fully corroborated the result of the first one.

Nephrotomy was proposed and accepted. On May 5th, this year, I made the lumbar incision. A large stone, entering the ureter for some distance, was felt as soon as I was down on the kidney. The pelvis was transfixed with two silk threads which afterward served as holders, and then incised between them in the length of fully an inch and a half. To extract the stone in one mass proved to be impossible. I broke it with my fingers by pressing upon the upper portion of the ureter from outside. Then I was able to pull the two pieces out with an ordinary dress-



FIG. 3.

ing forceps, the larger upper portion from the pelvis of the kidney and the more slender lower one from the ureter. The whole stone presented a perfect cast of the enlarged pelvis of the kidney and the upper part of the ureter. Its lower pole was flattened, in a shape not unlike the mouthpiece of a flute. It is in all two inches long (see Fig. 3). Now I pushed a long thin rubber bougie down the ureter, and then a small-sized soft-rubber catheter cut off at its end, through which I flushed a syringeful of warm boric water into the bladder. The ureteral canal evidently was free. Still I carefully palpated with a curved steel sound the interior of the kidney from the pelvis upward. No other concrement was found.

Meanwhile great care had been taken not to tear the cut surfaces of the pelvis of the kidney by pulling too hard on the silk threads which held it apart, as such a tear generally produces urinary fistula. Now the wound of the pelvis was closed with six catgut stitches, which did not include the mucous membrane, and the wound loosely packed with iodoform gauze. A small-sized short drainage-tube led down to the sewn-up wound in the pelvis of the kidney. The outer wound was closed with silkworm-gut threads which were only loosely tied.

The patient made an uninterrupted recovery. He never was feverish. Gauze and drainage-tube were removed after forty-eight hours. Leakage never set in. The wounds healed by primary union throughout. The patient left the hospital with the wound firmly closed on May 21st, sixteen days after the operation.

When I saw him again he reported that, four days after having returned to his home in Brooklyn, he was suddenly seized with a very intense renal colic on the right side—that is, the side opposite to the diseased kidney—which lasted six hours. The pain was so severe that the attending physician had to administer chloroform for a full hour. When the pain began to subside, he passed about ten ounces of urine at two times inside of an hour. Since that accident he was free from pain. Only the stomach was still troublesome. He soon left for the country, where he spent the summer. Lately a throat specialist has burned his nose and throat, which, according to the patient's statement, has greatly improved the still slightly rebellious stomach. A fortnight ago he passed, after some pain in his left

lumbar region, two round, semi-solid masses, each of a bean's size. This was from the side operated on. To-day he appears hale and hearty, fully able to attend to his business. He is entirely free from pain and trouble. His urine at present is clear. He, of course, has to remain under observation on account of the probable nephrolithiasis on the right side.

*CASE III. Suppurating Floating Kidney; Nephrotomy; subsequent Cystoscopy; Nephrectomy; Recovery.*—Mrs. X., forty-five years old, came under my care in July, 1887. Two months previous she had been operated upon for an inflammation which had set up in the left (floating) kidney. The lumbar incision had revealed a cystic degeneration of the organ, the cysts being filled with clear, transparent fluid or pus, or a mixture of both. A number of cysts were opened, and communication established between as many as could be reached with Paquelin's thermo-cautery. The pelvis of the kidney was not opened. The wound had healed well up to two small sinuses, which remained in the scar and gave a continuous exit to a small or larger amount of sero-pus. The patient was greatly benefited by the operation. For more than two years she felt comfortable and enjoyed life; only at the time of menstruation she suffered from more or less intense bladder tenesmus. But after a while this symptom ceased to be limited to the menstrual periods and became nearly constant. It increased in such a degree of severity and frequency, in spite of manifold and persevering trials to fight it, that life was a misery, and the question came up, Could the patient still be improved by operative interference? Of course, this question had been frequently considered at length before, but it was always rejected in view of the clinical fact that cystic degeneration of the kidney very rarely is a unilateral disease. Usually both organs are involved.\* Cystic degeneration is therefore rather a contra-indication to nephrectomy. And indeed in this case the lower pole of the right kidney was palpable in the right hypochondrium. But could this enlargement of the organ not be just as well due to compensatory hypertrophy, in view of the constantly diminishing size of the left one, which had always been easily palpable in the slim patient? If we could know that the right kidney had already assumed the work of the other or that the secretion of urine from the left diseased organ was insignificant in comparison with that of its fellow, the patient could only be benefited by the removal of this nearly useless cystic mass, provided that she stood the operation. That the greatest amount of pain and trouble was dependent upon the presence of the left kidney could be proved by vaginal palpation of the ureters. The left ureter presented a cord as thick as a thumb, the slightest compression of which created at once an urgent and painful desire to urinate; the right one was perceptible merely to the normal degree. Pressure upon it did not irritate the bladder.

Active treatment, however, became imperative when in November, 1890, chills, followed by high though short-lasting fever, repeatedly set in, apparently due to progressive ureteritis. To determine the exact condition of the right kidney it was, of course, very tempting to compress the left ureter, or even drain it for some time from the vagina. Either of the procedures however, would have required narcosis, which, if possible, had to be avoided.

\* Cf. O. Riegner. *Exstirpation einer wandernden Cystenniere Deutsche med. Wochenschr.*, 1888, No. 3.—Clark. Case of Cystic Kidney in which Nephrectomy was performed. *Glasgow Medical Journal* 1889, p. 177.—Newman. A Case of Cystic Disease of the Kidney diagnosed during Life. *Ibid.*, 1889, p. 255.—C. A. Ewald. Ein Fall von totaler cystöser Degeneration beider Nieren beim Erwachsenen nebst Bemerkungen zur Klinik dieser Erkrankung. *Berlin, klin. Woch.*, 189: No. 1.

I now resorted to cystoscopy and saw the following condition: Catarrh of the bladder, minutest and larger blood-vessels injected. The place where the orifice of the left ureter should be seen presented a succulent and curiously folded growth—viz., the swollen and inflamed fold of mucous membrane belonging to and surrounding the ureteral opening, the whole mass resembling a large lamp-shade. Still looking at the picture with interest and trying to find the mouth of the ureter, I suddenly noticed a jet of fluid, mixed with smaller and larger yellow flakes and shreds, which came from a somewhat retracted spot, a little to the left from the top of the mass. This exactly recalled the appearance of an eruption of a volcano, as drawn by the pencil of the artist. A few minutes later a long thread of thick, yellow pus was slowly making its way out of the same opening into the bladder. It took some time before I found the other, rather rounded, ureteral opening, a portion of normal though deeply injected mucous membrane, about three quarters of an inch in length, being interposed between it and the swelling just described. At this moment I had to stop the examination, which was made under local cocaine anaesthesia, as the weak patient felt rather tired. A short time later the bladder was again illuminated, this time with the intention to determine, if possible, the character of the jets descending from the *right* kidney. The ureteral orifice was quickly found and carefully watched. This orifice was pushed forward and retracted alternately, as we see it normally with each jet of urine thrown into the bladder. The regularity and frequency of this intermittent movement markedly contrasted with the slow and irregular working done on the other side. It struck me whether this symptom might not be used in finding out the exact amount of work done by each kidney. So I asked the assisting nurse to look at the watch and carefully count the time between my saying "Now," which marked each jet. I noted a passage of every twelve, fifteen, twenty, twenty five seconds on the right side, while on the other only every four, six, eight minutes, the period of the emission of the jet besides covering a somewhat longer time on the right than on the left side. Meanwhile the water had become muddy. It was easily changed, as I performed the examination with the irrigating cystoscope, and now I also perceived that the urine of the right kidney was clear.

What conclusion could I draw from these facts? I believed this: that the right kidney was doing from twelve to sixteen times as much work as the left one.\* Was I therefore justified in pronouncing the right kidney healthy? I did not venture to make such a definite diagnosis, especially in view of the frequent bilateral affection in cystic degeneration of the kidneys. The urine might be at times transparent, while at others turbid. Only often-repeated cystoscopy might possibly have cleared up this part of the diagnosis.

But to diagnosticate health or disease of the right kidney was not the main question. The question really was: "Would the work of the right kidney be sufficient if the left had been removed?" That it would be so seemed to be amply proved by the cystoscopic examination, and if it did, the diseased organ, which caused the repeated weakening attacks of ureteritis and septic fever, was a burden to the organism and could and should be removed.

On these grounds a favorable prognosis was made in regard to nephrectomy in its future results, provided the immediate effects of the operation were well borne.

I therefore performed the operation, and the specimen thus

obtained showed that only the lower third of the organ contained secreting tissue and that the upper two thirds consisted of cysts, smaller and larger in size, more or less communicating. In one of them there was a very small round stone. The whole organ was greatly diminished in size.

In the first twenty-four hours after the operation urine was scarce on account of the loss of blood. From the second day on the daily average quantity was thirty to forty ounces. The former chills and fever ceased at once. The patient made an uninterrupted recovery, and is so far greatly benefited by the operation.

CASE IV. *Left Suppurating Kidney; Cystoscopy; Nephrectomy; Recovery.*—Mrs. P. M., aged forty-eight years, was sent to me from Collinsville, Conn. Her father had died of phthisis. She had had eleven children, of whom seven were still living. For fourteen years the urine had been muddy and of offensive smell. Tenesmus changing in severity toward and after the end of micturition. Two years ago pains in the left lumbar and hypochondriac region appeared; the urine became of a milky color, and had lately contained small particles of coagulated blood. It was voided ten to twelve times in the day-time and at least four times during the night. The patient had continuously lost flesh and felt very weak. December 18, 1890, examination: On deep pressure below the border of the left false ribs, a hard, not very large, mass can be palpated, which is rather immovable, painful to the touch, and of apparently smooth surface. Vaginal exploration reveals a thickened left ureter, which, if compressed, is quite painful and creates the desire to urinate. On the left side of Douglas's *cul-de-sac* an enlarged, painful, immovable swelling (probably the ovary); urine of neutral reaction; smells very offensively; two thirds of volume sediment; shows pus and mucous cells, a few red blood-corpuscles, micro-organisms of great variety, crystals of oxalic acid and ammonium phosphates; detritus; one-per-cent. albumin in the filtered specimen.

Could this evidently suppurating left kidney still be removed? Did it still partake in the secretion of urine? Were both kidneys diseased?

Cystoscopy under cocaine: Mucous membrane of the bladder hyperæmic, and around the left ureteral orifice papillomatous in appearance. Out of the latter a very long, worm-like, under the electric illumination snow-white, shining thread of thick pus of the size of a thin pencil is very languidly making its way at short intervals. No jet whatever. The pus evidently was very viscid, as the long strings settle and curl in the bladder fundus—a very characteristic picture, which was also plainly noticed by a number of gentlemen present. It took some time before the medium became muddy. The right ureteral orifice was occupied by a round red growth of the size of a cherry. On putting the prism quite close to it, it appeared transparent. It consisted of mucous membrane (prolapse of the ureter). Out of its left (median) side jets of seemingly clear urine were thrown at short intervals.

Cystoscopic diagnosis: "Left suppurating kidney. Its secreting tissue entirely gone. Right kidney already does double duty for its destroyed fellow. Some irritation in the pelvis of the right kidney."

On account of this cystoscopic diagnosis I proposed nephrectomy. The operation was done by me at the German Hospital, December 29, 1890. It was found that the whole greatly enlarged left kidney was sclerosed and did not present a bit of normal secreting tissue. It contained many cavities communicating with its pelvis. A large ramified stone entered a number of them. After the operation the amount of urine never varied except in the first twenty-four hours. The patient made an uninterrupted recovery up to the thirty-ninth day, when she was

\* I think this is the first time that this kind of observation has ever been used for determining the work done by each kidney, and that its correctness was afterward proved by the specimen obtained.

suddenly seized with intense right renal colic and abundant hæmaturia. After five days of serious, nearly hopeless, illness she passed a stone (an excellent *demonstratio ad oculos* of the pathognomonic correctness of prolapse of the ureter). From that moment on she was again well and remained well. To-day she is perfectly healthy; her urine absolutely clear.

These cases present the most interesting ones in which I have resorted to endoscopic examination of the bladder for the purpose of diagnosing disease of the kidneys. The last two cases especially are, I believe, of so much more value as not only did cystoscopy enable me to establish the indication for nephrectomy and to make the prognosis that this operation would most probably not interfere with the patient's general condition, apart from its possible immediate consequences, but the specimen proved in each case the correctness of the different important points thus made out.

The catheterism of the ureters, with the help of still improved cystoscopic instruments, will, I trust, soon be an extremely important and never-to-be-omitted factor in cystoscopy for renal disease. Its results will greatly reflect upon and vastly increase the value, correctness, and exhaustiveness of such a cystoscopic diagnosis. The catheterism of the ureters in this way will easily, simply, and happily solve the problem on which many an ingenious mind worked in vain, or at least without general and recognized success—namely, the bloodless, separate collection and analysis of the secretion of each kidney.

The only non-operative method which formerly could be applied to localize and diagnose a kidney trouble in the male,\* where a large swelling or growth in one of the hypochondriac regions did not at once show where to search for it, was by compression of the ureter. The attempts at solving this task have been very ingenious, but have not been generally adopted in practice.† Axel Iversen,‡ therefore, proposed to open the bladder above the pubes and then to catheterize each ureter separately. Fully appreciating the great value of this mode of procedure, and not looking at suprapubic cystotomy as being a dangerous operation, I am perfectly convinced that cystoscopy will ere long make it just as superfluous and unnecessary, in the majority of cases at least, as it has already made Sir Henry Thompson's digital exploration of the bladder in most instances.

Of course, I do not want to be understood as if I

\* In the female our non-operative diagnostic means in this respect have been more ample, however difficult to practice, for a number of years. Cf. G. Simon. Ueber die Methoden, die weibliche Urinblase zugänglich zu machen u. über die Sondirung der Harnleiter beim Weibe. Volkmann's *Klin. Vorträge*, No. 88.—Lewers, *Lancet*, 1886, November 13th.—K. Pawlik. Ueber Harnleitersondirung beim Weibe u. ihre praktische Verwendung. *Wiener med. Presse*, 1886, Nos. 44–51.

† Tuchmann, Ueber ein neues Mittel zur Diagnose der Blasen- u. Nierenkrankheiten, *Wiener med. Wochenschr.*, 1874, Nos. 31 and 32.—Ueber den künstlichen Verschluss u. über die Sondirung des Harnleiters, *Deutsche Zeitschr. f. Chirurgie*, Bd. vi, p. 560.—O. Silbermann, Ueber eine neue Methode der temporären Harnleiterverschliessung u. ihre diagnostische Verwerthung für die Krankheiten des uropoëtischen Systems, *Berl. klin. Wochenschr.*, 1883, No. 34.

‡ Beitrag zur Katheterisation der Ureteren bei dem Manne. *Centralblatt f. Chirurgie*, 1888, No. 16, p. 281.

thought that all exploratory operations would now become obsolete. It is obvious that there will still be a number of cases where obstacles will render the ocular inspection of the bladder and of the descending jets of urine impracticable; where an insufficient capacity of the bladder, purulent or bloody urine will make the electric illumination of the bladder resultless; where, I may add, the ureters can not be catheterized, because their orifices can not be found or approached. In such cases we, of course, have to operate for diagnostic purposes. But these cases will henceforth be exceptions and their number will still lessen with the advance of this endoscopic branch, with the increased dexterity and experience of the cystoscopist, and with the additional construction of a really useful cystoscope for catheterism of the ureters.

In closing my remarks I offer the following conclusions:

1. In all obscure reno-bladder diseases cystoscopy has to be practiced, if necessary repeatedly, before operative interference for diagnostic purposes is resorted to.
2. There are a number of causes which make cystoscopy impracticable.
3. Cystoscopy is an easy and harmless examination; but its successful employment requires experience.
4. It should be performed as a *dernier ressort* after all other well-known means for making a diagnosis have been exhausted.
5. If properly applied, cystoscopy will generally clear up an obscure disease of the bladder.
6. In most cases we can determine, with the help of electric illumination of the bladder, whether we have to deal with a disease of the bladder or of the kidneys.
7. We can thus find out whether there are two working kidneys, also whether only one of the two kidneys is diseased or both.
8. We shall most probably soon be able, perhaps, in the greatest majority of cases, after sufficient personal practical experience and with the help of proper cystoscopic instruments designed for this purpose, to catheterize the ureters and thus gather in a bloodless manner the urine from each kidney separately.
9. We can make out in certain cases by observing the character of the jets of urine, especially by *timing their frequency and duration* at the ureteral orifices, whether the other kidney is doing the work for the one which is diseased.
10. These facts will tend to make superfluous, in the majority of cases at least, a preliminary suprapubic or perineal incision for diagnostic purposes, as well as a nephrotomy performed for determining the action of the other (not diseased) kidney. They greatly widen and strengthen our means for making the indication and prognosis of nephrectomy.
11. With the aid of Nitze's newest instrument, the operating cystoscope, we may look forward to being able to carry on intravesical treatment under the direct guidance of our eyes.

The following is a partial list of the literature of the subject since 1887: \*

\* Cf. E. Hurry Fenwick, *l. c.*, and Cecil Kent Austin, *l. c.*, Literature Index.

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## DISEASES OF THE URINARY APPARATUS.

By JOHN W. S. GOULEY, M.D.,

SURGEON TO BELLEVUE HOSPITAL.

(Concluded from page 153.)

PART I.—PHLEGMATIC AFFECTIONS.

SECTION II.—SPECIAL CONSIDERATIONS.

### XII.

#### CHRONIC URETHRITIS; ITS NATURE, CAUSES, PHYSICAL CHARACTERS, DIAGNOSIS, AND TREATMENT.

THE nature and treatment of chronic urethritis for a long time greatly perplexed physicians, because the several pathic conditions which give rise to persistent urethral discharges had not been sufficiently well studied, and because the characters and sources of the discharges were not ascertained. These discharges were found to be so refractory to treatment that many empirical methods were used with little or no effect. It would be a waste of space to enumerate the many modes of treatment that have been employed during the past century. In speaking of this obstinacy of chronic urethral discharges, Ricord said to his disciples: "After having tried everything, try to do nothing"; for experience had taught him that meddling treatment only served to aggravate the phlegmasia, which he had often observed to subside soon after the cessation of all medication.

Although some light was thrown by Gubler upon the differential diagnosis of some of the lesions that cause chronic urethral discharges, little attention was paid to the teachings of his excellent essay on the anatomy and phlegmasia of the bulbo-urethral glands, which show that when a persistent urethral discharge of a clear and very viscid

mucoid substance occurs, its source is surely in one bulbo-urethral gland or in both glands, but that when this viscid discharge is purulent there is chronic phlegmasia of the bulbo-urethral gland or glands. This clearly indicates that all urethral discharges are not necessarily signs of chronic urethritis. An acute urethritis may be cured and leave no other trace than chronic phlegmasia of a bulbo-urethral gland or of its duct. In some cases, instead of bulbo-urethral adenitis, chronic cryptitis is consecutive to acute urethritis; in these cases the discharge is very little viscid, but has the odor characteristic of the mucous secretion of the urethral crypts. In other cases chronic prostatitis or gonocystitis may be consecutive to the acute urethritis.

Mercier, who made a careful examination of the question of chronic urethritis, did much toward disseminating correct views respecting the pathology and treatment of this phlegmasia.

Next came the labors of Désormeaux, who demonstrated, with the aid of the urethroscope, true granular urethritis to be the most common cause of persistent purulent urethral discharge. From that time chronic urethritis has been very diligently studied, and other lesions have been discovered which give rise to chronic purulent urethral discharge, and at present the treatment is directed to the cure of the lesions that have been so well specialized.

NATURE OF CHRONIC URETHRITIS.—Chronic urethritis, attended with a slight muco-purulent discharge popularly named gleet, morning drop, military drop, etc., may be a termination of any of the acute types of urethritis, may begin as a benign urethritis, the first stage of the acute types, or may be developed far back in the urethra, be latent to the sufferer, and be discovered by the physician only by means of the urethroscope or of a microscopical examination of the urine. It should not be confounded with urethral blennorrhœa, true gleet. The difference between these two pathic conditions is worthy of note. Chronic urethritis is a phlegmasia of the urethral mucous membrane yielding a muco-purulent discharge, whilst blennorrhœa is the result of an excessive secretion of mucus by the urethral crypts or by the bulbo-urethral glands without the intercurrent of phlegmasic action, though it may sometimes be a sequel of phlegmasia. Frequent sexual erethism without copulation not infrequently causes a persistent blennorrhœa arising from excessive secretion of the urethral crypts and bulbo-urethral glands, the urinary meatus being constantly moist with mucus or with the very viscid secretion of the bulbo-urethral glands without admixture of pus. This is true gleet, unconnected with phlegmasic action.

The phenomenon, chronic urethral discharge, unless rightly interpreted, is likely often to lead astray both patient and physician. The inexperienced sometimes look upon chronic urethral discharge as always an indication of urethral stricture or of some sort of obstruction of the canal. A little reflection is sufficient to throw doubt upon such a view, if only on account of its want of proper qualification, a suitable qualification being to substitute often for *always*, and to say that chronic urethral discharge is often a sign of stricture, or is sometimes one of the early symptoms of stricture. Such a

view would be indisputable. It is well known that a chronic urethral discharge may emanate from (1) phlegmasia of the seminal vesicles, (2) of the prostatic follicles, (3) of the bulbo-urethral glands, (4) or of the urethral crypts, as well as from (5) a circumscribed or a diffuse chronic phlegmasia of the urethral mucous membrane. It may be asked, How are these several discharges to be distinguished? The answer is as follows:

1. The discharge from the seminal vesicles contains symplexia and spermatozooids. Either distinguishes it from all the other discharges, even though it be mixed with them.

2. The discharge from the prostatic crypts is turbid, milky, and sometimes contains many prostatic symplexia and is very slightly viscons.

3. The discharge from the bulbo-urethral glands is known by its extreme viscosity; normally it is of crystalline clearness, but becomes opaque when containing pus.

4. The discharge from the urethral crypts is known by its peculiar odor, which it imparts to semen and which is called the seminal odor.

5. The discharge from a veritable chronic urethritis is muco-purulent and characterized by the profusion of pus cells it contains.

Chronic urethral discharge, no matter what may be its origin, is generally a source of much unnecessary anxiety to the patient, who thinks himself the most sorely afflicted of all mortals, and is almost incessantly watching the drop which he believes is forever to reappear. Of course it does reappear as long as he continues to irritate the urethra by "milking the penis" to find the drop when he thinks it is too tardy in showing itself. The morbid mind of the patient sees in this drop a virulent poison with which he is infected and which he is liable to transfer to any woman with whom he has sexual relations, and he has a vague notion that this poison may cause almost any disease. A medical friend related a case illustrating the ludicrous degree to which is sometimes carried the idea that a chronic urethral discharge from the man is liable to cause grave disease in the wife. The patient in question had been repeatedly told that his urethral discharge, consisting of clear mucus, was not contagious, but he always doubted the correctness of the doctor's view. However, he finally married and his wife soon became pregnant, but on or about the fourth month the abdomen was so much more distended than it would be even at full term that an examination was made which revealed a large multilocular ovarian cyst whose extirpation necessitated an extended median incision. The anxious husband, who had attributed this condition to infection by his urethral discharge, watched the operation with much solicitude, not on account of its gravity but of the fixed idea that he might be the cause of the disease. When he saw the enormous tumor, he said that if it had been a small lump he would have blamed himself, but that then he could not believe it possible for such a little drop to produce a growth of this size in the short space of four months.

Nothing is too absurd for the conception of some of the sufferers from chronic urethral discharges. They listen credulously to the ignorant and mendacious dicta of crafty

and rapacious charlatans, while they are suspicious of honest physicians, and obstinately discredit rational advice and correct views. Many change their medical adviser as often as they do their erratic notions of the ailment which, owing to their own perversity, is destined never to be well. The difficulties experienced in the management of such cases are too well known to require extended commentary.

The ideas to be impressed upon the minds of patients suffering from chronic urethral discharges are: 1, That these affections are not contagious; 2, that virulent urethritis is generally cured within six weeks, but that in some instances several relapses occur, the last of which is almost certain to be followed by a slight but persistent muco-purulent discharge, liable even after four, five, or six months to increase so as to simulate an attack of acute urethritis, subsiding, however, in four or five days to the former few drops; 3, that not only is this chronic urethritis non-transmissible from the man to the woman, but, on the contrary, is most frequently aggravated by coition, even with a woman whose genitalia are sound and remain so after the coitus; 4, that the frequently reiterated assertion that a man who has once had virulent urethritis in his bachelor days, and marries years after the attack of urethritis, transmits "the gonorrhœal virus" to his wife, is without the slightest foundation; 5, that this irrational notion arose from belief in a "gonorrhœal virus similar to but not identical with the syphilitic virus"; and 6, that the correct view is that virulent urethritis is a local affection, and does not become constitutional.

#### THE CHIEF CAUSES OF THE PERSISTENCY OF URETHRITIS ARE:

1. *Disregard of hygienic precautions* during acute urethritis, or after its apparent cure. Sexual erethism of any kind, in thought or act, improper alimentation, the use, even moderate, of alcoholic or fermented beverages, over exercise, and excesses in general, all aggravate the acute type of the phlegmasia or, after it has begun to decline, cause its recrudescence, and finally the persistence of the stage of decline which constitutes chronic urethritis.

2. *Inappropriate treatment* of the acute types of urethritis—such as the so-called abortive treatment by injections of nitrate of silver in strong solution, or of strong solutions of any sort, by the abuse or the untimely use of balsamics, antiphlogistics, diluents, and baths—is among the prominent factors in the causation of chronic urethritis.

3. *Vulnerability of the subject*—that is to say, an inordinate susceptibility to phlegmasia, owing to the hyperlithuria so common among chronic dyspeptics, or to some diathetic influence, besides a constitution naturally feeble or impaired by disease or debauch—may be added to the ætiological factors of chronic urethritis.

4. *Continued local irritation of the urethra* is another potent factor in the maintenance of urethral phlegmasia. This irritation may arise from frequent coition, from masturbation, from the existence of a stricture, from congenital stenosis of the urinary meatus, from vesical stones, chronic cystitis, chronic prostatitis, gonocystitis, hemorrhoids, anal fissure, eozema, etc.

5. *Excessive general and local treatment* of the acute types of urethritis both have the effect of prolonging the phlegmasic action—the first by disturbing the digestive function and enfeebling the patient and lessening his powers of resistance, besides causing grave complications. The large doses of balsamics long continued have a baneful effect upon the digestive apparatus, and often cause distressing cutaneous eruptions, hyperlithuria, and even nephritis. The too free use of alkaline diluents also tends to disturb digestion and otherwise defeat the objects for which these agents may be intended. The second, the untimely or the excessive use of urethral injections, is a prolific cause of the persistence of urethritis and of some of its complications and consequences. The too common tendency to treat the urethra as if it were not a part of the human body is owing chiefly to the want of proper interpretation of its morbid phenomena. It is over-distended, divulsed, or cut indiscriminately, simply because there is a discharge, and without ascertaining the nature of this flow. The idea that the discharge is a sure indication of the existence of a stricture is enough to induce the unthinking to over-distend, divulse, or cut the urethra. The patient, impressed with the notion that his case is unparalleled and demands extraordinary measures, consents to any proposed mode of treatment, even to the spilling of blood. He is then contented until he discovers that the urethral discharge is not cured by the operation, and that the drop still obstinately obtrudes itself.

**PHYSICAL CHARACTERS.**—The alterations of structure of the mucous membrane in chronic urethritis need to be studied during life by means of the bulbous bougie and the urethroscope, as well as by dissection after death, on account of their variations in character, site, extent, and depth.

In some cases the only perceptible lesion is congestion of the mucous membrane. This congestion is generally diffused over a space of two or three inches, involving the bulbous, membranous, and prostatic regions. It rarely involves the whole length of the urethra. Sometimes the membrane is congested in small patches from the balanic region backward.

Most frequently, owing to excessive epithelial exfoliation in the acute types and the consequent prolongation of the stage of decline, another condition is observable, and that is a granular state of the mucous membrane, designated as earuncles and carnosities by writers of the sixteenth and seventeenth centuries, and first demonstrated in the living by Désormeaux in 1864. This granular state is in reality an effort at repair. The denudation of the mucous membrane is more complete in some regions of the urethra than in others, notably in the bulbous portion of the canal, and there is a constant emigration of leucocytes, some of which become partly organized, forming the granulation tissue, while most of them are cast away as pus. Unless modified by treatment, the granular state continues indefinitely, and beneath the granulations, in the meshes of the mucous membrane, in the submucous connective tissue, and even in the spongy substance, is an exudate which in time becomes incompletely organized, sclerosed, and shriveled, constituting

stricture. The exudate and granulation tissue may be distributed in multiple patches or may encircle the urethra. Such is one of the modes of development of urethral stricture from chronic urethritis, and this development is often the work of five, ten, twenty, or thirty years. The suppleness of the urethra is impaired wherever there are granulations with an underlying exudate. The bulbous bougie and the urethroscope reveal both conditions.

Another way in which urethritis is perpetuated is when a superacute urethritis has caused acute submucous urethritis. In such a case the alteration of structure is much more profound and rapid, sclerosis, shriveling, and stricture occurring in a few months and exciting a constant muco-purulent discharge which is liable to increase in thickness and quantity after the slightest imprudence, even to the simulation of acute urethritis.

A noteworthy circumstance is the frequent development of a very mild urethritis, with slight muco-purulent discharge, from what is commonly the first stage of the acute types. This form of urethritis has some of the characters of chronic phlegmasia from the first, it is attended by phenomena similar to those of chronic urethritis consequent upon acute urethritis, and is as persistent. In these cases there are the patches of granulation tissue, the submucous exudate perhaps only in a very slight degree, and in point of fact most of the lesions found in chronic urethritis that arises from the acute types; and stricture is one of the sequelae of this form of chronic urethritis as much as it is of the ordinary chronic type.

When unchecked, chronic urethritis causes alterations of structure in the urethral mucous crypts and glands to the extent of sometimes destroying them. It is liable also to be propagated to the bulbo-urethral glands, to the prostate, to the vesico-urethral region, and even to the testicles. Long neglected, even the simplest form of chronic urethritis almost inevitably leads to stricture of the canal or to contracture of the vesical neck.

**IN THE DIAGNOSIS OF CHRONIC URETHRITIS** it should be remembered that all urethral discharges do not necessarily indicate urethritis. Thus a clear glairy discharge emanates from the urethral crypts without phlegmasic action, and likewise an extremely viscid discharge comes from the bulbo-urethral glands. A purulent discharge may come from the vesico-urethral region, from the prostate, or from the seminal vesicles. The true basis of the diagnosis of chronic urethritis rests upon a complete history of the case, gross and microscopical inspection of the discharge, and exploration of the urethra with the bulbous bougie or with the urethroscope.

If a patient, applying for treatment on account of a persistent urethral discharge, confess to one or two antecedent attacks of acute urethritis, it is fair to assume his present discharge to be the sequel of the acute urethritis, even if this attack of acute urethritis date back a few months or several years. But while this information helps, it is not sufficient to indicate the particular form and site of the existing chronic urethritis. The other aids to diagnosis, consisting in the use of instruments of precision, are essen-

tial to accuracy. The first of these aids to be used is the bulbous bougie. A No. 12 (English) bulbous bougie is ordinarily of convenient size for the purpose. This instrument is gently and slowly introduced into the urethra until the patient experiences a sense of tenderness and perhaps even of pain at a particular spot. The tender spot is generally a patch of granulation tissue covered with a layer of pus. The bulb is then carried onward about half an inch beyond the tender spot, where there may be neither tenderness nor pain, left in position for a minute, and slowly withdrawn. If the base of the bulb is coated with a whitish substance, this should at once be subjected to microscopical examination. If it proves to be pus, the granular nature of the tender spot may be considered as verified. In some cases the granulation tissue bleeds freely on the slightest provocation, and the bulb of the bougie is coated with blood. During the introduction and withdrawal of the bougie a delicate touch can discern a certain lack of suppleness of the urethra, particularly where there are several tender spots close together, or when a granular space with an underlying exudate encircles the urethral mucous membrane. This does well for urethritis anterior to the bulbo-membranous junction. If the examination is negative, all the anterior part of the urethra may be washed, and a bulbous bougie carried beyond the bulbo-membranous junction into the prostatic region and withdrawn as before. A coating of pus upon the base of the bulb will indicate the site of the granulations and source of the discharge, or, after washing the anterior urethra, the patient is asked to urinate into two separate glass vessels. If the first urine contains pus and the second is free from pus, it may be inferred that the pus has come from the membranous or prostatic region. The urethroscope, however, brings to view the granulations, their extent and their exact locality, or reveals simply a congested state of the mucous membrane, diffused or in patches.

When a stricture has already formed, there is almost always behind this stricture a granular state of the mucous membrane, which yields a more or less abundant purulent discharge. This is perhaps what has led some observers to consider that a urethral discharge is the infallible sign of stricture. In point of fact, the discharge had long preceded the stricture and was one of the phenomena of the pathic state that caused the stricture—*i. e.*, granular urethritis with an underlying exudate, the urine, partly dammed, irritating the mucous membrane immediately behind the stricture and thus perpetuating the discharge. The cure of the stricture is followed by the disappearance of the granulation tissue and of the consequent discharge.

TO TREAT CHRONIC URETHRITIS rationally and successfully it is essential to distinguish the several chronic urethral discharges, to ascertain the cause of the phlegmasia, its duration, the kind of treatment to which it may already have been subjected, and the physical condition, habits, and environment of each individual—in other words, to make a correct diagnosis. The mere gleet of clear urethral mucus requires no local treatment. It is particularly this gleet that is so excessively treated and by so many different cruel

methods. The more it is treated the worse it becomes, and finally the heroic treatment leads to an almost incurable chronic purulent discharge. Wise hygienic management and avoidance of certain factors in the causation of over-secretion of mucus, such as sexual erethism, suffice to restore the urethral glands to their normal state.

The management of sufferers from chronic urethritis is attended with many difficulties, partly owing to the moral as well as the physical condition of the patient, partly inherent to the affection itself. Their treatment should therefore be moral, general, and local. Nothing will satisfy the patient except the cessation of the discharge. To bring this about is the chief indication, so far as the view of the patient is concerned, but to the physician the indication is not only to cure the local phlegmasia which gives rise to the discharge, but to prevent the formation of stricture.

*The character of the moral management* has already been hinted at in the beginning of this conference. In addition, it may be said that the physician should gain the absolute confidence and insure the co-operation of his patient, without which all treatment would be in vain. He should dissuade him from concentrating his thoughts upon and from continuing to magnify his infirmity, and, above all, should break his habit of stripping, squeezing, and "milking" the penis to bring to view the too tardy drop, for this alone is sufficient to perpetuate the discharge which might otherwise disappear even without local treatment.

*The general treatment* is directed to the improvement of the physical condition of the patient, to place him in the most favorable hygienic condition, to combat hyperlithuria, and to strive to remove some of the causes tending to perpetuate the phlegmasia. The use of balsamics in chronic urethritis is apt to be worse than useless, for these drugs almost invariably disturb digestion even in a short time. An exception may be made in favor of the oil of gaultheria, which sometimes acts as a very effective sterilizer of the urine in chronic as well as in acute urethritis; nevertheless this agent should be used with prudence and in doses of not more than five minims thrice daily. Another valuable sterilizer of the urine is salol used in moderate doses. Alkaline mineral waters should be given sparingly and for not more than eight or ten consecutive days.

*The local treatment of chronic urethritis* varies with the site of the urethritis, the particular alteration of structure, and the complications.

In case of simple chronic urethritis, in which there are no granulations or submucous exudate, but only congestion of the mucous membrane, diffuse or in patches, particularly when this congestion is limited to the "antebulbar" region, mild astringent irrigations are indicated. It is wise, however, to keep the patient under close observation for a week or ten days, and during that time to make no local applications whatever, for the general treatment may suffice to cure the urethritis. If then the discharge persists, the urethra, for the first five or six days, should be irrigated, only once daily, with ten or twelve ounces of a solution of boric acid or biborate of sodium, five grains to the ounce. Afterward chloride of zinc should be substituted, but the zinc salt solution should not exceed half a grain to the ounce. The

quantity of fluid used for each irrigation should be about ten ounces. As a general rule, this form of chronic urethritis yields rapidly to the irrigations, and in the course of a few weeks is well.

In case of chronic cryptitis, the "antebulbar" irrigations of boric acid and afterward of zinc chloride should be made from before backward, so as to wash away from the crypts the accumulated mucus.

*Chronic urethritis with granulations* demands a somewhat different treatment, although in the beginning the irrigations with boric-acid solution should be used for several days. If the granular urethritis be "antebulbar," the best modifier that can be used is the nitrate of silver in solution of half a grain to the ounce, one grain to the ounce, and seldom increased to two grains to the ounce. The amount of fluid should not be less than six ounces, but should be used only once every four or five days.

In granular urethritis of the membranous and prostatic regions, particularly in case of coexisting chronic gonocystitis, the strength of the nitrate-of-silver solution may, with advantage, be increased to three, four, or even five grains to the ounce, and three or four ounces only need be used every four or five days. The bladder should contain a few ounces of urine in order to insure the quick decomposition of the silver salt. It is well known that when fluid is thrown slowly and without undue force through a catheter as far as the bulbo-membranous junction, it returns and escapes at the meatus, but that when the catheter is passed into the membranous region none of the fluid escapes externally, but all of it enters the bladder. Mercier pointed this out many years ago, and the experiences of other physicians have confirmed the view. Two days after each urethral irrigation a steel sound of moderate size should be cautiously introduced as far as the bladder. Too frequent catheterism or excessive dilatation only serves to defeat the objects sought to be attained. The sound should be carefully withdrawn in a minute's time, the purposes of its introduction being to make pressure upon the granulations, to slightly stretch the urethra at the seat of disease, and to restore the suppleness of the canal.

There are cases of granular urethritis that obstinately resist this treatment. These cases require direct applications to the granulation tissue, to accomplish which the use of the urethroscope becomes necessary. The granulations thus brought to view are penciled with a solution of nitrate of silver (ten, twenty, or thirty grains to the ounce) every four or five days until they disappear. Sulphate of copper and other substances have been used for the purpose, but are all inferior to the nitrate of silver.

Strong solutions are not well borne, are even mischievous, and therefore contra-indicated, in chronic urethritis anterior to the bulbo-membranous junction, but are well tolerated and effective when applied to the membranous and prostatic regions, where may be used with advantage the method of Guyon by the instillation of ten, twenty, or thirty minims of nitrate-of-silver solution (ten, twenty, or thirty grains to the ounce), to be in a minute washed into the bladder by a current of water, and repeating the process every three or four days. From Guyon's method good

results have been obtained in otherwise intractable cases, particularly those complicated with chronic prostatitis, gonocystitis, or trachelocystitis.

*Counter-irritation.*—In certain cases of chronic urethritis involving the perineal or prostatic, or both, regions of the urethra, particularly those attended with dull pain and a constant teasing sense of irritation in the parts, counter-irritation of the perinaeum by means of vesicating collodion is often of much service, and should be used every three or four days for several weeks. The vesicating collodion should be applied with a camel's-hair brush on one side of the perineal rhapshe, over a surface of half an inch by an inch and a half, and the perinaeum covered with a layer of absorbent cotton, in order that the blistered skin may speedily heal. In three days the blistering process is repeated on the opposite side of the rhapshe, and so on every three or four days until the desired effect is accomplished.

*When chronic urethritis is kept up by stenosis* of the meatus urinarius, or of any other part of the urethral canal, it can be cured only after the removal of the obstruction to urination, in the first case by incision, in the second case by dilatation, divulsion, or incision, according to the character and particular site of the stricture.

*In chronic urethritis due to urethral tuberculosis* no treatment other than the palliative is of any avail. The discharge increases in quantity from day to day, in it swarm the characteristic tubercle bacilli, and the patient soon succumbs to the inroads of general tuberculosis. A specimen exhibited showed tuberculosis extending from the meatus urinarius to the bulbo-urethral glands, spermatic canals, seminal vesicles, prostate, bladder, peritonaeum, and right ureter and kidney. The left kidney had undergone compensatory enlargement and was not tuberculous. Both testicles had been extirpated, on account of tuberculosis, six months before the death of the patient. The specimen was a particularly good illustration of ascending tuberculosis of the urinary apparatus. There had been for several weeks a thick urethral discharge, in which great numbers of tubercle bacilli were detected. Several other specimens were exhibited to illustrate descending tuberculosis of the urinary apparatus. The disease, having begun in the lungs, secondarily affected the kidneys, descended to the bladder and urethra, and caused an obstinate purulent discharge.

**Does Ether assist Digestion?**—"The effect of ether on the digestive processes in healthy subjects has been recently investigated," says the *Lancet*, "by Dr. Gurieff, who gave thirty drops of sulphuric ether to six healthy persons during dinner, which consisted of about half a pint of soup, four ounces of meat, and six ounces of bread. It was found that the ether had the effect of stimulating the action of the gastric glands, increasing the free hydrochloric acid in the gastric juice, and causing the peristaltic movements of the stomach, together with its power of absorption, to increase; thus on the whole exercising a favorable effect upon the gastric digestion. The same result was obtained when the ether was administered by means of hypodermic injections. It would appear, therefore, that the effects must be ascribed to a general rather than to any merely local action on the mucous membrane of the stomach. Dr. Gurieff is disposed to think that there is a stimulation of the cephalic centers. This view is partly based on the observations of other Russian observers—Bekhtereff and Miloslevski, and Pavloff and Shumova-Simanovskaya—on the dependence of the gastric functions upon the central nervous system."

## SKIN-GRAFTING BY THE THIERSCH METHOD FOR CICATRICIAL DEFORMITY OF THE EYELIDS.

By J. H. WOODWARD, M. D.,

BURLINGTON, VT.,

PROFESSOR OF OPHTHALMOLOGY IN THE UNIVERSITY OF VERMONT.

CASE I. *Cicatricial Lagophthalmus*.—In November, 1890, John L., a laboring man, about thirty-five years of age, consulted me at the Mary Fletcher Hospital for relief from the results of an injury received several years earlier. He had been kicked by a horse, and the resulting lacerated wound of the left upper eyelid had healed with deformity, owing to which he was not able to close his eye, even by forced muscular effort.

I found an irregular scar extending from the middle of the free border of the lid in a vertical direction nearly to the eyebrow, and involving the skin and muscular tissue. The ciliary margin of the lid was deeply notched at the scar and the eye remained permanently open. I ordered the region of the left eye to be thoroughly cleansed with soap and water and disinfected with  $\frac{1}{5000}$  solution of the bichloride of mercury, the conjunctival sac to be irrigated with a saturated solution of boric acid, and the eye then to be covered with an antiseptic dressing. His left shoulder, from which I purposed to take the graft, was cleansed and disinfected and dressed in a similar manner. These measures were repeated three times in the twenty-four hours immediately preceding the operation.

Just prior to the administration of the anæsthetic all instruments, sponges, and dressings to be used in the case were sterilized by superheated steam, and a one-per-cent. solution of common salt was filtered and sterilized for use during the operation for irrigating the wound and for moistening the dressing after it. Ether was then administered, and the region of the operation was again disinfected with the bichloride solution and finally thoroughly washed with the saline solution. I then made an incision nearly the entire length of the upper eyelid at right angles to the scar and nearly one centimetre from the ciliary margin, through the skin, and into the muscular tissue until I had penetrated deeper than the cicatrix. The upper and lower lips of the wound were dissected up until the free border of the lid had returned to its normal curve, which is convex below when the eyes are closed. The upper and lower lids were then bound together with a single median suture. Having checked all oozing from the wound, I shaved from the previously disinfected shoulder a graft about three centimetres long, one centimetre broad, and two millimetres thick. This fitted the wound in the eyelid, to which it was immediately transferred and gently pressed into its bed. Both wound and graft had been thoroughly wetted with the sterilized one-per-cent. saline solution. The dressing was protective sterilized gauze moistened with the saline solution, and a bandage. Every two hours, day and night, the dressing was moistened with the saline solution.

On the second day the case was redressed with aseptic precautions, and the graft was found in good condition. There was some muco-purulent discharge from the conjunctiva. Redressed as before. The moist dressing was continued four or five days, and at the end of a week the graft had united firmly with the eyelid; only a very narrow strip of the outer end of it had perished. The result was complete relief of the lagophthalmus. The grafted tissue so closely resembled the surrounding parts that one could distinguish it only by closely scrutinizing the eyelid.

CASE II. *Cicatricial Ectropium*.—George P., aged twenty-two, an Adirondaek guide, consulted me in October, 1891, for deformity of his right lower eyelid, which was caused by a dog-

bite when he was four years old. The right lower lid was everted and drawn downward by the cicatrix. The exposed conjunctiva was inflamed and thickened by the prolonged exposure. The inferior punctum lacrymale was drawn away from the eyeball, and the resulting epiphora was a constant annoyance to him. The cicatrix causing the deformity was irregular; its chief traction was expended on a point about a centimetre to the inner side of the median line of the lid.

The preliminary treatment, the aseptic management, and the operation in this case were similar to those described above. In this instance, however, the wound being larger and more irregular, I imbedded two grafts in it instead of one, for I did not succeed in cutting a single graft of suitable shape and size to fill the wound. The dressing was similar to that in the first case. On the second day I redressed the case, and found that the inner graft had perished. It was adherent to the protective and came away with the dressing, thus exposing one third of the wound. A profuse muco-purulent discharge had been poured out by the conjunctiva. The stitches uniting the upper and lower lids had cut through and were removed. Redressed as before. Two days later the wound was doing well. Numerous small grafts were transplanted from the forearm to the bed of the dead graft, which was thus completely covered. Nearly all these small grafts lived. In a week the wound was healed, the line of the ciliary margin of the lower lid was almost perfectly restored to its normal curve, the punctum was in normal contact with the eyeball, and it was not easy to distinguish the grafts from the normal integument.

The advantages of this method of handling deformities of the eyelids are too evident to require discussion. It is not easy to do an aseptic operation in the region of the eye; it is perhaps impossible to secure perfect asepsis there. Nevertheless, a sufficient approximation to the aseptic state is attainable to warrant a successful termination of the treatment. One of the features highly commendatory of this surgical procedure in deformities about the face is that the traces of the operation are practically invisible.

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**Sensory and Vaso-motor Disturbance in Facial Paralysis.**—"Dr. Frankl Bochwitz, in an investigation into the conditions present in twenty cases of facial paralysis, found that in three there were disturbances of sensation and of the vaso-motor functions, in five of sensory functions only, and in two of vaso-motor only. The sensibility was only affected to a very slight degree, and sometimes the mucous membrane on the tongue and inside of the cheek was affected, and sometimes it was not. Occasionally also taste was affected. These sensory phenomena disappeared much earlier than the paralysis, but in one case in which the paralysis persisted there was diminished sensibility even after several years. The conclusion sought to be drawn from these facts is that the facial nerve in man contains some sensory and vaso-motor fibers; but of course it would first have to be shown that the fibers of the fifth nerve had not also suffered when the facial nerve became affected."—*Lancet*.

**A Gastrolith in Man.**—"Dr. Kooyker has reported in the *Zeitschrift für klinische Medizin* another case of gastric calculus—a condition which, though common enough in animals, is so rare in man that so far only seven cases have been reported. Dr. Kooyker's case was that of a man fifty-two years old, in whose lifetime it had been impossible to make a positive diagnosis, though some neoplasm of the stomach was suspected. The patient died from exhaustion. At the post-mortem examination a concretion was found in the stomach, almost entirely filling its cavity, which weighed eight hundred and eighty-five grammes and was eighteen centimetres in length. The microscopic examination resulted in finding starch, vegetable cells, chlorophyll, and vascular tufts, while hair and other animal elements were entirely absent."—*Lancet*.

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AN UNWARRANTABLE ATTEMPT TO SECURE SPECIAL  
LEGISLATION.

A COMMITTEE of the Senate of the State of New York has lately given its attention to a bill granting to such medical students as entered upon their college courses after the new medical law went into effect, but during the same year, exemption from the requirement of passing the State examination. We are informed that a thousand students have joined in the ignoble undertaking of getting this bill passed by the Legislature. That number is a disgracefully large proportion of all the medical students in the State, and a still larger proportion of those who may be supposed to be directly interested in the matter—that is, of those who were matriculated within the time specified.

The senatorial committee seems to be unaccountably lenient toward the promoters of this extraordinary bill, for we understand that one of its members has asked a well-known physician if he did not suppose that the 'students' motive was the outgrowth of their straitened circumstances, of their inability to pay the State examination fee. Such guilelessness in the Legislative mind is indeed refreshing. Nobody in the medical profession can have much doubt about their motive; it is simply that they find themselves confronted with a fence that they think they can not leap over, and they are calling on the Legislature to slip them under the rails.

There is, of course, no reason worth listening to why these particular students should be exempted from a just legal requirement. If they are exempted, it is difficult to imagine on what grounds the Legislature can decline to accord the same measure of favor to the following year's crop of students, and so on indefinitely, thus practically nullifying a most wholesome enactment. The pending bill is pernicious in the extreme, and we hope that it will never get beyond the committee.

THE ETIOLOGY OF CHANCROID.

WHEN, nearly forty years ago, Bassereau and Clerc pointed out clearly the distinction between the chancre and the chancreoid, great efforts were made to establish the theory of the existence of two distinct viruses, the syphilitic and the chancreoid. This idea of dualism was so simple and striking that it gained quite general acceptance, and we find eminent authors in Europe and in this country teaching the doctrine that no amount of sexual excess, no degree of uncleanness, no irritation, traumatic or chemical, in short, nothing, can produce chancreoids except chancreoids and chancreoidal buboes; or, as Fournier has put it, "if all the chancreoid

patients in the world would avoid contact with others until they got well, the disease would cease from off the face of the earth." There were those, however, who did not blindly accept this doctrine, and who could see nothing mysterious or specific in the chancreoid. Among this number were Dr. Bunnstead and Dr. Taylor, of New York, whose investigations, both experimental and clinical, proved beyond a doubt that ulcers having all the features and peculiarities of chancreoid could be produced by many different varieties of pus, the chief essential being the activity of the ulcerative process in the sore from which the pus was taken. It was natural to expect that modern bacteriological research would throw much light upon this subject, but studies in this department have been disappointing, and have only succeeded in establishing the fact that the chancreoid is produced by pus rich in pyogenic microbes.

It is well known that most chancreoids are contracted during sexual intercourse, one of the persons concerned being already affected with this form of ulceration; but it is not so generally known that chancreoids may be found on the penis of a man, and yet the woman with whom he cohabited be free from these lesions. Such instances are by no means rare, as may be seen by reference to a recent article on this subject by Dr. R. W. Taylor in the *Medical News* for December 5, 1891. This author cites a case in which a healthy young man, presenting no evidences of syphilis or gonorrhœa, came to him with seven true chancreoids in the balano-preputial sulcus. He was positive that the woman with whom he had cohabited was free from any such trouble, and an examination of this woman showed nothing but a deep and highly ulcerated fissure of the os uteri, surrounded by an area of intense hyperæmia. Brownish, gelatinous pus escaped profusely from this ulceration. On inquiry, it was learned that since this woman had had a child, seven years before, she had had leucorrhœa most of the time, and that four weeks before this examination she had been taken sick with what was called peritonitis. She remained three weeks in bed, and then, on getting up, indulged freely in sexual intercourse with this man, at the same time drinking large quantities of wine. The result was that he became affected with chancreoids, and she suffered greatly from pelvic pain.

Here, then, is a case in which, in consequence of an acute attack of peritonitis, together with sexual excess, a discharge from a subacute inflammation becomes converted into a more active form of pus. The important clinical fact brought out by this case is in direct accord with the results of inoculation experiments which have been made by various observers with pus from acne, ecthyma, impetigo, scabies, etc., in which lesions were produced in no way distinguishable from chancreoids. The lesson taught by the case should be widely known, for it is easy to see how a physician, ignorant of this fact, might cruelly wrong innocent women.

Syphilitic women who are entirely free from specific lesions of the genitals often have a purulent vaginal secretion which is rich in pyogenic microbes, and which is capable of producing chancreoids in men; while, on the other hand, it is not unusual for men to cohabit with impunity with women having an old

and extinct syphilis and chronic chaneroids. There are not a few medical men who think that, because chaneroid is classed as a venereal disease, it must of necessity originate in sexual contact, yet in many instances this supposition is not correct, for, says Dr. Taylor, chaneroids may originate in some subjects *de novo*. In other words, chaneroids may develop in men who have had no sexual intercourse whatever, as a result of some diathetic condition or some contamination of herpetic vesicles, chafes, abrasions, or fissures.

In the article referred to Dr. Taylor cites two striking examples of this class of chaneroids. In the first case, a man, twenty-nine years of age, of plethoric habit and seemingly in robust health, presented himself with a typical chaneroid of the inner side of the prepuce. He insisted that he had not had any intercourse for a month, and said that under like circumstances he had had precisely similar ulcers, which had been pronounced by eminent surgeons and syphilographers in America and Europe as undoubtedly chaneroids. The patient was kept under observation for a number of years, and it became evident that he was a victim of a persistently recurring herpes progenitalis, which at times would heal promptly, and at other times would be transformed into unhealthy ulcers, which could not be distinguished from classical chaneroids. The second case was even more remarkable. A man, thirty years old, thin and rather pale, had suffered for about ten years with frequent attacks of herpes progenitalis. He had had severe attacks of gonorrhœa when twenty-four and twenty-six years of age. He had never had syphilis. These attacks of herpes began with a smarting, burning pain; the vesicles were situated on the skin of the penis, on the inner surface of the prepuce, or near the frenum and meatus urinarius. In the early attacks the vesicles healed under simple treatment in about a week, but as years went on he noticed that sometimes the vesicles assumed an unhealthy, ulcerated appearance and were very rebellious to treatment. Being a thoughtful and observant man, he soon convinced himself that these attacks of herpes were never the result of coitus, as sometimes the herpes would appear a few days after coitus, and again it would appear after many weeks of abstinence. Before he came under the author's observation, in 1886, a crop of herpetic vesicles suddenly appeared in the left fossa of the frenum, notwithstanding he had not had sexual intercourse for three months. He had learned to be scrupulously clean about his genitals, but, notwithstanding this, the crop of vesicles rapidly developed into a larger ulcer, which a surgeon pronounced to be an unmistakable chaneroid and stoutly maintained could only have been contracted *in coitu*. After two weeks of careful treatment, chiefly with iodoform, the ulcer healed, but not before two virulent buboes had appeared. Following these buboes, a deep sloughing ulcer formed in the left groin and a similar ulcer on the thigh, just below the groin. It was at this time that he presented himself to Dr. Taylor for treatment. The ulcers were thoroughly irrigated with a five-per-cent. carbolic-acid solution, the parts were carefully dried, and the morbid surface was dusted with iodoform and covered with gauze and a bandage. On the anterior sur-

face of the thigh there were three little ulcers, in all respects like chaneroids, and several hair follicles were the seat of a deep hyperæmia. According to the patient's statement, the lesions upon the thigh were caused by a purulent discharge from the buboes, as he had been unable to dress the ulcers properly while traveling. These ulcers were treated in the same way as the others, and all the lesions were healed in about three weeks. In this case the possibility of a lymphatic infection from a lesion of the foot, leg, or buttocks was carefully excluded, and infection from sexual intercourse was entirely out of the question. During the following years recurring attacks of herpes were experienced, in some of which the vesicles were converted into destructive ulcers, and on two occasions, as the result of a most rigid antiseptic treatment at the very beginning, the vesicles were dried up and prompt healing was secured. Again, in 1890, after abstinence from coitus for four months, he was attacked with preputial herpes near the right of the frenum. The vesicles developed into a typical chaneroidal ulcer, and the ganglia in the right groin became swollen and painful. The ulcer was treated with iodoform, and cold was applied to the groin. The chaneroid healed, but the ganglia went on to suppuration, and after free incision a deeply ulcerated surface was left, which presented the typical appearance of a virulent bubo.

It is important not to forget that simple inflammatory lesions of the genitals in syphilitics are often converted into typical chaneroids or septic ulcers, undoubtedly as the result of contamination with pyogenic microbes from some unknown source. Pus taken from these chaneroids is capable of producing, on inoculation, similar lesions for many generations. Clinical observations seem to show that chaneroids derived from the pus of patients in whom the syphilitic diathesis is quite active are commonly more active than those caused by the various forms of simple pus. It is also well to remember that lesions of continuity occurring about the genitals of old syphilitics, both men and women, are prone to assume the features and characteristics of chaneroids.

The tissues of the genitals of syphilitic women are also liable to the development of chaneroids upon all lesions of continuity. Thus, in the case of a young woman who had been syphilitic for a year, and, in consequence of a vulvar pruritus, had produced an excoriation of the right nymphæ by scratching, a large and typical chaneroid developed on this raw surface, and a virulent bubo appeared a few days later. She had absolutely refrained from coitus for a month previous to this trouble.

It thus appears that what we call chaneroid is the product of many varieties of pus, derived from non-syphilitic and from syphilitic subjects, and that it is, therefore, in all cases, a septic ulcer and in many instances simply an active form of wound infection. From this it follows that Fournier's dictum, already quoted, is utterly false, and that so long as pyogenic microbes and tissue predisposition exist, chaneroids will be found upon the mucous membranes and integument of the human race.

## MINOR PARAGRAPHS.

## THE TOXIC ACTION OF IMPURE CHLOROFORM.

It has been an axiom for years that in the administration of chloroform for anaesthesia the purified drug only should be employed. This has been founded in part upon observation and in part upon a knowledge of the irritative effects of some of the impurities in commercial chloroform. Professor Pietet's recent method of refining chloroform, mentioned in the *Journal* for December 12th, gives a very pure chloroform and an impure residue. Dr. René du Bois-Reymond has recently published in the *British Medical Journal* the results of his experiments upon the physiological action of the residue as compared with that of the purified drug, cardiographic tracings being made of the hearts of frogs placed under covered dishes with both liquids, and manometric and respiratory tracings being made from rabbits inhaling the drugs through a tracheal cannula.

These experiments corroborated those already made on the action of chloroform in general, but, on comparing the pure with the impure drug, no difference was found in the shape of the pulse waves or in the frequency of respiration. With the residue, at the close of the experiments, the pulse rate was higher than with pure chloroform; and when respiration stopped, the blood pressure was higher after inhaling the pure than the impure drug. Furthermore, the latter caused stoppage of respiration much more quickly than the former. Pure chloroform is much more volatile than the impure, and the purer the drug the less the quantity required for anaesthesia and the less risk of that respiratory failure which the Hyderabad Commission concluded was the cause of death in chloroform administration.

## WARMED ETHER AS AN ANAESTHETIC.

From the *British Medical Journal* for December 19th we learn that a surgeon of Barcelona, Spain, has devised a plan for administering ether in a warmed condition. Dr. Giné y Paragás performed an operation in October, 1891, for osteoma of the fibula, on a woman in the Hospital de la Santa Cruz, of the city above named. This operation, which was reported in the *Independencia Médica*, was the first one of magnitude to be carried through under the new anaesthetic process. The ether was administered by Dr. Diaz de Liano, the designer of the apparatus. The temperature at which the ether was kept was 87° F. Insensibility was quickly induced and was maintained for fifty-five minutes without accident. The ether was kept at 87° until near the close, when it fell to 85°. The apparatus, which has been called an "electro-thermo-etherizer" by its designer, has since been used satisfactorily. In one case the administration was prolonged for two hours and a half without ill effect. The new method, it is maintained, will do away with some of the disadvantages both of chloroform and of cold ether. A full description of the apparatus is promised to be published at an early date.

## THE KINGS COUNTY INSANE ASYLUM.

The Commissioners of Charities of Kings County have voted to make a change in the supervision of the asylums at Flatbush and St. Johnland. Dr. John A. Arnold, of the Flatbush Asylum, will be temporarily superseded by Dr. Walter Fleming, who is at present one of Dr. Arnold's assistants, and who will in turn be replaced by a general medical superintendent to be appointed in accordance with the rules governing the State Commission. The new appointee will be given general oversight of all the hospitals for the insane poor. This action probably terminates Dr. Arnold's long and useful career in the adjoining

county of Kings. We wish him a larger and more congenial field, with a greater freedom from political interference and annoyance.

## LARGE VITAL CAPACITY IN A NEZ PERCÉ INDIAN.

On the occasion of the recent visit to the Indian School at Carlisle, Pennsylvania, of a party of Nez Percés, the physician of the school made a physical examination of several of the visitors. One of them, who was five feet and an inch in height, and weighed one hundred and sixty pounds, was the possessor of a clear chest expansion of five inches. When we remember that a free expansibility of four inches is seldom possessed, except as the result of special respiratory training, the lung capacity of this red man will be recognized as something remarkable.

## ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending February 9, 1892:

DISEASES.	Week ending Feb. 2.		Week ending Feb. 9.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever . . . . .	11	2	9	7
Scarlet fever . . . . .	192	19	210	25
Cerebro-spinal meningitis . . . . .	2	1	2	1
Measles . . . . .	137	12	132	13
Diphtheria . . . . .	87	30	122	23
Small-pox . . . . .	5	0	11	2
Erysipelas . . . . .	0	0	0	0
Varicella . . . . .	0	0	0	0
Pertussis . . . . .	0	0	0	0
Leprosy . . . . .	0	0	0	0

**The Verein deutscher Aerzte von Brooklyn.**—The special order for the meeting of Friday evening, the 12th inst., was a paper on Post-partum Haemorrhage, by Dr. A. Ritter.

**The Hospital for the Insane at Asbury, Iowa.**—Dr. J. J. Brownson, of Dubuque, has been appointed physician to the hospital.

**The Conemaugh Valley Memorial Hospital** was opened at Johnstown, Pa., on Thursday, the 4th inst., with appropriate inaugural ceremonies. Among the addresses was one by Dr. George W. Wagoner.

**The Death of Dr. David Fleischman, of Albany,** occurred on January 30th. The deceased was a graduate of the Albany Medical College, of the class of 1881, and subsequently studied laryngology and rhinology at the New York Post-graduate Medical School. He had devoted himself to these branches since 1883, and was highly esteemed by the profession and the community.

**The Death of Professor von Bruecke.**—The *Wiener klinische Wochenschrift* announces that Dr. Ernst W. Ritter von Brücke, emeritus professor of physiology in the University of Vienna, died on the 7th of January, at the age of seventy-two.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from January 24 to February 6, 1892:*

BURTON, HENRY G., Captain and Assistant Surgeon, having been found incapacitated for active service by an Army Retiring Board, is granted leave of absence until further orders, on account of disability.

The order relating to Captain AARON H. APPEL and First Lieutenant JULIAN M. CABELL, Assistant Surgeons, is suspended until further orders.

WRIGHT, JOSEPH P., Lieutenant-Colonel and Surgeon, is relieved from duty as attending surgeon at the Military Prison, Fort Leavenworth, Kansas, and will repair to San Francisco Cal., and assume the duties of Acting Assistant Medical Purveyor, taking charge of the medical purveying depot at that place, and relieving Lieutenant-Colonel

GEORGE M. STERNBERG, Surgeon, who, upon being relieved, will proceed to Governor's Island, New York, and report in person to the commanding general, Department of the East, for duty as attending surgeon and examiner of recruits in New York city.

SNYDER, HENRY D., First Lieutenant and Assistant Surgeon, now temporarily serving at Fort Reno, Oklahoma Territory, is assigned to duty at that post.

DUNLOP, SAMUEL R., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Sill, Oklahoma Territory, and assigned to duty at Fort Supply, Indian Territory, where he is now temporarily serving.

BROOKE, JOHN, Major and Surgeon, is granted leave of absence for twenty-eight days.

APPEL, AARON H., Captain and Assistant Surgeon, is granted leave of absence for twenty-three days.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the three weeks ending February 6, 1892:*

FARWELL, W. G., Surgeon. Detached from the Naval Hospital, Norfolk, and to wait orders.

DRAKE, N. H., Passed Assistant Surgeon. Ordered to the Naval Hospital, Chelsea, Mass.

PICKRELL, GEORGE McC., Passed Assistant Surgeon. Detached from the Naval Hospital, Chelsea, and ordered to the Naval Hospital, Norfolk.

MCCORMICK, A. M. D., Passed Assistant Surgeon. Detached from the Receiving-ship Minnesota and ordered to the U. S. Steamer Charleston.

BARBER, GEORGE H., Assistant Surgeon. Detached from the U. S. Steamer Charleston and ordered to the Receiving-ship Minnesota.

CABELL, A. G., Passed Assistant Surgeon. Detached from the U. S. Steamer Newark and ordered to the U. S. Steamer Kearsarge.

STOUGHTON, JAMES, Assistant Surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the Training-ship Portsmouth.

GUEST, M. S., Assistant Surgeon. Detached from the Navy Yard, Norfolk, Va., and ordered to the Naval Hospital, Norfolk, Va.

NEILSON, J. L., Surgeon. Detached from Training-ship Portsmouth, and granted two months' leave of absence.

**Marine-Hospital Service.**—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the four weeks ending January 16, 1892:*

IRWIN, FAIRFAX, Surgeon. Granted leave of absence for seven days. January 13, 1892.

CARTER, H. R., Passed Assistant Surgeon. To proceed to Cincinnati, Ohio, and assume command of the service. January 8, 1892.

BROOKS, S. D., Passed Assistant Surgeon. To inspect unseaworthy property at Marine Hospital, Detroit, Michigan. December 23, 1891.

WILLIAMS, L. L., Passed Assistant Surgeon. Granted leave of absence for twenty days. January 12 and 13, 1892.

PETTUS, W. J., Passed Assistant Surgeon. To proceed to Buffalo, N. Y., and assume command of the service. December 21, 1891.

MAGRUDER, G. M., Passed Assistant Surgeon. Relieved from duty at Washington, D. C.; ordered to Marine Hospital, New Orleans, La. January 8, 1892.

PERRY, T. B., Passed Assistant Surgeon. To proceed to Cape Charles Quarantine for temporary duty. January 13, 1892.

#### Death.

LONG, W. H., Surgeon. Died at Cincinnati, Ohio, January 5, 1892.

#### Society Meetings for the Coming Week:

MONDAY, February 15th: New York County Medical Association; New York Academy of Medicine (Section in Ophthalmology and Otolaryngology); Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, February 16th: New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Ogdensburg Medical Association; Medical Societies of the Counties of Kings and Westchester (White Plains), N. Y.; Baltimore Medical Association.

WEDNESDAY, February 17th: Northwestern Medical and Surgical Society of New York (private); Harlem Medical Association of the City of New York; Medico-legal Society; New York Academy of Medi-

cine (Section in Public Health and Hygiene); New Jersey Academy of Medicine (Newark).

THURSDAY, February 18th: New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, February 19th: New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynecological Society.

SATURDAY, February 20th: Clinical Society of the New York Post-graduate Medical School and Hospital.

#### Answers to Correspondents:

No. 371.—We think that pneumonia can not be said to be caused by the use of alcohol, but it is of frequent occurrence in the subjects of alcoholism, and, like most diseases, is more fatal in them than in others. We are not aware that pneumonia in alcoholic subjects has features distinctive enough to warrant the term alcoholic pneumonia.

## Proceedings of Societies.

### MEDICAL SOCIETY OF THE STATE OF NEW YORK.

*Eighty-sixth Annual Meeting, held at Albany on Tuesday, Wednesday, and Thursday, February 2, 3, and 4, 1892.*

The President, Dr. A. WALTER SCUTER, of Herkimer, in the Chair.

**A Pathological Review of Diphtheria, with Special Reference to a New Method of Treatment, based upon Three Years' Practical Experience,** was the title of a paper by Dr. F. E. MARTINDALE, of Port Richmond. The history and ætiology of the disease were discussed at some length, and the fatality so common in rural districts was ascribed to imperfect ventilation in the houses, to dampness, and to the presence of an abundance of bacilli, which probably originated in vegetables stored in cellars. The author's method of treatment consisted in raising the temperature of the sick-room to 104° F., and saturating the atmosphere with the vapor of tar and turpentine, which were mixed in equal portions and constantly vaporized by the action of heat during the progress of the disease. Twenty-three patients had been treated in this way, and all but one had recovered, and that one had not been seen until the disease was beyond cure.

Dr. S. BARUCH, of New York, approved of the method which had been advocated, but did not look upon it as a new one. It had been used by others, and he had used it himself eight or ten years before.

**Asepsis and Antiseptics in Obstetrical Practice.**—Dr. GEORGE SEYMOUR, of Utica, read a paper in which he advocated the precautions which modern midwifery insisted upon, including the free use of carbolic acid, sublimate, and creolin.

Dr. ANDREW F. CURRIER, of New York, believed that the essence of successful treatment in obstetric practice was cleanliness. Antiseptics were not indicated in normal cases. Unusual precautions, aside from cleanliness, though possible in hospitals, were often impossible or impracticable in the dwellings of the poor.

**The Treatment of Endometritis.**—Dr. RALPH WALDO, of New York, read a paper thus entitled. This disease, he said, had many phases, and was in many cases most difficult to cure. One of the most useful means of treatment was drainage. The idea of drainage of the uterus was not new. The words of Sims were quoted, describing the value of this means of treatment in terms which would apply to methods in vogue at the present

time. Intra-uterine douches of hot water were also an efficient means of treatment, which were to be used in conjunction with suitable means for drainage, whether such means were gauze, glass, or rubber. The application of escharotics to the interior of the uterus was attended with no little danger. Stenosis and cicatrization after such treatment were often a source of much trouble.

Dr. CURRIER believed that drainage was one of the most important means of treatment in the hands of the gynecologist. He also insisted upon the great importance of the intra-uterine tampon in the treatment of endometritis, as well as in numerous other pathological conditions of the uterus, not only furnishing, as it did, a most efficient means of drainage, but also serving as a stimulant to the uterine muscular tissue.

Dr. W. B. CHASE, of Brooklyn, agreed with the reader of the paper in reference to the dangerous character of escharotics in the treatment of endometritis. He was a firm believer in the curette and in dilatation as suitable means of treatment.

Dr. HAYD, of Buffalo, referred to the danger of exciting tubal disease by the use of violent means of treatment. He agreed with the previous speakers in regard to the danger of escharotics and the essential value of drainage, especially when the gauze tampon was used.

Dr. SEYMOUR believed that in numerous instances an oophoritis or salpingitis was caused by the freedom with which the uterus was invaded in the treatment of endometritis. He was disposed to attach great importance to the use of tonics, suitable diet, and exercise as means of treatment, believing that the endometritis was frequently only a manifestation of a depraved general condition.

Dr. R. B. TALBOT, of New York, thought that dilatation was a valuable measure if properly applied. He preferred gradual dilatation with bougies and sounds to the use of powerful expanding instruments. He had seen no accidents resulting from dilatation, as he was in the habit of using it.

**Open Incision for Talipes Varo-equinus.**—Dr. A. M. PHELPS, of New York, read a paper thus entitled. This operation had been first performed by him in 1879, and he had been able to present to the society the histories and photographs of some of his earliest cases. The cures effected by his method had been permanent, and the children who had been operated upon had grown up with useful and shapely limbs. He was the more pleased to make this report inasmuch as there had been much skepticism as to the value of his operation. All the soft parts were divided in his incision, which began at the internal malleolus and extended a third the distance across the foot. Osteotomy should not be done in these cases, as a primary operation for a permanent cure was less likely to result, and even a fatal result had occurred in a few cases. The equinus was to be overcome by subcutaneous division of the tendo Achillis, and this should be done prior to the incision for the relief of the varus. A series of 161 operations upon 93 patients was reported, in which there had been but ten relapses. In only 17 cases had he found it necessary to perform linear osteotomy.

Dr. WILLY MEYER, of New York, narrated cases which had come under his observation. The treatment of these cases should be begun almost at birth. Some of them could be corrected by pressure and traction, but, if such measures failed, Phelps's operation was indicated.

Dr. HERMAN MYNTER, of Buffalo, believed that operative measures frequently became necessary in consequence of the carelessness of mothers in following out the directions of the surgeon when milder measures had been resorted to. Such an operation as was under discussion frequently obviated the necessity of amputation.

Dr. PHELPS said that a failure might result if the incision was not extensive enough, and he believed that surgeons sometimes erred in this particular. His formula was to make the incision before performing a bone operation, and to avoid the latter if possible.

**Mineral Springs in the Treatment of Disease.**—Dr. CHARLES C. RANSOM, of New York, read a paper which was a plea for the more careful study and classification of the mineral springs of this country, and in particular a study of the sulphur waters of Richfield Springs, N. Y., and their application to the relief of various constitutional disorders.

**Amputation of the Vaginal Portion of the Cervix Uteri in Cases of Suspected Carcinoma.**—Dr. CURRIER read a paper thus entitled. (To be published.)

**The Mental Derangements observed in Multiple Neuritis, especially that of Alcoholic Origin.**—Dr. E. D. FISHER, of New York, read a paper thus entitled. The symptoms of this disease, as given by Starr, were briefly described. Especially important as a symptom was the loss of knowledge of time and place during the illness. The patient was conscious of experience which occurred until his illness began, but from that period until his recovery all was a blank to him. The disturbance of function was most manifest in the upper extremities, and was derived from lesions of the association fibers of the brain. The disease might continue for months, improvement in the peripheral nerves and mental condition taking place, and recovery resulting eventually. The disease occurred not only in those who had long been addicted to alcoholic excesses, but in moderate drinkers as well.

**Two Successful Cases of the Conservative Cæsarean Section.**—Dr. CHARLES JEWETT, of Brooklyn, reported the following cases: **CASE I.**—An English woman, thirty-two years of age, four feet six inches in height, was in fair health with the exception of a chronic nephritis. The pelvis was kyphotic, and the inlet slightly contracted; the outlet two inches and three quarters in the pubo-occygeal, and two inches and a quarter in the bisischiatic diameter. She was admitted into the Long Island College Hospital after being several hours in labor. The os externum was dilated to the size of a half-dollar and the membranes had ruptured. The operation was done on December 2d. The pulse was 90. A large, thin-walled rubber tube was used as a cervical constrictor. The placental seat was under the uterine incision. A hand was passed over the left edge of the placenta and through the membranes. The head was extracted with difficulty and only after relaxing the grasp of the constrictor. The umbilical cord was clamped at two points with catch-forceps and cut between them. The child was alive and respiration was promptly established. There was no evagination of the uterus. The placenta and membranes were separated by the hand, and the uterine cavity was left undisturbed. The uterus was closed with twelve deep silk sutures and a symperitoneal suture of catgut. Hardly any handling and no special cleansing of the peritonæum took place. The abdomen was closed with ten silk sutures. The loss of blood was no greater than in ordinary labor. The tonicity of the uterine muscles was apparently unimpaired by the cervical ligature. A good recovery was made, with no sign of sepsis. The abdominal sutures were removed on the tenth day. Uterine involution was somewhat tardy.

**CASE II.**—A German immigrant, twenty years of age, had for a long time been subject to hysterical paroxysms, occasionally ending in convulsions and semi-coma. She was in bad condition from inanition, and was the subject of a slight bronchopneumonia at the time of the operation and also of syphilis in the second stage. A most remarkable feature of this case was the temperature record. The thermometer several times regis-

tered 107° F., and once 110°. At the beginning of the operation her temperature was 108.6°. This woman was of slender figure and four feet six inches and a half in height, and her pelvis was extremely flattened. The true conjugate was two inches and a half, and the pubo-eccegeal and bischial diameters were each two inches and a quarter. She fell into labor shortly after the sixth month of gestation. The operation was done about ten hours after the first pains. The waters had drained away, but the cervix would barely admit the examining finger. The section was complicated with troublesome protrusion of intestines, owing to tympanites. There was nearly a complete escape of the liquor amnii, with placenta prævia Cæsareana. A large, thin-walled rubber tube was used as a uterine ligature as in the previous case. The placenta was separated as before. The child was alive and breathing, but not viable. The uterus was lifted out of the abdomen. The membranes were separated with difficulty. The uterus was closed with ten deep sutures in fourteen minutes from the beginning of the operation. The decidua was not included in the sutures. Symperitoneal sutures of silk were used. No flushing and little cleansing of the peritonæum were employed. The abdominal incision was closed with ten silk sutures. The temperature at the close of the operation was 98.6°, and the pulse 90, lower than at the beginning. There was some abdominal distention on the second day, which was promptly and permanently relieved by free evacuations of the bowels with salines. The temperature soon resumed its customary oscillations, but there was no bad symptom attributable to the abdominal section and the patient made a satisfactory recovery.

The writer mentioned as the most important points in the technique of Cæsarean section asepsis, the secure closure of the uterine wound by the typical Säger suture with silk, and the avoidance of all scrubbing and use of antiseptics of any kind in the aseptic uterine cavity and irrigation or much sponging of the peritonæum. The resort to saline cathartics soon after the first expulsion of flatus he considered a valuable measure. The best time for operation, in his opinion, was an appointed time immediately before labor. The simplicity of the technique and the comparatively favorable condition of the patient in timely operations, he thought, entitled us to expect results in Cæsarean delivery quite equal to or better than the best records of laparotomy in disease.

**Compound Fractures and their Treatment** was the title of a paper by Dr. HERMAN MYNTER, of Buffalo. For many years the mortality in European hospitals in connection with compound fractures had been very great. It was Volkmann who instituted a radical change in the treatment of such injuries, and in 1877 he was able to report seventy-five cases, in some of which amputation was performed on the second day after the injury, all of them resulting favorably. His treatment consisted in thorough cleansing of the wound, with the removal of all dirt and dead or hopelessly bruised tissue, irrigation, and drainage. In fact, it was the application of antiseptic methods of treatment. The principle upon which the author treated such cases was that of converting a contused and lacerated wound, with its dirt, splinters of bone and crushed tissue, into a simple incised wound, all tissues being removed which were likely to undergo necrosis, and the wound thoroughly cleansed, even if it was originally only a punctured wound, and then closed like any other simple incised wound. No drainage-tubes were used and no silver wire. The limb was immobilized after closure of the wound, and the subsequent course after such treatment had in his experience been an aseptic one. The plaster dressing was retained from four to six weeks, and he was now treating many cases successfully in this manner for which in former years amputation would have been considered necessary.

Dr. LEWIS S. PILCHER, of Brooklyn, remarked that compound fractures, above all injuries, showed the advantages of antiseptic surgery. He thought that the chapters upon this subject were being rewritten. The directions of former years were to be, in most respects, discarded. The results obtained by the reader of the paper were ideal—better than could ever be expected by the profession at large. He believed that the danger in such cases lay not in the treatment received in the hospital, but in the first dressing made by the ambulance surgeon. This latter subject was one which heretofore had been too much overlooked.

Dr. J. H. PACKARD, of Philadelphia, referred to the occasional overlooking of punctured wounds in compound fractures because they were thought to be of minor importance. They were not of minor importance, and frequently signified a disorganized condition of the fissures. Such wounds should therefore be laid open and thoroughly cleansed, the general principle being to get at the bottom of all cavities. He objected to the use of plaster for the first dressing, preferring the ordinary antiseptic dressing with splints of felt or binders' board. A plaster dressing applied when the limb was swollen would be inefficient when the swelling had disappeared. He believed that all surgeons should aim at ideal results, such as had been obtained by the reader.

Dr. HAYD was familiar with the work of the reader of the paper and corroborated his statements in regard to the excellence of the method employed. It was an advance upon Volkmann's method in that drainage-tubes had been found unnecessary. The plaster dressing had not justified the objections referred to by the previous speaker in the cases which he had observed.

Dr. MYNTER emphasized his point of converting a contused into an incised wound, and also the possibility of obtaining healing, even in extensive wounds, without pus. The plaster dressing was placed outside a thin antiseptic dressing. He did not think hospitals were so much at fault as surgeons when healing did not take place. If a surgeon was thoroughly clean, cases such as those which were under discussion could be successfully treated even in very dirty hospitals. He did not think one should expect too much from ambulance surgeons, who were not men of experience in their work. The temporary dressing made by them should be removed as soon as possible, and not allowed to remain for hours as a matter of convenience to the surgeon.

**Intravenous Saline Infusion for the Relief of Shock and Acute Anæmia.**—Dr. PILCHER read a paper thus entitled. The subject was not a new one. The object of the proposed measure was to restore the circulation to full volume as soon as possible after the occurrence of shock or the loss of blood. Blood was not absolutely necessary to effect this end. There were three classes of cases in which the method was indicated: (1) those in which shock was the predominating influence, (2) those in which hæmorrhage and shock were combined, (3) those in which hæmorrhage was the predominating influence. In a condition of shock the blood pressure was observed to fall, vitality was lowered, and, if this state continued, syncope would result. Such a result should be anticipated by laying bare and opening the median basilic vein, and injecting not less than eight ounces of a weak saline solution. This quantity might not be sufficient and might be increased to a quart, or even two quarts, as in a case which was narrated by the reader. In any case it would be necessary to continue the injection until the volume and force of the pulse were measurably augmented by the rapid diffusion of the fluid. The operation was a simple one, the instruments required being a glass tip for introduction into the vein, a piece of rubber tubing attached to the glass tip, and a funnel

attached to the distal end of the tube. The funnel must have sufficient elevation to give the requisite degree of force to the fluid in entering the vessel.

(To be continued.)

## NEW YORK ACADEMY OF MEDICINE.

SECTION IN ORTHOPEDIC SURGERY.

Meeting of December 18, 1891.

Dr. SAMUEL KETCH in the Chair.

**Congenital Absence of a Portion of both Lower Extremities.**—Dr. JOHN RIDLON presented a boy, ten years old, who had been brought by Dr. Manning to the last meeting of the Hospital Graduates' Club. There was an entire absence of all the parts below the condyles of the femur, and just posterior to the extremity of each of these stumps was a fleshy mass, which probably represented the undeveloped digits. The boy could walk quite well on these stumps, and at present was wearing artificial limbs, but, as these caused pain, he had presented the boy with the hope that some suggestions might be offered as to the best way of treating the case. It was questionable whether an artificial leg with a joint at the knee could be applied to limbs of this length, and hence the question of amputation might properly be considered. Personally, he was in favor of applying artificial legs, without any knee joint, directly to the stumps without operative procedures.

Dr. W. R. TOWNSEND thought that the fleshy masses would interfere with the proper application of these artificial limbs, and hence favored removing them.

Dr. J. E. KELLY thought that the fleshy masses were undoubtedly the remains of the undeveloped lower portions of the limb. He thought their position the normal one *in utero*. He had seen within the last few months a somewhat similar amputation in the upper extremity, with rudimentary digits which had been capable of movement.

Dr. HALSTED MYERS, on examination, found a slightly movable bony mass between the condyles of the left femur, probably a poorly developed patella. He thought the case one of non-development, not amputation.

**Congenital Deformities of the Upper and Lower Extremities.**—Dr. MYERS presented a case and asked the opinion of the Section as to the value of operative procedures for the relief of the constrictions caused by amniotic bands.

Dr. KELLY thought that the phalanges of the great toes were perfect in this case, but that the digits had been suppressed, and development had taken place beneath the skin.

The CHAIRMAN referred to a child he had seen in which there had evidently been an attempt at amputation *in utero*. There was a deep constriction just above each ankle, more marked, however, on one side. The mother of this child, quite early in pregnancy, had been tipped by a cord which some boys had tied across the street, and it was thought that this maternal impression was responsible for the deformity. The child was able to walk with the aid of ordinary ankle supports.

Dr. TOWNSEND did not favor operating upon these constricting bands, for the cicatrix would cause further contraction.

**The Anatomy of the Foot, with Exhibition of a New Club-foot Shoe.**—The postponed discussion on Dr. J. E. KELLY's paper was opened by Dr. ROYAL WHITMAN, who said that the author had spoken of removing a wedge-shaped piece from the cuneiform bones, but as these bones were quite small, their dimensions varying from half an inch to an inch, it was evident that a cuneiform osteotomy on such bones would be impracticable. The calcaneum could, of course, be treated in this manner by cutting to a considerable depth, but such an operation was to-

tally unnecessary. When one recalled the fact that the astragalus was poised on the os calcis in unstable equilibrium, there seemed to be no reason for increasing this instability. Such operations might be allowable if it were true, as had been stated before in the Section, that the radical cure of flat-foot was impossible, and that all that could be hoped for was relief. He had seen more than 300 cases of flat-foot, and he believed that a radical cure without operation was not only possible but easy.

Dr. A. B. JUDSON said that the mechanical toy constructed by Dr. Kelly admirably illustrated the fact that human locomotion resembled the action of a wheel in motion, in which the legs were the spokes and the feet were the felloes, as pointed out by Dr. Holmes. That ordinary locomotion was a continual falling and a continual recovery was seen in the gait of a child learning to walk, and in the titubation of a drunken man, whose body inclined in a given direction and would fall if the legs and feet failed to make a timely movement forward to prevent a fall. He said that Dr. Kelly's apparatus took advantage of the weight of the body for the correction of the varus. It was well known that varus corrected to a certain point and held there was further corrected by the weight of the body applied in successive blows, as the child ran about. On the other hand, if the varus was reduced only to a point on the wrong side of the line between deformity and symmetry, each foot-fall was a blow increasing the varus. Dr. Cook, of Hartford, had shown a varus shoe at Washington last summer which had had attached to the sole a flat piece of steel extending outward a few inches to enable the weight of the body to act in a favorable manner on the deformity. He had seen a horse treated for some affection which made it desirable to prevent extension of the foot by the application of a horseshoe having a long posterior prolongation. The veterinary surgeon could attach his apparatus with absolute firmness to the foot, but in our patients the foot was apt to turn over inside of the shoe. As a rule, the weight of the body could be made more effective by the use of an apparatus having an upright extending up the leg, and a steel foot piece in which the foot was prevented from rolling by a strip of adhesive plaster.

Dr. R. H. SAYRE said that this succession of falls during the act of locomotion was well shown in instantaneous photographs of athletes running. The shoe exhibited by the author was doubtless intended for the treatment of club-foot in the later stages, when it was possible for the foot to be placed flat on the ground in a fairly good position. Before this stage the shoe could not be easily adapted to the crooked foot. The usefulness of this "snow shoe" was not so much on account of its shape as of the fact that there was a long lever on the outer portion of the foot which prevented the child from standing on this outer portion. In connection with this shoe, he had intended to exhibit a shoe which one of his patients had devised for his own use. His shoe had been made with the sole sloping outward for some distance, thus answering the same purpose as the snow-shoe. This patient had had adhesions and contracted tendons following infantile paralysis, so that the weight of the body had been unable to do more than prevent an increase of the deformity. The foot had only been brought straight by subcutaneous tenotomy and the use of very strong force applied by means of Bradford's instrument.

The CHAIRMAN said that many instances were recorded in which this principle of utilizing the weight of the body had been embodied in various kinds of apparatus. In some cases of equinus the patients had been allowed to walk without apparatus with the idea of utilizing this factor.

**A Consideration of some of the Affections of Tendon Sheaths and Bursæ, and their Relations to Injuries and Diseases of the Joints.**—Dr. ROYAL WHITMAN read a paper with

this title. He briefly described the structure and anatomical relations of bursæ and tendon sheaths, their diseases, and their appropriate treatment, calling attention to the fact that chronic disease of tendon sheaths was usually tuberculous in character, for which early removal was the only remedy. The relation of the tendon sheaths to the ankle and wrist joints, and their liability to injury in sprains and fractures, explained the symptoms—weakness, local pain, and limitation of normal motion—often persisting after such injuries. The importance of local massage and stimulation in the early stage, in order to prevent the formation of adhesions after secondary inflammation of tendon sheaths, was urged. In chronic and neglected sprains a careful examination should be made, and, if adhesions or contractions were present, treatment should be directed to a recovery of the normal range of motion. This result might often be accomplished by a forcible overstretching under anæsthesia, followed by massage and support. By such treatment patients disabled for many months might be relieved quickly and permanently. In conclusion, attention was called to the importance of slight injuries in childhood, which might be the starting-point of tuberculous disease, the diagnostic value of chronicity, and the necessity of careful observation and early treatment in suspicious cases.

Dr. JUDSON said that he had seen a case of tumor of the semi-membranosus similar to the one shown in the model. The child had been about six years old, and, under a purely expectant treatment, the tumor had disappeared in the course of a few months, leaving no deformity or disability.

Dr. TOWNSEND said that he had seen many of the cases referred to by the author, and he had been struck with the many and varied diagnoses which had been made upon them before they came to the dispensary. The diagnosis in the early stages was often difficult, especially when there was only a meager and often misleading history such as accompanied most dispensary cases. The importance of the diagnosis could not be too strongly emphasized, particularly as upon it depended a correct prognosis.

Dr. C. A. POWERS said that he inferred from the author's remarks on injuries at the lower end of the radius that he recommended confining the flexor and extensor tendons of the fingers in the treatment of Colles's fracture. He saw a large number of these cases with functional disability following this method of treatment, and he therefore preferred to use the long anterior splint for the first five or six days, and then to shorten both the anterior and posterior splint to the first row of the carpus, directing the patient to make very active use of the fingers. Four or five days after this he expected him to be able to shut the fingers well down into the palm.

Dr. KELLY said that in Dublin, the home and birthplace of Colles's fracture, the keel-shaped splint, which avoided injurious pressure on the thenar and hypothenar eminences was almost universally employed. The mode of development of the bursæ found on various points exposed to pressure was difficult to understand, unless we remembered that the peritonæum, which was the great areolar interspace of the body, had had a similar development from the connective-tissue structures. He was glad that the author agreed with him as to the position of the foot—viz., slight adduction with the foot at right angles to the leg. This slight adduction produced what he called "artificial talipes varus."

The CHAIRMAN said that he inferred from what the author said that he considered these bursal tumors of tubercular origin. He wished to dissent from this opinion, for many of them were benign and the result of injury.

Dr. WHITMAN explained that he had spoken of slow, chronic enlargement of the sheaths of the tendons of the wrist and hand

as tubercular. The deep-seated bursæ were favorably located for tubercular inflammation, and accordingly when they underwent chronic enlargement he preferred to treat them radically. He had only incidentally referred to the treatment of Colles's fracture. He did not consider the confinement of the fingers with vigorous massage and local stimulation the same as the confinement treatment which had been criticised during the discussion.

**An Improved Adjustable School Desk and Chair.**—Mr. E. E. HICKS exhibited a chair and desk which he had devised, and to which reference had been made in the recent discussion on the subject of the relation of faulty attitudes to lateral curvature of the spine. The desk and seat admitted of an independent vertical adjustment of four inches, which was manipulated by means of a key. The slope of the desk could also be varied to suit individual requirements. The desks and seats could be folded so as to occupy very little space, thus facilitating cleaning the school-room and allowing room for gymnastics. The seat and desk had a common base of support; a child using the desk, therefore, occupied the seat joined to the desk next behind. This improved desk cost only about fifty cents more than those now found in the market.

Dr. R. H. SAYRE thought this desk was a decided improvement on the usual style.

The CHAIRMAN thought that it might be desirable for a child already suffering from lateral curvature, but he did not believe that faulty attitudes at school were the cause of rotary lateral curvature.

#### **Tubercular Disease of the Vertebrae in its Early Stages.**

—Dr. R. H. SAYRE presented the second, third, and fourth lumbar vertebrae of a patient, showing a very early stage of tubercular disease. There was a cheesy mass in the third lumbar vertebra which had not yet broken down and ulcerated through into the cartilage. The points of junction between the second and third, and the third and fourth vertebrae were apparently normal. There was an extravasation of blood into the vertebrae. The history of the patient from whom these specimens were taken was quite interesting. A child suffering for some time from chills and high temperature had begun to have a peculiar posture and mode of locomotion and to suffer from abdominal pains. This had led to a diagnosis of spinal disease, but in a consultation with an orthopaedic surgeon this opinion had not been confirmed, the latter believing that the child was suffering from malaria. The symptoms not subsiding under the administration of quinine, the child had been brought to Dr. L. A. Sayre, who had concurred in the diagnosis of disease of the spine. At this time there had been some psoas contraction on the right side, with spinal rigidity and very slight pains. It could hardly be said that there had been a kyphosis; the lumbar spine had been straight instead of concave. The child had been placed in a wire cuirass. About a month later he had suddenly shown a temperature of 104°, with vomiting, photophobia, phonophobia, stiffness of the neck, and a rapid pulse. He had then been seen by the speaker, who had found an abdominal enlargement near the left side of the umbilicus, which could be separated by percussion from the spleen. It had been quite freely movable. Small doses of bichloride of mercury had been administered, and in a few days the temperature had fallen to 100° and had remained at this point, and the other meningeal symptoms had disappeared. There had been no colic indicating tubercular peritonitis. The child had become then even more anæmic than before, and the abdominal swelling had increased in size. It had seemed hardly possible that the mass could be a psoas abscess pointing in such an unusual position. After some time the mass had become larger and had moved toward the posterior surface of the abdomen. In consultation with Dr. W.

T. Bull, it had been decided to be inadvisable to operate. The child had died six days ago, and for a few days before death there had been slight jaundice. The post-mortem examination had shown that the abdominal tumor was formed by a tubercular mass which united the intestines into one large mass. There were no small miliary tubercles scattered over the peritonæum. One little band pressed upon the gall-bladder, and so accounted for the jaundice. The kidneys were firmly bound down with adhesions, and the left one was very large and waxy and its pelvis was much dilated. There was a large quantity of fluid in both pleural cavities, and there were cheesy nodules at the apices of the lungs. The heart was enormously thickened; the brain was not examined.

The CHAIRMAN thought that the symptoms described were more like those of an acute non-tubercular meningitis, as in the initial stage of the tubercular variety a high temperature was unusual, and the pulse was ordinarily slow or intermittent. Then, again, the subsidence of the symptoms was not in accordance with such a diagnosis.

Dr. KELLY called attention to the fact that in the early and late stages of tubercular meningitis the pulse was rapid, while in the intermediate stage it was slow.

Dr. RIDLON said that he inferred from the remark of the chairman that he shared in the general feeling in the profession that if a child survived, it was proof that the meningitis was not tubercular, and *vice versa*. He desired to express dissent from this opinion. Eight or nine years ago he had treated a boy who had suffered from a form of meningitis which several eminent consultants had considered to be tubercular; and they had an opportunity of seeing the patient a good many times. The patient was still alive, but he did not believe this proved that the diagnosis was incorrect.

The CHAIRMAN said that he had never seen one undoubted case of tubercular meningitis end in recovery, although he believed there were a few such cases on record.

Dr. H. W. BERG was not aware that there was any symptom, either subjective or objective, which would enable one to make a diagnosis between simple and tubercular meningitis. He thought that where there was a high temperature at the beginning of a meningitis, it was due to a series of eclamptic seizures which, by paralyzing the heat center of the body, allowed of a sudden rise of temperature.

Dr. TOWNSEND had had an opportunity of seeing a considerable number of cases of tubercular meningitis, almost all of which had been proved by autopsy to be tubercular, and he could not recall any case where there was an extremely high temperature at the beginning.

Dr. R. H. SAYRE said that he had looked upon the meningitis as tubercular, because of the very general tubercular infection. The child had looked as if it would die within a few days after the onset of these meningeal symptoms, and he had been much surprised when the acute symptoms had subsided so rapidly. The high temperature might have been due to the abdominal lesions. The extent of the abdominal lesions had been remarkable, as they had been younger than the disease in the spine.

#### AMERICAN LARYNGOLOGICAL ASSOCIATION.

*Thirteenth Annual Congress, held at Washington, on Tuesday, Wednesday, and Thursday, September 22, 23, and 24, 1891.*

The President, Dr. W. C. GLASGOW, of St. Louis, in the Chair.

**The Troublesome Symptoms caused by Enlargement of the Epiglottis, and the Advisability of reducing the Size of this Cartilage by Operative Measures.**—Dr. C. C. RICE, of New York, read a paper on this subject. (To be published.)

Dr. MULHALL: Did I understand Dr. Rice to state that he had seen cases of uncomplicated, non-syphilitic, non-malignant, non-tubercular, non-traumatic primary enlargement of the epiglottis?

Dr. RICE: Yes, I have.

Dr. MULHALL: Are they not uncommon?

Dr. RICE: I think they are.

Dr. MULHALL: I have asked this question because it is to me a novel fact that there can be a case of pure, uncomplicated, simple chondritis in any part of the body. I can understand enlargement of the epiglottis from surrounding catarrhal or other inflammation, which is the usual cause. I recall the case of a lady in St. Louis who had an unyielding, irritable cough. She went abroad a year ago and consulted a prominent laryngologist, who pronounced the cause of her cough to be a distorted and enlarged epiglottis, and he galvano-cauterized it. Following this there was much irritation of the epiglottis and swelling, with more cough. This lady died a week ago with pulmonary tuberculosis. She told me that the prominent laryngologist did not examine her lungs once. I can understand a large, pendulous epiglottis as a result of irritation; but I can not understand a primary non-specific enlargement of the epiglottis. It is new pathology to me.

Dr. S. O. VANDER POEL: I wish to emphasize the remarks of Dr. Rice regarding the unfavorable results following the galvano-cautery in cases of this kind. The use of the curette or sharp spoon has given me much more satisfaction. The pathological condition described by Dr. Rice, the hypertrophy of the cartilaginous elements, I am not familiar with, but I have seen enlargement, with more or less inflammation and hypertrophy, of the epiglottis in connection with enlargement of the tonsils.

Dr. JARVIS: I was much interested in Dr. Rice's remarks upon hypertrophy of the epiglottis. He explains a condition new to me—something I have never seen. The signs of congestion and enlargement from inflammation we are familiar with, but primary hypertrophy of the cartilage of the epiglottis is new. You may perhaps remember a somewhat similar condition, which was referred to in connection with our discussion of the enlargement of the septum narium at a former meeting. I then held that there might be an enlargement of this cartilage due to increase of cartilage cells, which could only be demonstrated by the microscope; and, upon making further investigation, discovered that inflammatory changes in the submucous tissue directly above the cartilage could be easily demonstrated. I think that, in all probability, in the enlarged epiglottis of Dr. Rice a similar condition will be found to exist. Change of form of the epiglottis may result from distortion and congestion. That we may have disturbance of function from these causes I am satisfied. I recall the case of a clergyman who came to me with a cough and difficult phonation. I found a swollen epiglottis, and applied cocaine in the manner recommended by Dr. Rice, and the patient experienced so much relief that he was enabled to resume his duties in the pulpit. There may be no direct advantage gained from the use of the galvano-cautery, but we must acknowledge that the psychical effect produced is often very great, whether this agent be applied to the hypertrophied epiglottis or to the tip of the nose. I believe it may have given relief from cough, but think it merely acted through the medium of the patient's mind. A much better substitute is to train patients to exercise their will, and in this way overcome the tendency to cough.

Dr. WAGNER: About ten years ago I read a paper before this society in which I reported a case of removal of the entire epiglottis for carcinoma by a subhyoidian incision, the first case on record. Before performing the operation, I considered the several methods, and came to the conclusion that removal

by the mouth of the *entire* epiglottis was impracticable. The patient experienced no ill effects after the operation, except a peculiar cough. A similar effect had been observed by an experimental physiologist at Harvard University in a number of cases upon which he had performed the operation. I have never seen a case of ordinary eatarhal inflammation of the cartilage, as described by Dr. Rice.

Dr. RICE: I certainly think that these cases of enlarged epiglottis are exhibitions of a chondritis, and can not see why we may not have cartilaginous inflammation and enlargement of the epiglottis as well as of the septal cartilage. I am at a loss to know why the gentlemen have not observed these enlarged epiglottides. In many cases I have found enlargement of the lingual tonsil to be the cause of the irritation and hypertrophy of the epiglottis, but not always, for in some cases the enlargement seems to be congenital. I do not believe that enlargement of the epiglottis is an unusual clinical condition, and this condition is almost as great a source of irritation in the larynx as is a small foreign body. That enlargement of the epiglottis and its contact with neighboring tissues produces distressing symptoms and demands appropriate treatment, I am sure must be admitted. Medicinal applications seem to be inadequate to reduce the size of the epiglottis.

**The Result of Treatment of the Upper Air-passages in producing Permanent Relief in Asthma.**—Dr. F. H. BOSWORTH, of New York, read a paper with this title as the opening of a discussion on the subject. (To be published.)

Dr. BEVERLEY ROBINSON: Mr. President, I merely desire to take up this subject again in order to affirm the opinions which I have endeavored to place before this association at previous meetings and before other societies, and which I have expressed in some of the medical periodicals of the day. I am glad, if I interpreted Dr. Bosworth's paper correctly, to learn that he has somewhat modified the views which he maintained several years ago. It is certainly remarkable for him to say that other conditions than those present in the nose take a prominent part in causing an outbreak of asthma. Certainly none of us take exception to his statement that he had by his treatment given relief to a certain number of cases. We merely do not accept the assertion that all cases of asthma arise in the nose; that in effect Providence has appointed that all cases of this kind should fall into the hands of the rhinologist and laryngologist, and that all cases of pure asthma should go to the specialist and to him alone. In a paper which I read before the Climatological Association in 1889 I endeavored to prove, and believe I did prove, that Dr. Bosworth's views were wrong from a broad general standpoint; that they were those of a specialist. I think that if Dr. Bosworth had followed up his cases he would have found a certain amount of the old trouble recurring at intervals. I am firmly of the belief that where there are frequently changes in the peripheral nerve fibers or central nervous system, a permanent cure is rare. Local conditions of the nose may at times justify an operation for removal of a source of irritation, but I wish to put myself upon record against the view that obstruction of the nasal chamber, or the effect of inflammation, is the usual cause of asthmatic attacks. I am opposed to such a limited view of the disease. While we may occasionally remove the source of a certain amount of irritation by the treatment of the nose, we do not remove the disease; relief may follow just as it sometimes follows the application of a blister between the shoulders. The relief may persist for a certain length of time, but after a while the condition producing the attack will return and the old disease reappear.

Dr. ROE: In all cases of asthma caused by disease of the nasal passages we should distinguish between those in which the asthma is dependent directly upon diseased conditions in the

nasal passages and those in which there is associated disease of other portions of the upper respiratory tract which have resulted from disease in the nasal passages and which often become independent centers of irritation in the production of asthma. As regards the ætiology of asthma, I believe that asthma proper is always dependent upon a diseased condition of the bronchial mucous membrane, and it is by reason of this abnormal condition of the bronchial mucous membrane that diseases in the upper air-passages so readily produce turgescence and swelling of the bronchial mucous membrane, as was first pointed out by Weber. I think that in those cases reported by Dr. Bosworth, where the attacks recurred, it was because he overlooked the diseased conditions in other portions of the respiratory tract after he had removed the disease in the nose. In this manner it is readily explained why in some cases asthma dependent upon nasal polyps will be readily cured by the removal of the polyps, while in other and quite similar cases the removal of the polyps will have but little or no effect in arresting the asthma.

Dr. WAGNER: In a brochure, published about ten years ago, on Habitual Mouth-breathing, I reported a case of nasal polyp which greatly obstructed the nasal respiratory passages. After removal by operation the patient had relief from asthma, from which he had long suffered. But I have seen since then so many cases of asthma with, so far as I could judge, perfectly healthy nares, and, on the other hand, so many cases of nasal polypi, deviation of the septum, hypertrophied mucous membrane, exostoses, etc., with no symptoms of asthma, that I have long since ceased to look upon the nose as a factor in this affection, or to recognize any connection between asthma and nasal disorders.

In regard to patients being benefited by removal to great altitudes, I have seen many that experienced no relief by the change. I might refer to one, a New York physician, a sufferer from asthma, who went through the usual course of painful local treatment of his nose; not experiencing relief, he tried change of climate—to the South, thence to the West Indies, thence to Colorado Springs, thence to New Mexico, and finally to the sea level in southern California, where he not only found relief, but has quite recovered.

Dr. SHURLY: I think that the ground has been pretty well covered in the discussion. I remember very well the paper that Dr. Bosworth read before the Climatological Association, some years ago, in which he gave his opinions on the causes of asthma and its treatment. I remember that the same points were brought out in the discussion then that have just been considered. Since many cases of disease of the nose occur without asthma, and *vice versa*, we are still held to the old conclusions or doctrine that two causes must co-exist to produce asthma: Firstly, a point of irritation, which may be in any part of the body; and, secondly, a peculiar predisposition of the nervous system of the individual. Such treatment as Dr. Bosworth proposes is necessary in a certain number of cases; but the physician who neglects to treat the nervous element would not do his whole duty to the patient. In any case, if it is associated with a hypertrophic enlargement which gives rise to irritation, this should be removed. In a paper which I wrote some years ago I recorded the results of some experiments upon dogs in relation to this subject, one of which was that, by irritating the peripheral nerves of the respiratory tract with an electric current, symptoms were produced resembling asthma. This does not invalidate the view that asthma may be due in some cases to vascular excitement, or congestion, in certain parts of the body, because the physical conditions may be about the same. I regret to say that in many cases the pathology and ætiology can not be made out, and such I recommend to go to a more suitable climate; it may be St. Paul, or southern California, or Macinac, if it is possible for them to go.

Dr. GLASGOW: We must remember that in the surgical treatment of asthma there is a psychical factor; as an attack can often be broken by a powerful emotion, the application of the electrical cautery has a similar effect. The method of Duclos at the beginning of the century was based upon this, the effect being brought about by the application of aqua ammoniæ to the pharynx. I read a paper before this society upon the effect of applications to the larynx in breaking up a paroxysm. I called attention to the use of carbolic acid and the insufflation of certain powders into the larynx, and showed that this was immediately followed by a cessation of the attack of asthma. I have also seen an attack relieved by simply cleaning the nostrils, by the removal of a polypus, and even by spraying the cavities with a simple alkaline wash. One case made a profound impression upon me. I applied a strong solution of carbolic acid to the larynx during the height of the attack, and the man has never had an attack of asthma since, and that was three years ago. The statement of Duclos, together with my own experience, has made me believe that the results in some of our patients are largely due to the powerful psychical impression. Like all nervous affections, asthma is erratic in its course and appearance. The asthmatic habit is stronger in some than in others, and the same methods of repression will not be equally successful in all cases. The habit is unquestionably sometimes kept up by points of irritation in various parts of the body, and relief of this irritation is necessary before permanent relief can be obtained.

Dr. MULHALL: I think that we are arguing away from our original standpoint. What Dr. Bosworth was referring to was simple nervous asthma. My objection to the statistics presented is that they are not properly studied. When Mr. Hutchinson, of London, recorded a case, he took the address and visited the patient afterward to learn the results of treatment. In Dr. Bosworth's list there are a number in which the result is not given, because the patient failed to come back to him. This invalidates his percentage of cures. I remember when Dr. Daly read his paper on galvano-cautery in the treatment of hay-fever, I was impressed by it, and during the next season I treated twelve cases in this way. I took the address as well as the name of each patient, and subsequently I called upon them and found that, while they were surprisingly relieved, they were not cured. That nasal disease is one of the causes of nervous asthma I can not deny, but that it is the sole cause of the disease is simply absurd. Patients with nasal polypi are many of them free from asthma or the two diseases may coexist. The pathological irritation may start from the nasal mucous membrane, and cause reflex contraction and symptoms in parts of the body other than the bronchi. In one case that I recall there was a difficulty in passing urine, a spasmodic stricture, which was immediately relieved by the removal of nasal polypi. This patient had what might be called "vesical asthma."

I agree with Dr. Bosworth in his statement that some cases of bronchial asthma are cured by the removal of disorder from the nose, such, for example, as hypertrophic rhinitis. In two cases that I recall where there was associated enlargement of the anterior end of the middle turbinated bones I have the record; one was done five years ago and the other three years ago. I took the patients' addresses and have verified the result in each case as being complete and lasting successes. The position I take with patients is this: I tell them that I have been able to find nothing wrong in the body except this disease in the nose, and by its removal the asthma may be cured. I by no means promise that it will cure the asthma; it may do so and in many cases will do so, but I can not promise that it will in any particular case.

Dr. INGALLS: From my own experience and what I have

learned from others, I am satisfied that in a large percentage of cases operations on the nose, however complete, fail to relieve asthma. I have seen three cases in which there was a peculiar and interesting connection between nasal polypi and asthma. In all of the three where polypi were confined to one naris, the patient alleged that the asthma was also confined to the same side.

Dr. ROBINSON: I wish to call attention to cases of asthma of malarial origin, and would state in the first place that I am to read before the Climatological Association a paper on The General *versus* Local Treatment of Catarrhal Inflammations of the Upper Air Tract, in which these cases are reported. They came under my observation with symptoms of asthma some years since. I have now reason to believe that in these instances examination of the blood would show the presence of the hæmatozoon malarie. There is not invariably in such cases enlargement of the spleen or other physical signs of malarial poisoning. I have proceeded upon the conviction established by symptoms to show the connection between the respiratory disorder and blood-poisoning. By acting in this manner, I have been able also to note that treatment directed to the condition of the blood was followed by relief from the asthma. In cases of different order where some nasal source of irritation was present the *Hæmatozoon malarie* was not found.

One other point I would like to mention. A very valuable essay was read by M. Noel Guéneau de Mussy some years ago upon the effects of enlargement of the bronchial glands in causing asthmatic attacks in children, and physical examination has proved to me the correctness of this statement. Why may not such a condition be sometimes present in cases of asthma in adults? One reason why the iodide of potassium has such remarkable value in some of these cases may be explained by the presence of hypertrophied lymphatic ganglia. I think that in those cases where there are hypertrophies of the nose, operation does good by giving freer respiration and relieving congestion.

Dr. BOSWORTH: I seem to have been exceedingly unfortunate in my choice of words, else I should not have been so misunderstood. The real subject of my paper has been largely passed by in the discussion. Dr. Mackenzie has come to the conclusion that I affirm that I can cure emphysema. I made no reference to this affection. I did not say that all cases of asthma were caused by nose diseases. That would be a gross misstatement; nobody believes it. To state that because hypertrophic rhinitis does not always cause asthma it never causes asthma, that because nasal polypi do not always cause asthma they never cause it, scarcely rises to the dignity of discussion. The old view is that asthma is caused by spasm of the bronchial muscles. I do not believe that the bronchial muscles have anything to do with it. I believe that the vaso-motor theory of Weber is the correct one; and if any gentleman here would do me the favor to read the paper which I prepared three years ago I think that he would agree with me. I hold that there are three causes of asthma, as I stated in my paper. This does not conflict with the views of Hyde Salter and others. With regard to the cases where there is enlargement of the heart or disease of the liver or kidneys, I say that these are conditions which aggravate and keep up the disease. I did not say that the nose was the only cause, and that its treatment was the only treatment; but I will say that in nineteen out of twenty cases, if we pay attention to the nose and remove any disorder existing here, we shall do better by our patient than if we simply rely upon iodide of potassium and routine treatment with the usual remedies for asthma.

Dr. JONATHAN WRIGHT, of Brooklyn, read a paper on this subject. (See vol. liv, page 711.)

Dr. MULHALL: I did not hear all of Dr. Wright's paper, but I agree with his conclusion. In my specimen and report presented last year I took occasion to state that I doubted very much the propriety of Hopmann's statement that he had found so many cases of true papilloma. I removed such a growth, just before I left home, attached to the columella. It resembled a bunch of grapes, was pedunculated, and completely blocked the nostril. I found upon examination that it was a true papillary fibroma—the only case I have ever seen. I wondered why I had never seen any before when Hopmann had seen so many, but Dr. Wright has probably furnished the true explanation.

Dr. SHURLY: I was very much interested in this truly valuable paper we have just heard read; it is valuable for its investigations in the fields of histology and pathological anatomy. In these papillary growths we have another illustration of the law of evolution and the analogy between the animal and vegetable world. This process of *budding*, so prominently belonging to vegetable growth, is nevertheless destined in a few years to be accepted in explanation of the growth of tumors, a vegetable process manifested, as it were, by animal tissues.

Dr. J. SOLIS-COHEN: I believe that macroscopically a distinction may be made in many cases between papillary and other tumors in the contrast between the size of the growth at its base and at its attachment, the former being pedunculated. I think something of this kind was what led Hopmann astray. I remember that Dr. Jarvis some some years ago pointed out this contraction at the point of attachment of papillomata, and I think that this led to the invention of the snare.

Dr. JARVIS: I had something to say upon this point last year. The only case of true papilloma that ever came to my notice I reported at that time. I have seen a number of cases, in both public and private practice, such as Hopmann describes, but I recall one case of true papilloma, and this was at the margin of the vestibule at its junction with the skin. I have also seen that condition of the turbinated bone alluded to by Dr. Solis-Cohen which Hopmann evidently mistook for a true papilloma. In the nostril proper I have never seen an instance of independent papilloma, but I have seen them in connection with other growths, such as mucous polypi, and think that they may easily be overlooked. I regard these as secondary to the polypi, and as not requiring special treatment. As remarked by Dr. Solis-Cohen, it is of more interest to us and to those in general practice to establish points of diagnosis upon macroscopic distinctions rather than microscopic. I pointed out in a former communication that chronic acid afforded a special means for distinguishing papillary from other growths. In papilloma the application of chromic acid to the base of the growth creates a peculiar eschar.

Dr. MACKENZIE: At our meeting a year ago I said that true papilloma of the nares was rare, having myself seen only two cases. It is more common anteriorly than in the posterior nares. It is probable that Hopmann has mistaken for papilloma those papillary vegetations characteristic of the transition stage from hypertrophic to atrophic rhinitis. It is not unusual for patients to expel these masses spontaneously, thereby gaining relief from previous nasal obstruction. As a matter of fact, however, this process of detachment and expulsion is degenerative, and the final condition of atrophy is worse than that which preceded.

Dr. WRIGHT: There is very little to be said in closing the discussion. I think that Hopmann was not so much led astray in his diagnosis as he was wrong in his nomenclature; he knew what they were, but called them by an objectionable name. If this is permitted, it introduces confusion into laryngological literature. I was not aware that he had recanted in a more re-

cent publication, as I have not followed up the subject very closely. I must take exception to the statement of Dr. Jarvis that it is not very important to make a microscopical diagnosis between these tumors and others which resemble them. I think it very important.

Dr. JARVIS: I meant from a therapeutical point of view.

Dr. J. SOLIS-COHEN: If the word papilloma is to be rejected, perhaps some title such as "dendritic vegetations" would be a good substitute.

Dr. WRIGHT: I think it would be better to abandon the term papilloma altogether:

(To be continued.)

## Book Notices.

*A Practical Treatise on the Diseases of the Ear*, including a Sketch of Aural Anatomy and Physiology. By D. B. ST. JOHN ROOSA, M. D., LL. D., Professor of Diseases of the Eye and Ear in the New York Post-graduate Medical School and President of the Faculty, etc. Seventh Revised Edition. New York: William Wood & Co., 1891. Pp. xxii-741.

MANY physicians will greet this work as an old and well-tried friend, reliable and trustworthy. It has changed very little since its last appearance, though some additions have been made, mainly in the portion devoted to middle-ear diseases.

It is a work which is not only valuable to the specialist, but also peculiarly adapted to the needs of the general practitioner who is situated at a distance from a specialist and must either let aural diseases work their disastrous results upon his patients or learn to treat them himself. To the physician who prefers to do the former, suggestions are useless, but to him who desires the latter, this work is to be strongly recommended as a safe and conservative guide.

*Cookery for the Diabetic*. By W. H. and Mrs. POOLE, with a Preface by Dr. PAVY. London and New York: Longmans, Green, & Co., 1891. Pp. vi-64.

THIS little book will lift a load from the mind of every physician who has a serious case of diabetes to manage. He knows how soon apparently slight restrictions in diet become irksome and how often articles of themselves harmless are rendered injurious by the cooking. He has felt the need of formulas by which his patients' diet might be rendered not only harmless but palatable. A list of prohibited and permissible articles is not sufficient, but it is all that is usually given. This book is a recipe-book designed not for the physician's library, but to be sent to the cook in the kitchen. The receipts are evidently practical and, having the sanction of Dr. Pavy, may be relied upon as harmless. Some are original; others are modifications of well-known receipts, while some are simply changed by the use of saccharin instead of sugar.

### BOOKS, ETC., RECEIVED.

*Atlas of Clinical Medicine*. By Byron Bramwell, M. D., F. R. C. P. Edin., F. R. S. Edin., Assistant Physician to the Edinburgh Royal Infirmary. Vol. I. Part III. Edinburgh: T. & A. Constable, 1891. Pp. 97 to 140.

*The Principles of Bacteriology: a Practical Manual for Students and Physicians*. By A. C. Abbott, M. D., First Assistant, Laboratory of Hygiene, University of Pennsylvania, Philadelphia. With Illustrations. Philadelphia: Lea Brothers & Co., 1892. Pp. viii-13 to 263.

*The Diseases of the Mouth in Children (Non-surgical)*. By F. Foreh-

heimer, M. D., Professor of Physiology and Clinical Diseases of Children, Medical College of Ohio, etc. Philadelphia: J. B. Lippincott Company, 1892. Pp. vi-8 to 199. [Price, \$1.25.]

The Complete Medical Pocket-Formulary and Physician's Vade-Mecum: containing upward of 2,500 Prescriptions, collected from the Practice of Physicians and Surgeons of Experience, American and Foreign, arranged for Ready Reference under an Alphabetical List of Diseases; also a Special List of New Drugs, with their Dosage, Solubilities, and Therapeutical Applications; together with a Table of Formulæ for Suppositories; a Table of Formulæ for Hypodermic Medication; a List of Drugs for Inhalation; a Table of Poisons with their Antidotes; a Posological Table; a List of Incompatibles; a Table of Metric Equivalents; a Brief Account of External Antipyretics, Disinfectants, Medical Thermometry, the Urinary Tests; and much other Useful Information. Collated for the Use of Practitioners by J. C. Wilson, A. M., M. D., Physician to the German Hospital, Philadelphia. Philadelphia: J. B. Lippincott Company, 1892. Pp. x-11 to 261. [Price, \$2.]

Diseases of the Bladder and Prostate. By Hal. C. Wyman, M. Se., M. D., Professor of Surgery in the Michigan College of Medicine and Surgery, Detroit. Detroit: George S. Davis, 1891. [The *Physicians' Library*.] [Price, 25 cents.]

Stricture of the Rectum: a Study of One Hundred and Thirty-eight Cases. Second Edition, enlarged. By Charles B. Kelsey, M. D., etc.

Four Congenital Tumors of the Head and Spine, all submitted to Operation. (Clinical Lecture delivered at the Jefferson Medical College Hospital.) By W. W. Keen, M. D. [Reprinted from *International Clinics*.]

Jacksonian Epilepsy; Trephining; Removal of Small Tumor, and Excision of Cortex. By Charles K. Mills, M. D., and W. W. Keen, M. D. [Reprinted from the *American Journal of the Medical Sciences*.]

Considerations upon Medical Hæmorrhage surgically treated; with a Successful Case, by a New Technique, of Saline Infusion for Severe Hæmorrhage. By Robert H. M. Dawbarn, M. D.

Remarks Introductory to a Discussion on Acute Diffuse Peritonitis. By A. L. Carroll, M. D. [Reprinted from the *Transactions of the New York State Medical Association*.]

Medical Ethics gone to Seed. By James H. Bell, M. D., Philadelphia. [Reprinted from the *Medical News*.]

Dental Infirmary Patients. The Use and Abuse of Dental Charity. By Richard Grady, M. D., D. D. S., Baltimore. [Reprinted from the *Journal of the American Medical Association*.]

Microscopical Diagnosis of Tuberculosis. By Paul Paquin, M. D., Battle Creek, Mich.

The Situation and Climate of Asheville, N. C. By H. Longstreet Taylor, A. M., M. D., Asheville, N. C. [Reprinted from the *Lancet-Clinic*.]

The Results of the Shurly-Gibbes Treatment of Tuberculosis at Asheville, N. C. By H. Longstreet Taylor, A. M., M. D., Asheville, N. C. [Reprinted from the *Therapeutic Gazette*.]

What can be done in Cerebral Surgery. Remarks based chiefly upon Personal Experience in Twenty-three Cases. By E. Lanphear, M. D., Kansas City, Mo.

A Clinical Study of One Hundred and Forty-two Cases of Heart Disease in Children. By Floyd M. Crandall, M. D. [Reprinted from the *Archives of Pediatrics*.]

Tenth Annual Report of the Hospital for Women and Children, Newark, N. J., December, 1891.

De la chloroformisation à doses faibles et continues. Par le Dr. Marcel Baudouin. [Extrait de la *Gazette des hôpitaux*.]

Transactions of the American Gynecological Society. Volume XVI, for the Year 1891.

Kemp & Co.'s Prescribers' Pharmacopœia. A Synopsis of the more Recent Remedies, Official and Unofficial, with a Therapeutic Index and a Résumé of the B. P. Additions, 1890. By a Member of the Pharmaceutical Society of Great Britain. Second Edition. Bombay: Kemp & Co., Ltd., 1891. Pp. xi to 429.

Thirty-sixth Annual Report of the Executive Committee of the Hartford Hospital. Presented to the Directors at their Annual Meeting, December 16, 1891.

## New Inventions, etc.

### A NEW HYPODERMIC-SYRINGE NEEDLE.

By W. J. P. KINGSLEY, M. D.,  
ROME, N. Y.

For many years I have used the common form of hypodermic needle very extensively. During this time I have always been greatly inconvenienced by the tendency of the channel to clog easily. This is not only very annoying, but occasionally of serious importance in an urgent case. Within the past year it occurred to me that a needle



with a conical channel, having the smallest opening attached to the syringe, could not clog. Several months ago Messrs. George Tiemann & Co., of New York, made a few needles according to my design. None of these have ever clogged, although thoroughly tested, and they have proved so satisfactory in every way that I desire to give the profession the benefit of this improvement. Fig. 1 shows the regular size. Fig. 2 shows an enlarged view, which will be more easily understood.

## Miscellany.

The Vernacular Medicine and Surgery of Japan.—Dr. Benjamin Howard contributes the following article to the *Lancet* for January 16th:

In aptitude, adaptation, and enterprise the Japanese have shown a decided superiority over all other nationalities of the Orient. These qualities, added to great delicacy of manipulation, have made them in art conspicuous throughout the world. It is but natural to expect, therefore, that they should be found to have arrived at something, both in medicine and surgery, which the nations of the West might find to be an acquisition. The earlier Japanese medicine dates back to the "Shindai," or divine age, many centuries before Christ. The Chinese, as early as 218 B. C., found their way among the Japanese doctors with medical books dating back, it is alleged, to 2737 B. C., and the influence of Chinese medicine upon Japanese medicine has continued to be a controlling one up to the recent introduction of European medicine now in vogue. As it is difficult to disentangle that past which is of Chinese origin, I include in the vernacular medicine and surgery of Japan all which pertained to its general practice, say, forty years ago, and which still pertains to the practice of about 30,000 out of the 41,000 physicians now practicing throughout the empire. Of the 30,000 of the old vernacular school, one of them is still on the list of the Court physicians and maintains a high reputation.

The impression throughout Europe that colored papers, exorcisms, etc., are the basis of Chinese and Japanese medicine is erroneous. I have myself seen nearly 2,000 books by these people, covering most of the departments of medicine, but among which materia medica occupies altogether the leading place. In these books are the doctrines of the successive schools, strikingly like some of those which in past centuries existed among our own ancestors. The successive medical colleges have always had a professor of astrology, but the solid fact remains that the materia medica has included among its several hundred remedies a large number of those used by ourselves, and these are not only vegetable, but animal and mineral, in the latter class mercury being prominent. Surgery became a separate branch as long since as the seventh or eighth century. Tube acupuncture needles, so comparatively new with us, have been in use here since A. D. 1688. Centuries ago one of their authors wrote: "When medicines are ineffectual as well as acupuncture and the cantery, the abdomen and back may be opened, the stomach and intestines be washed, etc." A narcotic mixture employed on such occasions contained *Datura alba*, aconitum, etc.

As the history of medicine in Japan once included so much which seems substantial, I have inquired with much care among practitioners of the old or vernacular school—all of whom were in practice before 1876—hoping to discover something in their practice now which would be a veritable addition to the medical resources of our European brethren. I am sorry to have to say that the result of my search has not met my anticipations. As far as I have been able to discover, the vernacular practice of Japan to-day, over the entire length and breadth of the empire which I have traversed, is entirely empirical. Rhachitis being unknown, and the life led by the women being so much more natural than in Europe, obstetrics may scarcely be said to be needed, and certainly does not exist.

Syphilis, which came here from China in 1630, is treated in a manner which is the same in principle as the treatment I have seen practiced in Nubia, where the patient, for several hours at a time, buries all the parts of his body except his head in the hot sands of the desert. In this excessively volcanic country the various hot springs which abound, and some of which are exceptionally hot, are the sovereign remedy. In these baths, some of which are fully exposed to public view, whole families, entirely nude, pass a large part of the time during their visit to the particular spa. In several cases I have not seen, but I have been told by the patients, of results from them which certainly seem remarkably good. In acupuncture, which, as I have said, has been practiced by the Japanese for many centuries, they exhibit very delicate manipulation. For six seng (3*d.*) one of the blind practitioners of this art will, without pain, insinuate a long needle into your stomach, intestines, arms, legs—almost any part except the eye and the brain. The conditions for which it is held in particularly high esteem are flatulence and colic; next, perhaps, in order for neuralgia and rheumatism of the joints. From my own experience I can say it is almost absolutely painless. The points to be penetrated are not entirely arbitrary, but are determined by astrological indications. It is a noticeable experience to see one of these poor blind men take from the folds of his "kimono," or robe, a case of beautifully bright long needles of gold, steel, or silver, and with the *nonchalance* of the Oriental, and without the slightest pause in his conversation, to see him burying his needles two, four, or six inches in various parts of your person in a way which would astonish a European professor of surgery. I mention this practice only as a pretty display of manual dexterity, not as a practice to be imitated. There is one medical procedure, however, in which the Japanese can teach us something in every particular. I refer to their manner of practicing massage. For reasons sufficiently apparent, the number of blind in Japan, as in all Eastern countries, is enormous. Every blind boy or girl is expected to join the *oue* guild, which is exclusively their own, and be an "ammah." With their small hands and supple limbs they give to massage a variety and a delicacy not approached even in India. To what extent anatomy enters into their training I do not know, but no duly qualified surgeon could seem to be more intimately acquainted with the formation of the joints and the course of the nerves as a guide to manipulation. As to percussion, they obtain it by a semi-rotation of the hand with a velocity so great as to make the movement almost invisible. The deeper structures external to the joints they get at with the olecranon process of the naked elbow, which, by an equally rapid movement of the forearm, reaches every interstice with a force regulated with the greatest delicacy. For the muscles of the back, as in lumbago, the "ammah" frequently use their feet, with which they are almost as dexterous as with their hands. When great force is desired this is very efficient. Plain rubbing, which is the principal part of massage in Europe, would be beneath their dignity. Nearly every one of their various manipulations includes some delicate manoeuvre which excites one's surprise and admiration. So common is massage in Japan that on arriving at a hotel—next to the tea, which is always immediately brought—the "ammah" is the individual who will surely appear. For the superficial or general massage at such time the tariff price is six seng (or 3*d.*); but a European is expected to pay two or three times as much as that, unless he can talk Japanese, in which case he generally does not. I have had massage in Sweden, which I thought perfection; I have had it in Turkey, which I thought otherwise; I have had it in India, and found it in most instances too rough and indiscriminate;

but with a good "ammah," or masseur in Japan I have had but one regret, which is that my friends at home could not share my advantage.

Another lesson we might learn from the Japanese with probable advantage is the more general use of the moxa. For almost any pain whatsoever, if persistent and if at all deep seated, the remedy throughout the country is the moxa. Whereas with ourselves the moxa is, even with a surgeon, a very unusual remedy, its use here is one of the female accomplishments in almost every household. A cone of cotton-wool previously saturated with a decoction of the *Artemisia vulgaris latifolia* is placed upon the part concerned, and, being lighted, is allowed to slowly smolder to ashes. It leaves a superficial eschar, which seems to heal without special attention. The performance is often seen going on in passing a house, a woman operating on a man, woman, or child, and dressing the patient's hair, perhaps, at the same time. I have therefore inferred the procedure is much less painful than might be supposed. The sore is clean, exactly the size wished, and must often be a very useful counter-irritant. In the public baths I have counted on men, women, and children as many as thirty or forty discolored spots from this cause, a row being commonly seen on either side the spine, and many other marks on the limbs, especially in the vicinity of the joints. To get the same amount of counter-irritation, we should certainly disable the patient from any active occupation and compel a good deal of inconvenient dressing, all of which, if the counter-irritation was to be maintained, would require repetition. In hygienic matters the Japanese have everywhere a habit which also may have a lesson for us. In their nightly bath and morning wash the water is never cold, never warm, but always as hot as it can be borne. To foreigners this habit seems very surprising, but the most inveterate Englishman, if he stays in the country long enough, abandons his cold tub in its favor. The cold-taking which it is suspected must follow it is found not to occur if the water has been hot enough. This heat is maintained by a little furnace beneath the bath. In the bath the bather or bathers take a prolonged soaking, the washing proper being done on the bath-room floor; then follows a second and final soaking, drying with towel, and a lounge in bathing wrapper. This habit seems to promote softness and suppleness of the skin, and by persons inclined to rheumatism is soon found to be altogether preferable to the cold bath in every particular. The poorest of the Japanese hear of a cold bath with amazement, and would be sure the man who used it must be a barbarian. With respect to the superiority of the hot bath over the cold, I have come to find that in my own case certainly the Japanese are right.

*The Paper Ice-bag.*—From a pocket handkerchief to an umbrella it is difficult to say what is not made out of paper, and everything made out of paper is comparatively cheap. The ice-bag is a very favorite remedy, both in private and hospital practice. The ice is generally applied in bags suspended so that the patient may get the cold from it without its weight coming upon the affected part. These pretty little bags are always made of thin paper. They are much cheaper than the oil silk used by ourselves in that, whether they become broken or not, they can be frequently renewed, and this, in a large hospital with surgical cases, is an important consideration. The texture is softer, it adapts itself better to the parts to which it is applied, and in a private patient one of these paper ice-bags will easily last in constant use for several days. They would be a valuable acquisition in English hospitals. I inclose one of them that the editors of the *Lancet* may form their own opinion of it.

It will be observed that the only things I have thought worth recommending are rather outside than inside the lines of strict medicine and surgery. It would seem that the decline in medicine must have been as great as the decline in the prevailing religions; hence the alacrity with which the foreign systems of both were seized by this hungry people as soon as presented. The Japanese massage, then, the Japanese bath, and the Japanese paper ice-bags are things which might certainly be regarded in Europe as useful acquisitions.

**The late Sir Morell Mackenzie.**—Dr. Arthur G. Root, of Albany, writes as follows:

Again has the messenger of death called from among our ranks a

noble leader. A bright star has ceased to shine in its earthly firmament. Again a voice which has bespoken words of instruction, of sympathy, and encouragement to so many has been hushed. Seldom has the medical profession throughout the world had such cause to mourn, seldom have we felt a loss as deeply as we now feel in the death of Sir Morell Mackenzie.

A man of great originality, he has given to the profession and world at large much that shall perpetuate his memory.

A man of a strong personality, possessing a sensitive and a sympathetic nature, throughout his life, the nobility, the power for good, the almost divinity of the profession of which he was a representative, was always uppermost in his mind. Few men at fifty-eight can look back upon a life so full, so rounded, and so complete. Proudly and unflinchingly might such a spirit enter the shadows, for for such there is a light beyond. Happy is he of whom it can be said that those who knew him best loved him most.

As one who has known the value of that close relationship, as one who has felt the ennobling influence of that untiring devotion to duty, I feel most keenly the loss which has come to us. Grandly he lived, triumphantly he passed away, and deep within the hearts of thousands remains a loving memory.

**The Necessity of Pure Drinking-water.**—It is evident that the necessity of using absolutely pure drinking-water can not become too strongly impressed on the public mind, but water in that condition is provided by very few communities. Hence the public are availing themselves of bottled natural mineral waters to a great extent, especially Apollinaris, which is of recognized purity, for its long-continued and world-wide use attests its merit. Where such waters can not be obtained, the ordinary drinking-water, if the least suspicion attaches to it, should be boiled before using. Precautions should be taken at all times of the year. It is often thought that in early spring, when rivers are swollen by melting snow, river water is purer and safer than in summer or fall. Recent experiments, however, have shown that the number of bacteria in the water supply increases greatly while the snows are melting on the uplands. Ice also is known to be a frequent source of poisoning; hence, while the water that is used may be pure, the ice that is put into it often renders it noxious.

**The Physician and the Painter.**—The *New York Times* quotes the following from the *Pall Mall Gazette*:

Here is a good story of a doctor and a painter's wife. The doctor's name does not appear, but the painter was Meissonier. Mme. Meissonier sent for the family physician in a great hurry. He came, thinking some illness had overtaken the artist. But it was not the artist; it was only a lap-dog. He pocketed his pride and attended the patient, who soon recovered. At the end of the year the bill came in, but there was no item for attendance on a dog. Mme. Meissonier noticed the omission and told the doctor to charge. He would not charge; he said he could not charge; he was not a vet. He was very glad to be kind to the dog, etc. The lady insisted. Well, said the doctor, the hinges of my garden gate are rusty; ask M. Meissonier to bring his brush and paint them for me.

**The German Medical Congress.**—The Eleventh Congress for Internal Medicine will be held in Leipzig, on the 20th, 21st, 22d, and 23d of April, under the presidency of Professor Curschmann. The programme announces reports on Grave Anæmic Conditions, by Dr. Biermer, of Breslau, and Dr. Ehrlich, of Berlin; and on Chronic Hepatitis, by Dr. Rosenstein, of Leyden, and Dr. Stadelmann, of Dorpat; and the following papers: On the Causes of Immunity from Infectious Diseases, and on their Treatment, by Dr. Emmerich, of Munich; On Uræmia, by Dr. Peiper, of Greifswald; On the Results of Suggestive Therapeutics, by Dr. Binswanger, of Kreuzlingen-Constantz; On the Consequences of the Excision of Large Portions of the Spinal Cord (a Report of Observations on Dogs by Dr. Goltz and Dr. Ewald), by Dr. Goltz, of Strassburg; On the Etiology of Chronic Heart Diseases, by Dr. Schott, of Naumburg; On so-called Hepatic Colic and False Gall-stones, by Dr. Fürbringer, of Berlin; The Treatment of Alcoholism, by Dr. Vucetic, of Mitrovitz; Further Contributions on Diabetes Mellitus after Removal of the Pancreas, by Dr. Minkowski, of Strassburg; On the Treat-

ment of Carcinoma, by Dr. Adamkiewicz, of Cracow; The Various Forms of Pneumonia, by Dr. Finkler, of Bonn; On the Secondary Changes in the Circulatory Organs in Renal Inadequacy, by Dr. Israël, of Berlin; On the Therapeutic Value of the Transfusion of Blood in Man, by Dr. Landois, of Greifswald; On the Pathology of the Bilharzia Disease, by Dr. Rüttemeyer, of Basel-Riehen; On Hemorrhagic Infarcts of the Lungs, by Dr. Grawitz, of Greifswald; On the Cure of Tuberculosis and on the Biology of the Tubercle Bacillus, by Dr. Klebs, of Zürich; Investigations of the Causes of Immunity, and of Recovery, especially in Pneumonia, by Dr. G. Klemperer, of Berlin, and Dr. F. Klemperer, of Strassburg; On Immunity from Infectious Diseases, by Dr. Buchner, of Munich; On Subcutaneous Transfusion of Blood, by Dr. von Ziemssen, of Munich; On the Ratio of the Danger of Infection to its Actual Occurrence in Tuberculosis, by Dr. Wolfi, of Reiboldsgrün; On Intestinal Disinfection, by Dr. Stern, of Breslau; Observations on Diabetes Mellitus, by Dr. Leo, of Bonn; and On Circulatory Disturbances in the Kidneys, by Dr. Schreiber, of Königsberg. Dr. von Jaksch, of Prague, Dr. Ebstein, of Göttingen, Dr. Gerhardt, of Berlin, Dr. Goppert, of Bonn, and Dr. Löffler, of Greifswald, are announced to read papers the titles of which are not given.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

Original Communications.

WHAT CAN WE EXPECT FROM THE SURGICAL TREATMENT OF EPILEPSY? \*

By B. SACHS, M. D.,

PROFESSOR OF MENTAL AND NERVOUS DISEASES IN THE NEW YORK POLYCLINIC.

THE treatment of so grave a disorder as epilepsy is a subject which may well claim the attention of all medical men. The disease is a veritable scourge that leaves its indelible mark upon the victim, often attacking him at an early age, unfitting him for the serious work of life and blighting all the hopes dependent upon him. In view of the importance of the subject, it need not surprise us that the subject has come up for discussion so frequently before our learned societies; and no apology is needed, I believe, for continuing before this Academy a discussion which was conducted most ably only a few weeks ago before the American Surgical and Neurological Associations at Washington.

The brilliant achievements of American and European surgeons have given us the utmost confidence in the possibilities of cerebral surgery, and, with the increasing knowledge of neurologists in localizing accurately the site of disease in the brain, there would seem to be no good reason why the results of cerebral surgery should not equal those in abdominal surgery. But, unfortunately for the patient and for us, the complicated structure of the brain makes cerebral disease a very different affair from disease in or around the abdominal viscera. Sufficient allowance is not, as a rule, made for this difference, whence it follows that in the case of the surgical treatment of epilepsy much has been expected and but little has been realized. It seems wise to me, therefore, before we allow our hopes undue scope, that we should stop to inquire what we can expect from the surgical treatment of epilepsy.

To those who have not acquainted themselves with the literature of the subject a simple answer may occur. They may say: "Take the recorded cases, note the results, and make your inferences"; but in the case of the surgical treatment of epilepsy statistics are useless. A few successful cases have been reported, and even these with undue haste. Von Bergmann † and the latest author, Sahli, ‡ have given up the attempt to tabulate the results of operations upon epileptic patients. I started out on the same path a few months ago, but soon found it would be love's labors lost. In this matter of the cure of epilepsy after operation the memory of medical men is not as reliable as it fortunately is with regard to most other diseases. A distinguished surgeon stated recently before one association that he knew of a case of traumatic epilepsy in which the cure

was of ten years' duration, and before another society, a few days later, that the longest cure that he knew of was of three years' duration. But what of the innumerable failures? They have not been reported with the same candor and promptness with which most men have heralded their short-lived successes. And if the attacks are inhibited for a number of weeks or months, is even this temporary success to be put to the credit of the operation? As long ago as 1875 Maclaren \* insisted that epileptics were improved by any operation whether it be for cancer of the pelvic organs, for joint disease, or what not; and it is as likely as not that some of the supposed cures after ovariectomies may be accounted for in this way, though I am not willing to go to the extreme to which Dr. White, † of Philadelphia, has recently gone, in putting the improvement following trephining for traumatic epilepsy in the same category with the "curative effects of operations *per se*," simply because no gross organic changes were found in the organ so exposed.

I propose to answer the question embodied in the title of this paper by presenting to you the views I am forced to hold regarding the nature of the disorder which we attempt to cure, and by giving you the results of my own experience in the surgical treatment of epilepsy—an experience that I owe chiefly to the kind offices of Dr. Gerster and Dr. Wyeth, with whom I have been associated in fourteen cases of cerebral operation, ten of which were done for the relief of epilepsy.

Let me remind you that epilepsy is a symptom, not a disease; that it is often merely one of a number of symptoms pointing to organic disease of the brain—to tumor, hæmorrhage, abscess, or widespread meningitis and sclerosis. In other cases it is a direct or remote effect of traumatic injuries to the skull or brain. In addition to these we have cases of genuine epilepsy, so called. Some one has suggested that it would be better to call them cases of epilepsy from unknown cause, and our modesty should, I think, incline us to this latter view. For one, I find that I see relatively fewer cases of genuine epilepsy than I did in former years. On closer examination I have not infrequently found that the epilepsy had taken its start from a long-forgotten injury or accident; that it was in its earlier days associated with paralysis, the paralysis having left but the slightest traces, while the epilepsy has remained distinctly enough. Nor is it to be supposed that a true epilepsy—I do not mean single convulsive seizures—is a functional disease. In our ignorance we may call it so, but with the improved methods of examining cortical tissue I am confident that we shall before long be able to demonstrate its anatomical substratum. Two French authors have been leading the way in this inquiry. Marie, ‡ who goes to the extreme of denying hereditary epilepsy, claims that children may be born epileptics, but they have not been conceived as such. By which he implies that, as in the case of congenital cerebral palsies, some slight lesion has been estab-

\* The opening paper in a discussion on the medical and surgical treatment of epilepsy, held before the New York Academy of Medicine, October 15, 1891.

† Von Bergmann. *Die chirurgische Behandlung von Hirnkrankheiten*. Berlin, 1889.

‡ Sahli. Volkmann's *Samml. klin. Vortr.*, Vortr. No. 28. N. Y., 1891.

\* Maclaren. *Edinb. Med. Journal*, January, 1875.

† White. The Supposed Curative Effect of Operations *per se*. *Annals of Surgery*, August and September, 1891.

‡ Marie. *Progrès méd.*, 1887, No. 44.

lished during the intra-uterine period; that this lesion may be lost sight of, but the secondary degeneration following upon it is the cause of this supposed hereditary epilepsy. Féré\* has furnished strong evidence in favor of this view. He induced Chaslin † to examine five brains taken from epileptic subjects; in all of these brains the most careful microscopical examination revealed an increase of neuroglia tissue with the formation of small fibrils emanating from the spider cells of the neuroglia. Chaslin infers that this is a sort of gliomatous sclerosis, and that this sclerosis is to be found in epileptic brains of entirely normal macroscopical appearance.

I have led you into this discussion of the anatomy of so-called genuine epilepsy in order to have you associate in your minds the idea of secondary sclerosis of the cortex with epilepsy. This secondary sclerosis is the pivot upon which the entire question turns. I repeat that in cases of idiopathic epilepsy the initial causal lesion has not yet been determined; idiopathic cases have by common consent not been considered proper cases for operation; but we have learned to operate in cases of localized epilepsy—Jacksonian epilepsy—due to focal disease, whether of traumatic origin or not, and in these cases the focus of disease is present, and so is the secondary sclerosis. If years pass by before death ensues, the focal disease may be beyond recognition, but the secondary sclerosis can be and has been recognized. In early childhood the cortex suffers focal injuries which might well be called traumatic, if they were due to an external force; but, whatever the cause may have been, we have a meningeal hæmorrhage often enough; the clot resting upon the cortex may be absorbed, but it has given rise to a local change which extends by degrees until it finally leads to secondary changes in the form of a lobar sclerosis. Paralysis and epilepsy are the chief symptoms of this condition. Instead of a meningeal hæmorrhage due to difficulty during labor, imagine a traumatic hæmorrhage; disregard the ætiological differences and the two accidents will result in the same processes.

Let us push the argument one step further. Every one is familiar with the fact that the convulsive seizure of a localized type is due to an irritative lesion of the motor or sensory centers. The most familiar cases of localized epilepsy are those due to discharging lesions in the motor areas. It is well known, too, that convulsive movements of a thumb or an arm point to a discharging lesion in the center or centers representing these parts. Those parts only are capable of a discharging lesion which are not actually destroyed; if destroyed, we have absolute paralysis and not localized convulsive seizures. Does the diseased area contain within itself the irritating power, or is this irritation conveyed to it from other parts? As a tumor grows near a center, it irritates that center and causes convulsive seizures; as soon as it has displaced or destroyed the center, the formerly convulsed part becomes paralyzed. The injuries and morbid processes with which we are here concerned rarely lead to the destruction of a center; it is capable of discharging,

and the irritation it needs seems to me to be supplied by that secondary sclerosis of which it—the focal injury—has been the prime cause. Is there any clinical evidence that the secondary sclerosis plays this part? I shall be very much mistaken if it does not explain the very curious fact that in traumatic injuries and in the cortical diseases of early childhood the epilepsy does not, as a rule, develop for months and even years after the focal lesion has been established. It takes months, and even years, until a large amount of sclerosis is established. It is fortunate that focal injuries are not invariably followed by sclerosis; why it should develop in some cases and not in others it is difficult to say; the severity of the lesion is not the sole determining factor.

Some may maintain that, while this reasoning may apply to epilepsy following organic diseases, the sclerosis has not been actually demonstrated in cases of traumatic injuries. The fault is with the investigator. Bergmann\* reports the case of a man who had received a gunshot wound of the left parietal bone in 1870; he was operated upon and bone was removed. Two years later he had the first epileptic attack. These attacks continued for fourteen years; then Bergmann trephined over the scar. The patient did well for one month; after that he fell into the status epilepticus, in which he died. The author assures us that the wound had healed perfectly, and that the cortex and dura were entirely normal—macroscopically, it may be—but no microscopical examination was made. Inasmuch as some of the cases to be operated upon hereafter may die, it will be well to make a most careful histological examination of the cortex in such cases.

Returning to the practical bearing of these pathological studies, we infer that we have an initial focal lesion and a condition of secondary sclerosis to deal with. It is our plain duty, therefore, to prevent the development of secondary sclerosis if possible, or, if it has been developed, to neutralize its effects. The first part of our task is by far the more difficult. Not knowing as yet the exact conditions under which this sclerosis is developed, we can scarcely be expected to meet these conditions; but we can attempt to diminish the initial lesion and, if possible, to remove it. This is equivalent to a plea for early operations in traumatic and organic cases. How can we neutralize the effects of a well-established sclerosis? Shall we say by excising the diseased area? The method is rational enough, since we can not rid the brain of the sclerosis.

This method of excision has been applied by Horsley, † Keen, ‡ Bergmann, and others. The results have been satisfactory in some cases, disappointing in others. In spite of the removal of the center, the sclerosis has exerted its power through other channels, through other irritable centers. If the diseased center is the only irritable area, the result will probably be a good one; but we have no means of predicting whether or not this will be the case. And to make matters worse, excision of a center means loss of function. You may not cure the epilepsy, but you are

\* Féré. *Les épilepsies et les épileptiques*, Paris, 1890.

† Chaslin. *Semaine méd.*, 1889.

\* *Loc. cit.*, p. 160, second edition.

† *Brit. Med. Journal*, April, 1887.

‡ Keen. *Am. Jour. of the Med. Sciences*, October and November, 1888.

very apt to paralyze the convulsed part; but this function of the excised part is very apt to be assumed by other parts of the brain, particularly in young persons, and among older persons the patient, if left to make his choice, will prefer a local paralysis to a severe epilepsy.

The practical conclusions to be drawn from the foregoing are these:

1. In a given case of traumatic or organic lesion, operate as early as possible, to prevent the development of secondary sclerosis.

2. If you have not operated at the outset, the onset of epilepsy is a warning that secondary sclerosis has been established; by operation at this time you may avoid an increase of the trouble.

3. Excision of the diseased area is the only rational operation; if all other centers are not in an irritable condition, the operation may be thoroughly successful.

But if we can not easily cure epilepsy, we may improve the patient's condition by diminishing the number of attacks. What we can accomplish I propose to discuss in the second part of this paper. I refrain purposely from entering upon the subject of operative interference in cases of tumor or abscess of the brain, as the advisability of operating is governed by motives other than the cure of the epilepsy. Traumatic epilepsies will attract us first, and next I wish to enlist your interest in certain forms of epilepsy associated with infantile cerebral palsies. These latter diseases have been so generally overlooked that the epilepsy constituting one of the symptoms has rarely been recognized as a special form.

Traumatic cases call for immediate surgical interference. Whenever the skull has sustained a severe or even a moderate injury, a surgeon or the attending physician should do an exploratory operation to make sure that there is no depression of bone. As trepanation is not a very dangerous operation, it would be better to do this than to have the slightest doubt. I was pleased to note that Dr. Agnew\* insisted strongly on this point in his recent paper at Washington. Together with Dr. Wyeth, I had the privilege of seeing, only a few weeks ago, a robust individual who had sustained a fracture of the skull by falling from his wagon; he was picked up in an unconscious condition, and, with the exception of an occasional lucid moment, remained in a condition of stupor up to the time of the operation. There was no paralysis and no focal symptom of any sort. Yet during the exploratory examination a large fracture was found which extended well back from the coronal to the lambdoidal sutures, and running for a part of its course along the sagittal suture. A trephine opening was made to see whether there was any splintering of the inner table, or whether the dura had been lacerated. As far as we could see, no severe injury had been inflicted; and the good, but slow, recovery which the patient has made may possibly have come about in this special case without any operation. Yet these are the very cases which so often develop epilepsy from pressure of depressed bone; and it seems to me fully as important that the surgeon

should operate early to determine whether there is a depression as that he should defer operation until epileptic symptoms appear which may place the case beyond the possibility of surgical relief.

After the epilepsy following traumatic injury of the skull or of the brain has been developed, there is still hope that the epilepsy may, in a few instances, be inhibited by surgical methods. For ages past trepanation has been the classical operation in these cases. Wherever depressed bone presses upon any part of the cortex, or an old scar acts as a source of irritation, the removal of such bone or scar is clearly indicated; in many cases improvement, if not a cure, of the condition follows. We must seek an explanation, however, for the improvement which follows trepanation in many cases of traumatic epilepsy of long standing in which there is no old scar and no marked depression of bone. We will not explain this on the theory that any or every operation helps; we know, however, that adhesions between the brain and its coverings are apt to be formed, and that traumatic cysts are very frequent. The trephine opening may therefore relieve the increased pressure due to these morbid conditions. It will be well to enlarge the trephine opening and to make it as ample as the conditions will permit. To show you how much or how little may be accomplished by mere trepanation, allow me to present the very condensed histories of a few cases of traumatic epilepsy. The full histories I hope to publish in due course of time, in conjunction with the surgeons who have done the operations.

CASE I.—Boy, aged sixteen years, from Madison, Wisconsin; no hereditary history. At the age of eighteen months fell out of a first-story window; since that time epileptic attacks of great severity, with occasional intervals of freedom from attacks. These generally begin in the right arm and extend to the leg and face; often they become general. Loss of consciousness in all attacks. I referred him to Dr. Gerster. Operated upon February 23, 1891. The skull was trephined over the arm area, which was proved to have been exposed by the electric test; the trephine opening extended so as to expose the greater part of arm and leg centers. Attacks set in two days after the operation and have continued with old-time severity. Result, no improvement. The father would not consent to a second operation.

CASE II—Young man, aged twenty years; works on his father's farm in New Jersey. At the age of twelve years was pushed backward over the pole of a wagon, striking, according to account, on the back of his head; was unconscious for a few minutes, but went to work. A week later the first general epileptic attacks; these attacks had recurred at varying intervals for two or three years. For the past three years the boy had attacks of typical Jacksonian epilepsy, in which the muscles about the right half of the mouth only were convulsed. I had occasion to see several such attacks. These minor attacks would occur many times a day. This series would be interrupted by an occasional severer attack of localized convulsions, ending up in general convulsions, loss of consciousness, etc. The boy, who is a fairly bright lad, desired the operation. This was done February 13, 1891, by Dr. Gerster. As demonstrated by the faradaic stimulation over the exposed area, the trephine opening had been laid exactly over the center representing, according to Horsley,\* the upper face and angle

\* Agnew. *University Med. Magazine*, 1891.

\* Horsley. *Am. Jour. of the Med. Sciences*, 1887, vol. i.

of the mouth. Adhesions were found under the button of bone which was removed. Good recovery, but attacks set in within a week after operation, and in these attacks the eyelids were convulsed, showing a slight extension of the focal lesion. A few weeks later the attacks were as of old in every respect. "No improvement whatever," so the boy reported to me eight months after the operation.

Somewhat better success has followed upon operation in two cases of sensory epilepsy of traumatic origin; as they are rare forms of epilepsy, I wish to refer to them briefly in this connection.

CASE III.—J. D., aged eight years. When seven months old fell upon the left side of the head; at eleven months began to have epileptic convulsions; twitchings usually began in the right arm and leg, and the mouth would be drawn to the left side. After the age of five years these attacks disappeared. Since last March the boy has had similar attacks; but with the onset of these attacks it was noticed that the ear began to discharge. The convulsive attacks were regularly preceded by auræ, in which he would either perceive a very foul odor or else imagine a steam-car close upon him. He would close the window to keep out the noise, and at once fall into a convulsion. The attacks would be more frequent whenever the discharge from the ear ceased. About one such attack occurred every week before operation.

The mastoid region was not painful, but everything pointed to mastoid trouble, and hence I sent him to Dr. Gerster for operation. On August 14th Dr. Gerster chiseled through the mastoid process into the middle ear and removed several sequestra; no pus. The wound healed quickly. The boy has had but one attack in two months, and is far less irritable and brighter than before.\* It is interesting to note that with the onset of this ear trouble the old epileptic tendency due to traumatism had been revived.

CASE IV.—A man, aged thirty years, of alcoholic habits, at the age of ten years was struck by a stone on the back and side of the head. Four years later he began to have general epileptic convulsions. These continued regularly; every two weeks he would have two or three attacks in a single day. Patient has become stupid and irritable; has left lateral hemianopsia. Operation, July 24th, by Dr. Gerster. Removal of occipital scar; external plate found to be depressed; this was removed with chisel. After dura was exposed and adhesions were cut away, the opening in the occipital bone was enlarged to the size of a silver dollar. The wound did well. Sixteen days after operation three epileptic attacks occurred; they were followed by transitory delusions of persecution, from which he soon recovered. He was discharged on August 15th, and had no attack until October 1st, after taking a large amount of liquor for the relief of pain. The result may be designated as a marked improvement. The hemianopsia has remained unaltered.

This is an epilepsy starting from one of the sensory areas of the brain, but whether the patient actually had a visual aura he is too stupid to state.

Our own experience in this matter is not unlike that of other physicians. Horsley, Bergmann, Park, Keen, and others have not fared much better.

In the search after better methods, Horsley's suggestion, in case of focal lesion to remove the entire diseased center, met with general favor. With the aid of our present methods of determining centers, and particularly if we

allow the result of faradaic stimulation of an exposed area to be our chief guide, we can very accurately determine the extent of the area to be removed, and I have satisfied myself that this can be done before the dura is opened. But, as I have intimated before, even the excision of diseased centers is not an unmixed good. First of all, it often fails. Attacks have returned after such operation in the cases of Bergmann, Park,\* and Keen. In one of Park's cases the contents of the cyst were emptied, but the cyst was not removed. Horsley's first case has been the only very positive success, no attacks having occurred for twenty-two months after operation.†

Rational as this method seems to be, there are reasons for its failure. The entire center may not have been removed; the paralysis of the convulsed part has been thought by Keen and others to be proof of the fact that the entire center has been removed. Then, again, if an arm center has been the actual focus of disease, the neighboring face or leg center may, in the course of years, have attained a sufficient degree of irritability to become the discharging center, and, furthermore, the existing sclerosis will help to advance this or other centers to the dignity of a discharging center, if they have not already acquired this unfortunate function.

Another serious feature of this excision operation, and indeed of all cerebral operations, is the possibility that the operation itself may lead to the formation of cicatricial tissue in or around the cortex, which may do more damage than the initial lesion. Yet, from what I have seen of the condition of brains years after an operation, I believe this danger from new cicatricial tissue to be quite slight.

Granting the entire success of the operation in question, you have at best in many cases substituted a paralysis for an epilepsy. In the case of an arm or face center, most patients would consent, and prefer the paralysis to their epileptic seizures. Few would care to have their leg centers excised, and to wait until some vicarious center may give them power to walk; and I doubt whether in Case IV, which I reported above, the patient or my own conscience would have permitted me to remove one visual center. Excision of a center, while it promises relief in a few well-selected cases, is not so much of a divine inspiration as it appears to some to be. Let us prevent traumatic epilepsy as far as in our power lies; it will be easier to prevent it than to cure it.

I consider it my duty to call your attention to the epilepsy associated with the cerebral palsies of children. In a paper ‡ published last year it was shown that forty-four per cent. of all cases of infantile cerebral palsies develop epilepsy, and I have stated that there could be but little doubt that, of all cases of ordinary epilepsy, a very fair proportion were developed in connection with infantile palsies. This view has been accepted by later writers. I have seen at least half a dozen cases of epilepsy within the past year

\* Park. *N. Y. Med. Jour.*, November, 1888.

† I can not find any later reference to this case. Other cases have been reported, but before a sufficient period of time had elapsed.

‡ Sachs and Peterson. *Journal of Nervous and Mental Disease*, May, 1899.

\* A second operation was done about two months later, since which time the boy has been free from attacks.

which were supposed to be cases of idiopathic epilepsy, but which, when examined carefully, revealed the traces of an old hemiplegia. Nor are the pathological conditions underlying these palsies properly recognized.

One case of Horsley's, a boy four years of age, with right hemiplegia, who had as many as thirteen or fourteen attacks per day, is a case in point. Dr. William A. Hammond\* some time ago reported the case of a girl of twenty, afflicted with an old hemiplegia, in whose brain he found a large cyst which was evidently the leavings of a former hæmorrhage, and Case V of Dr. Keen's† latest paper is not merely a case of defective development, but one of infantile cerebral hemiplegia with epilepsy and idiocy. I would not call attention to this class of cases if we did not find among them the only cases of non-traumatic epilepsy which demand surgical interference.

These palsies come on either in the intra-uterine period or early in life. The initial lesion in the acquired cases is generally a hæmorrhage, thrombosis, or embolism, and this focus of disease leads in many cases with rather surprising rapidity to the development of secondary sclerosis throughout the cortex. In fully ninety-five per cent. of all these cases the lesion is in or upon the cortex. The lesion—a hæmorrhage or softening, say—is very apt to be strictly limited to one or more areas. It need not, therefore, surprise us that typical Jacksonian epilepsy is found in some of these cases, or that we find scars and cysts and sclerosis just as we do in the traumatic cases.

The three cases of this class which I shall refer to were operated upon during the past year—two of them by Dr. Wyeth and one by Dr. Gerster. The histories are briefly as follows:

CASE V.—L. C., male, aged six years. Onset of disease at the age of five years with right hemiplegia and convulsions of a Jacksonian type which have been repeated every week since, finally increasing to as many as five daily; athetoid movements of right hand; is irritable and bad-tempered. Operation was done December 29, 1890. A large opening was made in the skull over the motor arm area of left hemisphere and enlarged from this; adhesions to skull broken up. No attacks for six weeks after operation, and none for several months after leaving the hospital. I have not heard from the boy in fully three months.

CASE VI.—A girl, aged sixteen, who has had right hemiplegia and epilepsy since early childhood: epileptic attacks very frequent and affecting paralyzed part exclusively. Dr. Wyeth operated upon the girl in the Polyclinic Hospital, exposing, by the method which I must leave to him to explain, the entire left motor area. In this area I determined by the use of the faradaic current the exact arm center. The dura was opened in semicircular fashion, but, as the entire area seemed normal, we did not at the time excise any part of it. The dura was closed, and the wound healed nicely; she was free from attacks for at least five months.

CASE VII has been by far the most interesting.‡ I was asked by Dr. Wyeth to see A. H. G., aged thirty-two, who had applied to him for the relief of his epilepsy. The history showed that the epilepsy had been developed at the age of two years, and

that with the epilepsy a complete left hemiplegia appeared. On examining the patient this hemiplegia was evident enough, and this, taken in conjunction with the history of unilateral attacks, led me to look for a focal lesion—a hæmorrhage probably—which, from the nature of the attacks, I thought likely to be most marked in the arm center. Dr. Wyeth trephined over this site, enlarged the opening, cut open the dura, and then exposed the discoloration and thickening of the pia which was adherent to the cortex beneath. A number of incisions were made into the cortex at this point, breaking up old adhesions, and lessening the increased tension at this point. The patient did well after the operation. On the second day the paretic arm was paralyzed, but after the lapse of a few days it was no worse than before the operation, while the epileptic convulsions, which had appeared at least once a week before the operation, did not occur until six months after the operation. The further course of this epilepsy will have to show whether any permanent improvement has been gained.

Simple trepanation seems to be more successful in these epilepsies associated with infantile cerebral palsies than in the traumatic forms, probably because of the still greater frequency of cysts in these diseases than in the traumatic epilepsies. The early recognition of these troubles is of great importance; and the question naturally arises whether we can diagnosticate the lesion with sufficient accuracy to encourage the surgeon to operate at an early day before secondary degeneration is established. I believe this will be possible in many cases, but the disease sets in frequently at a very tender age at which cerebral operations are but poorly tolerated; moreover, the epilepsy, although a probable sequel, is still a remote contingency; the paralysis represents the reality, and parents will be most apt to tell the physician to care for the present only, more particularly if looking to the future means a possible increase of the paralysis. As soon as epileptic symptoms appear, the paralysis has the value of a focal symptom; the centers should be exposed, and if not removed, they should at least be treated in accordance with the special indications of the case. In children, excision of a center is a less serious affair than in the adult, for in the former other parts of the cortex are capable to a greater degree of assuming the functions of the destroyed part. I am confident that, if these cases of infantile cerebral palsies are more generally recognized, and if we succeed in checking the tendency to epilepsy in them, the total number of epileptics will be noticeably diminished. If the surgical treatment of epilepsy be of any value at all, it is in view of the foregoing not to be restricted to the traumatic forms, but let it be applied also to those epilepsies which are associated with the cerebral palsies of childhood.

In conclusion, I would say that, under favorable conditions and by the methods described in this paper, the surgeon may be able to cure a few cases of epilepsy. He will be able to improve many, but surgeons and neurologists should in future make an earnest effort to *prevent* epilepsy.

**Ichthyol in Small-pox.**—"A solution of ichthyol, five or ten per cent., has recently been used with much success as a local application in small-pox, in the pustular stage of the eruption. The solution being painted over the pustules two to four times a day was found to hasten the drying up, check extensive suppuration, and prevent pitting."—*British and Colonial Druggist.*

\* Hammond. *N. Y. Med. Journal*, August, 1890.

† Keen. *Am. Jour. of the Med. Sci.*, September, 1891.

‡ This case has been referred to in the author's paper on the Pathology of Infantile Cerebral Palsies, this journal, May 2, 1891.

## THE MANAGEMENT AND CARE OF PATIENTS WITH HEMIPLEGIA RESULTING FROM CEREBRAL HÆMORRHAGE.\*

BY WILLIAM M. LESZYNSKY, M. D.,  
LECTURER ON MENTAL AND NERVOUS DISEASES  
AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL, ETC.

IN discussing this subject, we must accept the term "hemiplegia" (paralysis of one side of the body) as indicating the predominant clinical manifestation of a disease, and not descriptive of the pathological process itself. In other words, to speak of hemiplegia as a disease would be at variance with our knowledge of its pathology and in opposition to the modern principles of nomenclature. In the vast majority of instances it is symptomatic of the rupture of an intracranial blood-vessel. This condition, which occurs suddenly and places the individual *hors de combat*, is essentially due to disease of the arterial system. It is merely supererogatory for me to mention that hemiplegia may result from other causes, such as cerebral embolism or thrombosis, or meningeal hæmorrhage, or from a tumor involving the intracranial portion of the motor tract, or from a unilateral lesion in the upper cervical portion of the spinal cord. I shall therefore confine my remarks to hemiplegia in the adult as a result of cerebral hæmorrhage.

The hæmorrhage is far more apt to occur in or near one of the corpora striata than in any other part of the brain. The point of selection is most frequently one of the lenticulo-striate arteries which has developed miliary aneurysms. All trustworthy observers are agreed that morbid changes in the arterial walls precede their rupture, although there are differences of opinion as to the character of such changes.

The extremities which are affected are always those on the side opposite to the lesion in the brain. This depends on the anatomical fact, so well known to you all, that the motor columns decussate in the anterior pyramids of the medulla. Thus, any unilateral affection of the nervous centers situated above the decussation of the pyramids, if it causes paralysis at all, invariably causes paralysis of the opposite side. Those movements which are performed in harmony by the two sides of the face or body remain unimpaired in hemiplegia.

Hemiplegia from a lesion of one side of the brain is not necessarily so complete as to present a maximum loss of power. Not infrequently the face escapes entirely.

Sometimes the leg can be moved perfectly, while the arm is completely paralyzed. Power is usually regained in the leg earlier than in the arm. A comprehensive and practical knowledge of general medicine is a *sine qua non* in the management of these cases. Its rational treatment presupposes a familiarity with its pathology. Obviously it is beyond the scope of this paper to enter at length into a technical and exhaustive description of cerebral hæmorrhage in its various phases.

Cerebral hæmorrhage is relatively frequent after the fortieth year and becomes more common as age advances. The

belief that it is of more common occurrence in men with short, thick necks and florid faces than in those who are of a different build is a popular fallacy. There is no such thing as an apoplectic constitution. Some families exhibit a predisposition to cerebral hæmorrhage. Hence it has been assumed that the disease is hereditary. It is only an indirect result of the inherited tendency to arterial degeneration.

Most writers speak of prodromic symptoms, and mention the following as premonitory signs of cerebral hæmorrhage: Headache, vertigo, tinnitus, or numbness in the hand or foot; facial paresis, coming on suddenly without spasm, and usually disappearing within a few hours or a few days. There may be loss of speech with this facial paresis, but more often defect of speech only. All of these symptoms are likely to arise where arterial degeneration exists, and may be due to local circulatory disturbances resulting either from gradual narrowing of the lumen of the vessel, or from thrombosis or embolism—or possibly from minute hæmorrhages; thus producing on the one hand a transient circumscribed anæmia, and on the other cerebral softening.

They may appear separately or variously combined, and although all of them may occur without being followed by an apoplectic attack, yet, in the old and middle-aged, especially when the arteries are degenerated, they should be regarded as warnings. The rupture has been known to occur without any precursory symptoms whatsoever.

Among the exciting causes of the attack may be mentioned excessive emotions, cold baths, and indulgence in stimulants, provided that the vessels are in the diseased condition, which seems to be a necessary antecedent of hæmorrhage; temporary obstruction to the return of venous blood from the brain, in such actions as coughing, sneezing, laughing, or straining at stool. It has been claimed that its direct effect must be small.

A number of instances have occurred under my observation, and no doubt many of you have seen similar cases, where the patient has been found in the closet either paralyzed or dead from cerebral hæmorrhage, undoubtedly as a result of straining at stool.

Cerebral hæmorrhage sometimes occurs first while the individual is making some violent effort or subjecting his vascular system to an excess of pressure. Sudden exposure to cold may increase the arterial tension by inducing extensive contraction of the cutaneous vessels. Cerebral hæmorrhage has also been known to occur during sleep, when the pressure in the cerebral vessels is supposed to be particularly low. I have often thought that possibly a change in the pressure might have been occasioned by an exciting dream.

Hemiplegia may occur suddenly without loss of consciousness. Then the recognition of the paralysis is simple both for the patient and the physician. During coma the diagnosis is frequently attended with difficulty owing to the general and complete muscular relaxation. The stertorous breathing and the concomitant facial paralysis are quite characteristic. In case the coma is only partial and the muscular resistance is feeble or lost upon one side, the diagnosis is clear.

\* Read before the Practitioners' Club, of Newark, New Jersey, January 4, 1892.

While the patient remains unconscious the prognosis is doubtful, as we are unable to determine the extent of the hæmorrhage. He may die comatose from shock, asthenia, or some complication.

Should consciousness be restored and the vital signs be maintained, the prognosis as to recovery from the paralysis depends upon a number of factors. Recovery from hemiplegia will occur from any kind of lesion, if it be a small one. If the patient begins to move the arm next day he is likely to get well altogether. We can not infer so much from early recovery of the leg, as this is very often not completely paralyzed at the outset, and we know that it frequently recovers when the arm remains much paralyzed. When rigidity of the limbs takes place no further improvement will follow. In this connection it will be of interest to call attention to some of the clinical signs of hemiplegia which heretofore have not been observed nor their value recognized.\* Corresponding to the well-known fact that in the facial paralysis accompanying hemiplegia the orbital portion of the nerve is usually unaffected, a similar phenomenon may be observed in the upper extremity in the fibers of the spinal accessory nerve. This nerve divides into two branches—one supplying the sterno-cleido-mastoid muscle, and the other the trapezius. As a rule, the branch to the sterno-cleido-mastoid escapes, while that supplying the trapezius is paralyzed. The latter paralysis manifests itself in the drooping of the shoulder while at rest. The paralysis in the lower extremity, which is usually neither complete nor permanent, also shows several characteristic peculiarities, which explains the fact that walking is still possible even in severe cases.

In such patients, while in the supine position, one can demonstrate that active elevation of the extended leg to a certain height can still be accomplished, although feebly. The dorsal flexion of the ankle joint is nearly or completely abolished, but plantar flexion can be performed with considerable force. In the prone position the flexors of the knee joint are nearly or completely paralyzed, while the extensors show a well-marked or almost normal strength. *Therefore in hemiplegia the muscles which are especially important in locomotion are the ones that are the least affected.*

During the early stage the clothing should be carefully removed, and all jarring of the head or body should be avoided. A ligature about the extremities close to the trunk will prove serviceable in diminishing the volume of blood in the internal organs, thus relieving the intravascular pressure and hastening the formation of the clot. This procedure is most likely to prove efficacious where the symptoms are indicative of a large hæmorrhage, or in those cases where there is an apparent tendency to an extension of the hæmorrhage.

Absolute rest in bed should be enjoined, no matter whether the attack be very mild or severe in character.

In case unconsciousness is present and lasts more than a few hours, the bladder should be relieved by the catheter. If there is reason to believe that there is an accumulation of fæces, five or ten grains of calomel or two drops of ero-

ton oil should be placed on the tongue, or an enema may be given. Whenever there is serious difficulty in swallowing, the administration of food by the mouth should be forbidden, on account of the danger of its entrance into the larynx. A day or two without much nourishment will do very little harm. If it is thought desirable, rectal alimentation may be resorted to. Further details in the management of this stage will suggest themselves according to indications.

There is neither clinical nor experimental evidence to prove that we possess any drugs whose administration will hasten the absorption of the extravasated blood or relieve the patient of his paralysis. As we can not remove the clot or directly hasten its absorption, let us ascertain what we can do for our patient. Before he is able to leave the bed much can be done by careful management and close attention to details to prevent unnecessary complications.

A good nurse or an intelligent attendant will prove quite an acquisition. Bed-sores over the sacrum and over the heels are not essential features of the malady, but are usually the result of carelessness and neglect.

The position of the patient must be frequently changed, and, either by a water-bed or by various mechanical devices, the points that are subjected to pressure must be protected.

In addition to these measures, it has been my custom to use a mixture containing two drachms of the oxide of zinc to the ounce of alcohol. The skin that shows any redness is painted daily with this preparation. As the alcohol evaporates, a thin coating of zinc remains on the surface. In rare cases the formation over the buttocks of a so-called bed-sore, which is due to trophic changes, may occur, despite the most careful vigilance. A few days after the attack, all joints of the paralyzed limbs should be daily subjected to gentle passive motion, in order to prevent the development of ankylosis. This is more likely to occur in the shoulder joint, and may also be classified among the avoidable complications. Electricity, in the form of the induced current, should not be used until from four to six weeks after the onset of the attack. The strength of the current applied to the paralyzed limbs should be just sufficient to produce slight but evident muscular contractions. The applications are to be made every alternate day, the entire *séance* lasting from ten to fifteen minutes. Faradization keeps up the nutrition of the paralyzed muscles and improves the condition of the peripheral circulation. The same may, however, be accomplished by suitable massage.

In view of the clinical fact that the extensors in the upper extremity and the flexors in the lower extremity are the muscles usually paralyzed, our electrical or manual manipulation should be directed in greater part to these groups of muscles. These applications will be of service while we are waiting for compensatory restitution of function. They prove useful as an artificial exercise.

In the presence of contracture which generally develops later, much can occasionally be accomplished by the use of galvanism applied to the brain and the peripheral nerves. The *anode* is placed over the parietal eminence on the same side as the lesion, and the *cathode* over the trunks of the nerves which supply the rigid muscles. The current is

\* Wernicke. *Berlin. klin. Wochenschrift*, 1889, No. 45.

gradually increased by the use of a rheostat, until the patient receives from three to six milliampères, the *séance* lasting from three to five minutes. Any sudden interruption in the circuit, either by removal of electrodes or by rapid increase or diminution of the current strength, should be carefully avoided, or sudden vertigo and other unpleasant symptoms may supervene. We must constantly bear in mind that central nerve fibers that have been torn across or broken up in any part of their course do not undergo regeneration, and that motility can not be restored in those parts which receive no motor impulses. We must not, therefore, delude ourselves in the belief that we can cure a hemiplegia. The most potent remedy that we possess is a combination of the "essence of patience" and the "tincture of time."

A partial restoration of function will take place in spite of all methods of medication instituted with the object of curing the paralysis. Here is where the *vis medicatrix nature* comes to our aid. Hence our efforts must be concentrated with a view to the prevention of another attack. This constitutes the most important element in the rational management of these cases. Nature can not be trusted in this instance.

It may be asked, Upon what grounds are we enabled to infer a predisposition to cerebral hæmorrhage?

1. From the history of a previous attack.
2. From the constitutional state which induces arterial degeneration—*i. e.*, senility, chronic nephritis, rheumatism, gout, syphilis, lead-poisoning, etc., often accompanied by cardiac hypertrophy.

3. From the presence of arterial degeneration itself, as manifested in the radial and temporal arteries by their rigidity and tortuosity. These evidences of degeneration are extremely suggestive, but are not proof positive of a similar condition of the cerebral blood-vessels. As a matter of fact, a number of cases are on record where post-mortem examination and careful microscopical investigation have shown normal cerebral vessels coexisting with degenerated temporal and radial arteries. On the other hand, the presence of retinal hæmorrhages furnishes an indication of considerable value. They are significant, inasmuch as they point to a state in which cerebral hæmorrhage is likely to occur. Some recent writer has referred to a varicose condition of the sublingual vessels as being one of the signs of arterial degeneration that is highly suggestive of a similar state in the brain. I have been unable to confirm this statement.

4. From the presence of high arterial tension, as determined by the radial pulse.

These are questions which demand immediate investigation. In all cases of cerebral hæmorrhage the condition of the arteries (statical, as atheroma; dynamical, as degrees of tension) is a matter of first importance. Too much stress can not be laid upon this point. We should never fail to examine the urine and satisfy ourselves as to the integrity of the heart and kidneys. In fact, every organ in the body should be examined.

Granting that the cause of the arterial degeneration is to a great extent irremediable, let us devote our attention

to the avoidance of exciting causes of the rupture. Every patient should be repeatedly impressed with the possible danger to which he exposes himself while straining at stool. He must be taught to avoid all additional causes that have been previously enumerated. Sneezing or coughing should be controlled or modified. Anything that is likely to produce a sudden increase of arterial tension should be scrupulously avoided.

In conjunction with the foregoing, the general plan of treatment which will be found appropriate in most cases would be to regulate the diet to suit the individual case; to reduce the quantity of nitrogenized food (if it had been used in excess); to keep the bowels free; to diminish high arterial tension by the use of salines or mercurials, or nitroglycerin, the nitrites, etc.; to administer antisiphilitic remedies when necessary. There is no proof that the use of strychnine, hypophosphites, or other so-called "nerve remedies" directly influences the paralysis. They should be restricted to those cases in which they are indicated for improving the general health.

I have thus briefly outlined what seems to me to be the proper method to be adopted in the management of an unfortunate class of cases that taxes the resources of the physician to the utmost.

Much of our success in averting another attack will depend upon the co-operation, self-denial, and self-control of our patient.

61 EAST SEVENTY-FIFTH STREET.

## ORIGIN AND RESTRICTION OF TUBERCULOSIS.\*

BY CHARLES G. CURRIER, M. D.

FROM an enormous number of experiments upon animals and from somewhat fewer than a hundred reported cases of accidental inoculation upon human beings, it is regarded as proved that the bacilli of tuberculosis, which are exceedingly numerous in the sputa and other excretions from foci of the disease, tend to cause tuberculosis whenever these characteristic germs in a highly vitalized form enter the system in sufficiently large numbers.

Primary affections of the lungs by these bacilli are oftener observed in autopsies than primary tubercular disease of any other part of the body. It has, further, been observed that cases of lung tuberculosis have arisen among some of the animals and human beings that have happened to be exposed to breathing in air containing among its dust particles those produced by the drying and pulverizing of tuberculous sputa. The fact that fatal tuberculosis resulted in such cases caused the extensive adoption of the generalizations enounced by Cornet; and, by the zeal of neophytes, the theory became almost universal that all the cases of tuberculosis that occurred were due to the inhalation of dried sputum, and that the "heredity" and "predisposition" of former years were obsolete and obstructive terms. Holding that the inhalation of the harmful bacillus was the sole

\* Read in a discussion at the New York Academy of Medicine, January 21, 1892.

important factor, although he appears to be modifying his views as with the years more complete and careful observations bring facts in refutation, Cornet even declares that "we daily are able to see that even the most robust people, apparently in the best of health, become the victims of the tubercle-bacilli infection."

Summarizing the observations made in two hundred and twenty-one autopsies of tuberculous cases, Grawitz, formerly Virchow's assistant, reported one hundred and fifty-two cases as primary in the lungs, nine as primary in the digestive tract, three arising from external wounds, and the original entrance of the infection was doubtful in the other cases. (*Deutsch. militärärztl. Zeitschr.*, 1889, Heft 10, Ref.) Then some of the many cases where animals were experimentally fed with tuberculous meat and milk resulted in intestinal infection. But such facts had been observed years before the characteristic bacilli were recognized. Leudet (*Gaz. hebdom.*, 1890, No. 9), reviewing many cases among married people in the better circles of society, states (like Brehmer and many others) that it is exceedingly rare for tubercular infection to pass from one spouse to the other. Schwarz and numerous others adduce the facts of long and extensive hospital experiences to show that hospital attendants are not so prone to the affection as Cornet assumed, and Haupt (*Med. Revue*, 1890, No. 1), gathering the statistics of two hundred and seventy-five female nurses encountering tuberculosis in a general experience, found that during twelve years only two of these nurses had manifested the symptoms of the disease. In this country, comprehensive investigations of nursing statistics made with similar care are not at hand. We, who have seen many cases in the homes of the poor before any care was paid to adequate disinfection, can not, so far as I learn, recall much evidence of the disease being communicated from one to another of those living in the unhealthy abodes of our lowest classes.

But, aside from the lack of positive evidence to prove the extremist views, there are further facts to negative or modify the postulates. Thus Prausnitz (*Archiv f. Hygiene*, 1891, p. 192) reports negative results when inoculating animals with dust taken from the floor of railway compartments in through trains carrying consumptives for many hours on the long journey through Bavaria. Kustermann (*Münch. med. Woch.*, Nov. 10, 1891, p. 796) reports wholly negative results from collecting dust from the walls and floors of the Munich prison hospital, and then inoculating this dust into animals.

Happily the element of contagion, even if existing on the clothes, the skin, and in all the secretions, soon loses its vitality under the conditions most prevalent. Koch has said that when exposed to daylight and the oxygen of the air, the tubercle bacilli present in dust form are liable to die in from a few hours to a few days.

Although the temptation is ever present to use a "royal road" for learning about the origin of the disease and, by assuming the inhalation theory as explaining all cases, to consider other explanations as unwarranted, it must be insisted that the inhalation theory accounts for only a portion of the cases, and that, after all, heredity seems a very potent source, as evidenced by the common-sense experience of

clinicians and statistical observers, as well as by bacteriologists of the highest standing, such as Professor Baumgarten (see *Deutsche med. Wochenschrift*, Oct. 13, 1891) and others, who are thoroughly conversant with the extensive literature of the subject and acquainted with all the progress and changes of the decade. An infant seems quite as liable to inhale the bacteria of exsiccated sputum as an adult is, and then to develop tuberculosis of the lungs if the inhalation theory is adequate to account for all cases; but we have the clinical fact presented us that the lungs do not develop tuberculosis in infants as often as in adult life, yet the glands, bones, and joints are relatively very often affected without any evidence that the infection arose primarily in the subject through inhalation of bacteria. These considerations, together with the occurrence of cases of foetal tuberculosis (Birch-Hirschfeld and Rindfleisch, *Münchener med. Wochenschrift*, 1890, p. 768), and the demonstrations, by comparative biologists, of the presence of bacteria in ova, as well as the established fact that "structurally healthy testicles of tuberculous subjects can have bacilli detectable in their spermatozoa"—all of these considerations warrant the conclusion that tuberculosis may be inherited. That is, the most potent factor in the causation of tuberculosis can, in foetal cases, be conveyed from a parent or parents immediately to the unborn child.

To explain later developments, whether manifested in the lungs, or in the bones, joints, glands, or elsewhere, the assumption of heredity seems more adequate than the inhalation theory, particularly because in childhood the lung manifestations are decidedly in the minority, even if we do not include the considerable percentage (twelve) of latent tuberculosis reported by Bollinger and others who have made numerous autopsies of children.

Even lung tuberculosis in adults is explicable in many cases by this modernized doctrine of heredity quite as well as by the inhalation theory. We know so very little of the life history of the tubercle bacillus under such conditions of nutrition and environment as these parasites find in various organs of the human body, that we are quite unable to fix any limit as the time beyond which they can not remain in a state of latency, endowed with a capacity for resuming their most virulent activity. Atmospheric, telluric, and other external influences which are not yet fully understood, together with internal conditions that are as yet beyond our complete comprehension, may, so to speak, arouse the bacilli from this latency, and they then may develop with varying rapidity and harmfulness. Under circumstances that foster the vitality of these micro-organisms, serious and progressive disease may result. With other factors at work, the morbid manifestation may be very slight. Whatever the extent of the morbid process, the pernicious activity of the bacilli may be followed by their more or less total destruction if the disease be arrested, or they may again become dormant. Those that chance to be in a less suitable region, as in the muscles, develop less readily than when in a more favorable organ, as, for instance, in the lung.

It is probable that in the earliest period of life the great formative and vital energy of the body-cells offers a

high degree of obstacle to the activity of the tubercle bacilli, which survive, if at all, usually in a latent state, unless exceptionally virulent or exceedingly numerous. If from any cause the system weakens and thus loses its power to restrain the destructive activity, the disease process ensues with its varying phases.

Since, then, the inhalation theory explains the origin of only a portion of the cases of tuberculosis, we must base our hygienic warnings upon the broadest understanding and further recognize that the terrible disease arises also from other sources than from sputa; yet we should keep constantly in mind the probable danger of infection coming from dried sputa and from other excretions.

The zeal of research in this field has led to reports that the harmful bacilli are detectable even in the sweat and on the clothing of "consumptives," and, even if what Mattei and Spillheim have said in this connection does not prove to be verified by further tests, we should admit the probability that scientifically prosecuted cleanliness is a valuable safeguard against the extension of the scourge.

In view of the part that heredity plays in the propagation of tuberculosis, we must, in combating the disease, direct unremitting attention toward increasing the sum total of the vital forces of the patient, and all climatological, pharmacodynamic, and other means should be employed which give the system added power to resist or destroy the parasites. Not the least important aid to the patient is the maintenance of a high degree of vitality before the bacilli have been enabled to make sufficient inroad to become detectable through the usual physical and other symptoms.

Our duty, then, is to remain both conservative and progressive, to utilize the valuable truths evolved from the tireless laboratory researches of the present, and yet to respect the unquestionable facts established by clinical observers.

The methods by which to prevent the passage of the infection of tuberculosis from the lungs of one person to the lungs of another have been indicated by the various commissions and health officials here and in the cities of Europe. Scientific cleanliness is the beginning and the end of all effectual means. Heat is apparently the most reliable disinfectant. The germ-destroying value of fresh air does not seem to be appreciated as generally as it should be.

In order to influence the masses, sanitary instructions for the restriction of tuberculosis should be very brief, although detailed explanations of the facts, the methods, and the reasons for these may be given at length.

For the guidance of the many, then, we may formulate the knowledge of to-day in this regard as follows:

Keep clean. Avoid unclean places and avoid unclean and diseased people.

Do not spit on the floor or on the ground, and do not allow others to do so.

Expectorated matter loses its harmfulness when burned.

Clothing and other articles used by "consumptives" can be sterilized by exposure to the heat of boiling water for at least fifteen minutes.

It is safest to use milk, water, and other foods only after they have been well cooked.

Abundant fresh air is a valuable purifier.

## ON THE BENIGN COURSE OF ABSCESS IN POTT'S DISEASE UNDER EFFICIENT MECHANICAL TREATMENT.\*

BY NEWTON M. SHAFFER, M. D.,

ATTENDING SURGEON IN CHARGE OF  
THE NEW YORK ORTHOPÆDIC DISPENSARY AND HOSPITAL.

My early medical education was received under the direction of one of the most conservative medical men I have ever met—viz., the late Dr. James Knight, the founder of the New York Society for the Relief of the Ruptured and Crippled. Some of the present members of the American Orthopædic Association also received their first orthopædic training under the same auspices, and with them I can recall the feeling of criticism—not to say ridicule—with which we regarded Dr. Knight's treatment of "cold" abscesses in Pott's disease and in hip-joint disease. Those of our number who passed several years under his preceptorship have had, since we left the institution, ample opportunities to compare his method with the various operative methods; and I think it is a safe thing to say that we are not, even at this date, entirely in accord upon the question of the treatment of chronic tubercular abscess of the spine or major joints.

My own experience has been a varied one. When I left the institution I felt that I had escaped from an unwarrantable restraint, and, with the enthusiasm of my years, I went to the opposite extreme and fell into the error of accepting Sayre's adaptation of the old proverb, "An empty house is better than a bad tenant," a saying, I am assured, that has done much harm as applied to tubercular abscess in chronic articular disease. Experience has taught me that if a qualification could be added to Sayre's dictum, it would express the real state of the case. And this qualification is, "when one can be sure that the tenant will behave well under eviction, or that the tenant will not damage the whole house before he leaves."

I feel that surgeons generally stand as a unit on the subject of the surgical treatment of *acute* abscess; and if the *chronic* abscess in tubercular disease resembled the acute abscess in its more important particulars, we should not hear the animated discussion that always follows the introduction of the question of the treatment of abscesses arising from tubercular joint disease. And I think it is correct to assume that we are all too apt to regard "abscess" in its generic sense rather than in its pathological sense—that we are too apt to regard a fluctuating tumor, containing the products of a chronic, infectious disease, as a something to be got rid of at almost any cost—ignoring the fact that the contents of a tubercular abscess differ in many important respects from the contents of an abscess due to an acute, non-tubercular lesion. How many of us would hesitate about the propriety of opening a well-marked acute perityphlitic abscess? How many of us would deliberately open a chronic intrapelvic abscess due to an active and progressive tubercular disease of the dorso-lumbar spine?

The conservatism of Dr. Knight amounted practically to

\* Revised remarks delivered at the fifth annual meeting of the American Orthopædic Association.

a surgical nihilism. The extremists who would open every tubercular abscess connected with an actively diseased spine or joint are, I think, as much in error as those who ignore the indications which point to surgical interference. Unfortunately, with all our discussions on this subject, we have no statistics to demonstrate either the weakness or the strength of either position; but I feel safe in stating that more recoveries occur under the plan of non-interference than under the one which indiscriminately applies the knife to every chronic articular abscess.

My own results—after I adopted the plan of opening every chronic abscess—were not so satisfactory as those which followed non-interference. It is true that at that time the antiseptic method of Lister was not available, and the tubercular bacillus had not been discovered by Koch. After the antiseptic method was introduced I followed it very closely, but still I found my results in chronic abscess of joint disease were not satisfactory. It seemed to me that in opening a tubercular abscess from Pott's disease, for example, we were treating a "symptom" rather than the disease; that we were tapping a reservoir, and paying but little attention to its source; and that we were in too much haste to give exit to the so-called "pus," which kept on flowing from the source, notwithstanding our external antiseptic dressings. It seemed that high temperature would frequently develop, notwithstanding the gauze and protective and irrigation and drainage, and that repair, as a rule, was delayed rather than promoted by our efforts to find a short route to recovery.

After an experience among many cases and many methods, I came gradually to adopt a course which appeared to me to have a rational foundation. I attempted to insure as perfect a mechanical protection as possible to the diseased joint or spine and to maintain the general health in every available way, hoping that the actual disease might cease before the abscess opened (and this proved to be the case on many occasions), or to await the occurrence of either severe local or important general symptoms, due to the abscess itself, before I resorted to incision, etc. After I adopted this plan, I found to my surprise that many abscesses entirely disappeared; that some became quiescent or encysted; that few, if any, gave rise to trouble; that those which opened spontaneously almost uniformly did well; and that my results were more satisfactory and more permanent.

My experience is that tubercular abscesses in Pott's disease, as well as in the abscesses of the chronic tubercular lesions of the major articulations, pursue a very benign course under efficient mechanical protection to the diseased articulation, and that we too often resort to the use of the knife. If the disease is cured, then the abscess becomes a local affair and we may treat it as such, though it then usually disappears spontaneously.

Among the many cases I could submit to illustrate this position I cite the following:

Master S. W., aged eight years, consulted me on March 4, 1887, bringing a letter of introduction from Dr. Weir Mitchell. The patient had Pott's disease of the spine, involving the eleventh and twelfth dorsal vertebrae. There was a slight kyphosis,

which had evidently been progressing for over a year, but which had been unnoticed until it was discovered by Dr. Mitchell. The patient was pale and thin and in a generally bad condition, but gave a good hereditary history. The prominent feature of his case was the presence of three large abscesses—one in the pelvic cavity, another in the gluteal region, and a third on the inner aspect of the thigh—all on the left side. Fluctuation could be detected between the femoral and pelvic abscesses. The gluteal abscess seemed not to be connected with the others. Both the gluteal and femoral abscesses were very large, the former being especially prominent, while the latter increased the circumference of the thigh three inches over the measurement of the thigh of the unaffected side. The pelvic abscess extended nearly to the free border of the ribs. The patient had only a slight rise of temperature, the daily evening temperature averaging 99.6°, the morning temperature averaging 98.2°, for a period of over a month during which the record was kept. The analysis of the urine showed nothing abnormal, and all the vital organs were in good condition.

An antero-posterior support (a modified Taylor's) was carefully adjusted, though at first it seemed difficult, on account of the gluteal abscess, which was so large and extended so high up that it interfered with the hip band of the apparatus. Special provision being made for this, the apparatus was adjusted and the patient was closely watched. He went to his home in May after ten weeks of careful treatment, during which there was a very perceptible decrease in the size of all the abscesses, and in July, 1889, they had wholly disappeared. Careful attention was paid during treatment to the general health and to the climatic surroundings of the patient. He did not spend one day in bed on account of his spinal disease during the entire treatment. I saw the patient during the present summer (1891), and he is well and strong and as active as many boys of his age. As he was so active, I advised that a very light apparatus be worn as a matter of precaution simply, though I have not regarded the patient as being under treatment since May, 1890. The curvature has not increased.

On November 5, 1890, Miss J. B., of Brooklyn, aged ten years, consulted me, bringing a letter of introduction from Dr. Samuel T. Hubbard. The patient had Pott's disease of the first and second lumbar vertebrae, with abscesses very much like those existing in the case just related—viz., large intrapelvic, gluteal, and femoral abscesses—the two last named being especially large and prominent. The patient did not have any rise of temperature above the normal. The antero-posterior spinal apparatus was applied, and the patient was brought to me from Brooklyn every week. Constitutional remedies were used, and the patient was instructed to go out of doors every pleasant day. At the end of two months there was a perceptible decrease in the size of all the abscesses, and at this date (September, 1891) fluctuation can not be detected at any point, and the patient is in remarkably good health. The apparatus is still worn, and the patient is still under professional observation. The kyphosis has not increased.

I have related the histories of these two cases, among many others that might be cited, because the abscesses were very large; and because they may be regarded as extreme cases. Simple abscesses in Pott's disease do not occasion me any anxiety, and I have not a single case to record in private practice where, after deciding to pursue the policy of non-interference, I have had occasion to regret it. The cases that have been the most troublesome and the most unfortunate are those in which the abscesses have been

opened when the indications for so doing were not plainly evident.

This is only the experience of a single individual. I submit it as a contribution to the study of a very important subject.

## BROMAMIDE:

### A NEW ANTIPYRETIC AND ANTINEURALGIC REMEDY.

*A Preliminary Report of an  
Experimental Research into its Therapeutic Value.*

By AUGUSTUS CAILLÉ, M. D.,

PROFESSOR OF DISEASES OF CHILDREN,  
NEW YORK POST-GRADUATE MEDICAL SCHOOL;  
CHAIRMAN OF PEDIATRIC SECTION, NEW YORK ACADEMY OF MEDICINE;  
VISITING PHYSICIAN TO THE GERMAN HOSPITAL AND DISPENSARY, NEW YORK,  
ETC.

This drug is described by its discoverers, Messrs. F. H. Fischedick and Charles E. Koechling, of New York city, as a new bromine compound of the anilide group containing seventy-five per cent. of bromine ( $C_6H_2Br_3NH.HBr$ ).

It is in the form of colorless, needle-shaped crystals, nearly odorless and tasteless, insoluble in hot or cold water, slightly soluble in cold alcohol, and soluble in sixteen parts of boiling alcohol. Chloroform, ether, and the fixed oils dissolve it, but it is insoluble in benzine. Its action toward litmus paper is neutral. It is a very stable compound, not being affected by any of the ordinary reagents. It melts at  $243^\circ F.$ , and volatilizes at  $310^\circ F.$  without change, subliming in beautiful feathery crystals.

Bromamide was first given to dogs and rabbits, in doses of 2 grammes (30 grains), without noticeable deleterious influence and without affecting the composition of the blood in these animals. The administration of from 0.6 to 1 gramme (10 to 15 grains) to healthy adults was followed by a slowing of the pulse *without sweating*. The administration of 0.06 to 0.2 gramme (1 to 3 grains) to children from one to three years of age was accomplished without untoward symptoms.

The experiments as to the therapeutic properties of bromamide were carried on at the German Hospital from June 1 to November 1, 1891, and suffered embarrassing interruption in the beginning of the experimental term, in consequence of the resignation of the entire house staff. Bromamide was administered in the following class of cases: Typhoid fever, acute articular rheumatism, chronic rheumatic arthritis, chronic nephritis, acute fibrinous pneumonia, rheumatic fever with acute endocarditis, general and localized dropsy due to hepatic, renal, or cardiac disease, and diverse forms of neuralgia; and special attention was given to a possible antipyretic, diuretic, diaphoretic, antineuralgic, and sedative action of the drug.

CASE I.—C. P., aged twenty-four; typhoid fever, third week.

June 4, 1891.—Bromamide, 10 grains (0.6). Temperature: 5 P. M.,  $104.2^\circ$ ; 6 P. M.,  $104^\circ$ ; 7 P. M.,  $103.3^\circ$ ; 8 P. M.,  $102.9^\circ$ ; 9 P. M. (bromamide 10 grains),  $102.9^\circ$ ; 10 P. M.,  $102.7^\circ$ ; 11 P. M.,  $102.5^\circ$ ; 12 M.,  $103.3^\circ$ .

7th and 8th.—Ten grains of bromamide at 5 P. M., with results as above stated.

9th.—Bromamid, 10 grains. Temperature: 5 P. M.,  $103.4^\circ$ ; 6 P. M.,  $103.3^\circ$ ; 7 P. M.,  $103.3^\circ$ ; 8 P. M.,  $100.9^\circ$ ; 9 P. M.,  $100.6^\circ$ ; 10 P. M.,  $101^\circ$ ; 11 P. M.,  $100.6^\circ$ ; 12 M.,  $100.6^\circ$ .

10th.—Temperature: 1 A. M.,  $100.8^\circ$ ; 2 A. M.,  $101.1^\circ$ ; 3 A. M.,  $101.1^\circ$ ; 4 A. M.,  $101.4^\circ$ .

Bromamide was not again administered after June 10th, as the temperature continued to remain low. In this case the pulse and respiration were not materially influenced, and no sweating or evil effects were observed.

CASE II.—F. B., aged twenty-six; attacks of severe cardialgia, with a history of vomiting of blood (ulcus ventriculi?); 0.6 (10 grains) of bromamide promptly relieved the pain on four different occasions. When administered the fifth time it had no effect, and other treatment was adopted.

CASE III.—G. H., aged twenty-three; acute articular rheumatism, acute endocarditis, anasarca.

June 6th.—At 8 P. M., 0.6 bromamide (10 grains). Temperature,  $103.5^\circ F.$  On the following morning the temperature was still high, and three doses of bromamide (10 grains each) were administered during the day, at intervals of three hours. The evening temperature, June 7th, was  $99^\circ F.$ , the temperature declining uniformly. Six hours after the last administration of bromamide this patient was seized with severe cramps in the abdomen, which radiated around both sides of the body and down the front of the thighs; the features were tightly drawn, indicating excruciating pain, the face became somewhat cyanotic, the pulse rapid, weak, and intermittent, the legs were flexed upon the abdomen, the skin became cold and clammy, a condition of general collapse being imminent. After several hours of energetic stimulation the patient rallied and recovered. In the opinion of the writer, the severe colic and subsequent collapse in this patient, with acute and extensive endocardial inflammation, were not brought about by the administration of bromamide.

CASE IV.—F. G., chronic nephritis; general anasarca; responding poorly to usual treatment.

August 4 to 10, 1891.—Bromamide, 10 grains morning and afternoon each day. Urine: On the 4th, 2,900 grammes; 5th, 3,000 grammes; 6th, 2,500 grammes; 7th, 2,500 grammes; 8th, 2,000 grammes; 9th, 1,600 grammes; 10th, 1,600 grammes.

The temperature in the above case was normal, the pulse rather slow. No change was observed in the constituents of the urine, and the diuretic powers of bromamid in this case were *nil*.

CASE V.—C. P., aged twenty-six; typhoid fever; admitted June 4th. Patient received 10 grains each of calomel and jalap after admission, and an enema daily, and no other medicine.

June 6th.—Temperature, 9 A. M.,  $104.2^\circ F.$ ; 10 grains of bromamide. The temperature fell in two hours to  $102.9^\circ$ . Temperature, 6 P. M.,  $103^\circ$ ; 10 grains of bromamide.

7th.—Temperature, 9 A. M.,  $103^\circ$ ; no fall. Temperature, 6 P. M.,  $103.6^\circ$ ; 10 grains of bromamide.

8th.—Temperature, 9 A. M.,  $101.8^\circ$ ; 6 P. M.,  $104.2^\circ$ ; 10 grains of bromamide. Temperature, 10 P. M.,  $100.6^\circ$ .

The amount of urine passed was not satisfactorily recorded.

CASE VI.—S. L., aged thirty-three; chronic nephritis, without œdema.

October 20, 1891.—Passed 1,100 grammes urine in twenty-four hours. Received 10 grains (0.6) of bromamide daily.

Urine.—October 21st, 1,800 grammes; 22d, 1,600 grammes; 23d, 1,800 grammes; 24th, 1,800 grammes; 25th, 1,300 grammes; 26th, 1,300 grammes; 27th, 1,900 grammes. No marked diuretic action was observed. Patient complained of no unpleasant symptoms.

CASE VII.—O. S., aged twenty-three, servant. Diagnosis, typhoid fever.

September 17th.—Temperature, 4 P. M.,  $103^\circ F.$ , 1.0 of bromamide; 8 P. M.,  $104.1^\circ$ .

18th.—Temperature, 4 P. M.,  $103.2^\circ$ , 1.0 of bromamide; 8 P. M.,  $103.8^\circ$ .

19th.—Temperature, 4 P. M., 102·8°, 0·6 of bromamide; 8 P. M., 103·8°.

In this case the administration of bromamide was not followed by a reduction of temperature, and its further use was discontinued.

CASE VIII.—G. H., aged twenty-three; confectioner. Diagnosis, acute articular rheumatism. Admitted May 26, 1891, and treated for four months with all traditional and recognized methods of treatment without deriving more than temporary benefit, and with frequent and irregular periods of exacerbation.

September 24th.—Temperature, 103·6°; pulse, 120; respiration, 24; urine, 1,300. Bromamide, two doses, each 0·6, at 9 A. M. and 8 P. M.

25th.—Temperature, 2 A. M., 100·8°; 4 A. M., 99·2°; 6 A. M., 98·8°; 8 A. M., 100°; at noon, 99°; 4 P. M., 100°; 8 P. M., 99°. Urine, 1,850 grammes.

26th.—Two doses of bromamide, each 0·6. Temperature, 4 A. M., 99°; 8 A. M., 99°; 4 P. M., 99·6°; 8 P. M., 100°. Patient rather stupid but sleepless.

27th.—Bromamide, 0·6, morning and evening. Temperature throughout the day below 100°, except at 4 P. M., when it was 101·8°. Fair appetite; open bowels; urine, 1,950 grammes in twenty-four hours.

28th.—Two doses of bromamide. Temperature, 8 A. M., 99·3°; 4 P. M., 102°; 8 P. M., 99°. Urine, 2,200 grammes.

29th.—Bromamide, two doses. Temperature as on previous day. Patient states that he considers himself improving.

October 3d.—The temperature has remained normal for the past three days, and the administration of bromamide is discontinued. The patient remained under observation for a week more, during which time the temperature was normal, except on one occasion, when it was 101°.

CASE IX.—Child, aged three; acute fibrinous pneumonia, first stage. In this case the morning and evening temperatures were both high (above 104° F.).

October 18, 1891.—Temperature, 8 A. M., 104·3°, 0·2 (3 grains) of bromamide; 11 A. M., 102·5°; 6 P. M., 104°, 0·2 of bromamide; 9 P. M., 102·8°.

On the following day the same amount of bromamide was given, with about the same result; the case terminating favorably in the usual time, without further medication.

Bromamide was administered symptomatically in a number of cases of neuralgia from various causes.

1. Compression myelitis, with intercostal neuralgia. No beneficial effect from 10 to 20 grains of bromamide.

2. Premenstrual headache, 15 grains of bromamide; marked relief in two hours.

3. Reflex hemicrania from carious tooth; 15 grains of bromamide; relief in three hours.

It will be seen from a perusal of the foregoing that the trials thus far made are encouraging, and may warrant further experiments, especially in other forms of disease.

Bromamide has the power of reducing the temperature in most cases of febrile disease from 1° to 2·5° F., without the excessive sweating as produced by other antipyretic drugs. It has, according to the above-recorded experiments, no pronounced diuretic action, and it is, so far as could be ascertained, free from unpleasant symptoms as regards the digestive tract. The lancinating abdominal pains noticed in several of the severe forms of disease can not fairly be attributed to the use of bromamide, because such phenomena were never observed when the drug was administered to healthy subjects.

Bromamide can safely be given in 10- to 15-grain doses (0·6 to 1) several times a day, as an antipyretic and anti-neuralgic to adults, and in doses of from 1 to 5 grains (0·06 to 0·3) to children. It may be given in capsule, in wafer, or dry upon the tongue, or suspended in a fluid.

In conclusion, I take pleasure in expressing my indebtedness to Dr. Kurth, Dr. Inglis, and Dr. Moscovich, of the house staff, for valuable assistance in securing these notes.

## OBSERVATIONS ON PARALYSIS OF THE EXTERNAL TENSORS OF THE VOCAL BANDS.\*

BY GEORGE W. MAJOR, M. D.

MONTREAL.

On the 3d day of January, 1891, G. G., aged twenty-five years, a bartender by calling, applied at the clinic for diseases of the throat and nose, Montreal General Hospital, for treatment for loss of voice. He stated that on the 2d of January he had driven a fast horse for ten miles in the face of a very cold wind with his throat unprotected. At the time he experienced some discomfort; this was succeeded by slight pain referred to the front of the larynx. On rising on the morning following the drive he was unable to utter a sound. On palpation of the throat, a tender spot was discovered over the region occupied by the crico-thyroid muscles. It was also noticed that, on attempted phonation, these muscles failed to contract. There were no other sensitive areas, nor was there evidence of swelling anywhere in the neck. The patient was in the enjoyment of his usual health, and no indication of constitutional disturbance existed. The voice was muffled, coarse, and in monotone. The breathing was noisy and, if judged by the peculiar sound produced on inspiration and expiration alike, might be considered difficult, but there was a total absence of dyspnoea. The man himself claimed that his respiration was quite satisfactory. A laryngoscopic examination revealed the fact that the free edges of the vocal bands presented the wavy outline that is considered to be characteristic of paralysis of the crico-thyroid muscles—the external tensors of the vocal bands. On expiration, the vocal bands appeared to be convex on their upper surface, and on inspiration somewhat concave. On phonation, the vocal bands seemed flaccid and relaxed, and the points of contact between the free edges were not constant. The larynx was otherwise in a normal state. On the 20th of January the patient, whose habits of life were most irregular, contracted a severe cold, and he was admitted into the wards of the hospital. There was now some tenderness over the whole thyroid gland, but no apparent swelling; the tonsils and pharynx were red, swollen, and painful. By the third day the thyroid gland was very much increased in size and tender. Breathing was also difficult when recumbent; the laryngeal image, however, underwent no alteration in configuration. The swelling had almost entirely disappeared in four or five days under the use of linseed poultices and other suitable treatment, and the difficult breathing had ceased. The patient was discharged on the 1st of February, eleven days after admission, cured. The vocal condition was still unchanged. As he left for England, the subsequent history is unknown.

Paralysis of the external tensors is a rare affection, and therefore worthy of being recorded when met with in prac-

\* Read before the American Laryngological Association at its thirteenth annual congress.

tice. It is very exceptional indeed to encounter a case where the recognized symptoms were so very well marked as in this instance.

The wavy outline of the glottis, the convexity of the upper surface of the vocal bands on expiration and on phonation, the concavity on inspiration, the unstableness of the points of contact of the free margins of the vocal bands at different intervals, and the flaccid and relaxed appearance of the vocal bands—were all well-developed features. The contraction of the crico-thyroid muscles on phonation when the cricoid cartilage was elevated in front, and which can be readily felt in the average throat, was entirely absent.

The occurrence of the acute inflammation of the entire thyroid gland during the period of paresis (without altering the configuration of the image) was also an unusual and interesting complication. The freedom from dyspnoea and the presence of noisy breathing during the paralysis are points worthy of note. The difficulty of respiration, which supervened when the inflammation of the thyroid gland was at its height without modification of the laryngeal image, is presumptive of tracheal rather than nerve pressure.

**The West End Medical Society.**—At the annual meeting, held on the 6th inst., officers for the ensuing year were elected as follows: I. R. F. J. Bowles, president; Dr. G. W. Leonard, vice-president; Dr. F. Spencer Halsey, recording secretary; Dr. H. G. Myers, corresponding secretary; Dr. S. V. Ten Eyck, treasurer; and Dr. C. N. Dowd, pathologist.

**The Hospital Graduates' Club.**—At the next meeting, to be held at the Arena, on Thursday evening, the 25th inst., Dr. Parker will read a paper on The Surgery of the Gall Bladder.

**The Pan-American Medical Congress.**—At the recent meeting of the Medical Society of the State of New York a committee was appointed to co-operate in promoting the interests of the congress. The committee consists of Dr. A. Walter Suiter, Dr. A. Van Derveer, Dr. James D. Spencer, Dr. Seneca D. Powell, Dr. W. W. Potter, Dr. D. B. St. John Roosa, and Dr. John O. Roe.

**A Case of Coloboma of the Optic Nerve with Simultaneous Melanoma of the Ciliary Process.**—“Dr. Talko publishes in the *Przeglad Lekarski* the case of a boy of five years old who, from his birth, had been suffering from considerable impairment of sight. He discovered in both eyes a coloboma without a vestige of the hyaloid, and a melanoma of the ciliary process as well, the first case of the kind he had seen in his ophthalmic practice of thirty years. No such case has, as far as he knows, ever been mentioned in medical literature. Dr. Talko is not certain if the embryonic deformity of the ciliary processes is merely a complication of the coloboma, or whether it may be found independently of other deformities of the eyeball. The case, as the first of its kind, certainly deserves to be recorded.”—*Lancet*.

**Thilanine.**—“This is a new modification of lanolin, obtained by Liebel by the action of sulphur on lanolin, and which is stated to be a definite compound. Dr. Sadfeld, of Berlin, has experimented with it in his dermatological practice, and reports very favorably on its action in various affections. It gives rise to no irritation and allays all itching, and is said to be destined to supersede Hebra's ointment in dermatological work.”—*British and Colonial Druggist*.

**The Melting Point of a Mixture of Salicylic Acid and Acetanilide,** says the *British and Colonial Druggist*, has been found by H. Prusse (*Pharm. Ztg.*) to be lower than that of either of the separate ingredients, the greatest difference being produced in a mixture of one molecule of acetanilide and half a molecule of salicylic acid. There is believed to be no chemical change, and that the bodies act upon each other merely as solvents.

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THE CARTWRIGHT LECTURES.

PROFESSOR OSBORN gave the first lecture of the series on Friday evening of last week. It was devoted to the evolution of the human body by development and by degeneration. The fundamental facts that structures on which an increased functional demand is made to correspond with changes in the surroundings of the race undergo a development that fits them for new or heightened action, and that parts which have become almost or altogether unnecessary or useless gradually disappear by degeneration—these facts were illustrated by many striking and interesting examples. And these were both kept clearly distinguished from mere anomalies.

Among the instances of development mentioned were the following: The elaboration of the spines of the cervical vertebrae, with the division of the upper ones in the higher races; the increase of the antero-posterior curves of the vertebral column in the same races as compared with the nearly straight spine of the negro; the encroachment of the pelvic on the dorso-lumbar and thoracic portions of the vertebral column, as exemplified in the increasing tendency of the twelfth dorsal vertebra to become the first sacral, and of the twelfth rib to disappear; the increased size of the cranium and the later closure of its sutures in the higher races, as contrasted with the earlier closure of the sutures of the face in those races and of the cranial sutures in the negro; the widening of the base of the scapula in the higher races, associated by Gegenbaur with the development of the scapulo-humeral muscles and the greater play of the humerus as a prehensile organ; the perfection of the hand in its adaptability to precise work, as contrasted with the fitness only for seizing objects in remote times, when the thumb was incapable of being opposed to the fingers; the progressive divergence of the female pelvis from that of the male in type; and the increased development of the great toe, so that the heel and the ball of the great toe constitute practically the points of support in standing, walking, etc., with the consequent eversion of the foot.

As examples of evolution by degeneration Professor Osborn mentioned, among others, the diminished size of the jaw in the modern man, that of the Englishman of the period having been found by Collins to be one ninth smaller than that of the ancient Briton, and about half as large as that of the aboriginal Australian, as compared with the size of the skull; the disappearance of the third incisor tooth and the impending disappearance of the wisdom tooth; the dwarfing of the outer portion of the foot, before alluded to, and especially the disappearance in many instances of the last phalanx of the little toe; and the tendency of the flexor hallucis longus to fuse with the flexor hallucis communis.

Professor Osborn's way of putting what he has to say might well serve as a model to most members of the medical profession. Although not himself a medical man, he shows great aptitude at turning his anatomical knowledge to account from the medical point of view. Some of his expressions are effective largely by virtue of their humor. The following are examples: "From the typical mammalian standpoint man is a degenerate animal; his senses are inferior in acuteness; his upright position, while giving him a superior aspect, entails many disadvantages, as recently enumerated by Clevenger, for the body is not fully adapted to it; his feet are not superior to those of many lower Eocene plantigrades; his teeth are mechanically far inferior to those of the domestic cat. In fact, if an unbiased comparative anatomist should reach this planet from Mars he could only pass favorable comment upon the perfection of the hand and the massive brain. Holding these trumps, man has been and now is discarding many useful structures. I refer especially to civilized man, who is more prodigal with his inheritance than the savage. By virtue of the hand and the brain he is, nevertheless, the best adapted and most cosmopolitan vertebrate." Referring to a compensatory readjustment of parts so that the nutrition of an entire region remains the same, to which process the term *metatrophism* was applied, he spoke of it as "the gerymander principle in nature." He mentioned the eighth rib as having been "recently floated from the sternum." It was putting it pithily when he said "structure lags far behind function in evolution."

We are glad to be able to say that Professor Osborn's audience was large and seemed to be appreciative.

### MINOR PARAGRAPHIS.

#### THE TREATMENT OF MALARIAL AFFECTIONS WITH METHYLENE BLUE.

THE recent experiments of Guttman and Ehrlich with methylene blue as a remedy in malarial diseases, employed on account of its property of coloring the *Hæmatozoon malariae*, have been repeated by Laveran, the discoverer of that organism. The former reports were favorable to the utility of the agent in such diseases. Laveran injected methylene blue under the skin of pigeons having hæmatozoa in their blood, but the organisms did not decrease in number and did not seem to take the color. He also gave from thirty to forty centigrammes a day to two patients having malarial disease, giving to one as much as 7.4 grammes (more than 110 grains). There were no particular hæmotic phenomena, and there was no diminution of the organisms; the fever returned at the usual hour, and, aside from the coloration of the urine, there was no effect from the administration of the drug. So it may be concluded that in this drug no new specific has been added to our resources.

#### TYPHUS IN NEW YORK.

THE recent importation of typhus into New York and its consequent dissemination through various parts of the country call for quite as vigorous measures as the New York Board of Health is carrying out. That these measures will result in keeping the disease within manageable limits we thoroughly believe. Therefore we see no reason for the public to apprehend a widespread epidemic. At all events, the community should under-

stand that typhus is not a disease that strikes down all sorts and conditions of men indiscriminately, but is confined to those whose surroundings are decidedly insanitary. Moreover, there is no danger of its spreading from one house to another, except through human intercourse; hence, the use of houses in various parts of the city for purposes of isolating patients involves no danger to persons living near such buildings.

#### RICORD'S EPITAPH.

IN an interesting address on Ricord delivered at the annual meeting of the *Société de chirurgie* by the secretary-general, M. Monod, which is published as a *feuilleton* in the *Union médicale*, we are told that M. Ricord had, long before his death, made careful preparations for his interment, and had written his own epitaph, which he often read to his friends, and with which he seemed to be pleased. The lines are as follows:

Aux portes de l'Éternité,  
Quand j'aurai fini ma carrière.  
S'il me reste un peu de poussière  
De cette triste humanité,  
Que le tombeau seul s'en empare;  
Que de mon âme se sépare  
Cette cause de mes douleurs;  
Car l'âme pure et sa matière  
Doit être un rayon de lumière  
Que ne troubleront plus les pleurs.

#### A NOVEL USE OF A BENZOINOL SOLUTION OF MENTHOL.

DR. ELIZABETH N. BRADLEY has sent us a brief note on the case of a patient, sixty-four years old, of a rheumatic diathesis, who had been suffering for several days from the pneumonic and cardiac complications of *la grippe*, when an attack of acute prolapsed hæmorrhoids ensued one night. The usual remedies having proved unavailing, either in alleviating the pain or in overcoming the spasm of the sphincter, it occurred to the doctor that spraying the hæmorrhoids with a benzoinol solution of menthol, which had proved very efficacious in controlling a paretic tendency of the laryngeal muscles in the same case, might so stimulate the muscular structure of the hæmorrhoidal veins as to accomplish a sufficient diminution in the volume of the piles to render them reducible. The spraying of the hæmorrhoids was followed almost instantaneously by a cessation of pain and by such a decrease in the volume of the tumors that their spontaneous reduction speedily ensued.

#### THE MARINE-HOSPITAL SERVICE.

THE *Annual Report of the Supervising Surgeon-General of the Marine-Hospital Service of the United States for the Fiscal Year 1891*, a volume of 354 octavo pages, comprises a well-arranged and satisfactory account of the operations of the service during the year, of much the same character as has been given in the reports for former years. The new Surgeon-General, Dr. Walter Wyman, has proved an efficient and acceptable officer, as was to be expected at the time of his promotion. In his own report he recommends measures for isolating persons affected with leprosy, but he does it temperately and without committing himself to the doctrine that the disease is contagious, merely remarking that where indifference is manifested as to the isolation of patients it slowly spreads.

#### THE OLDEST AMERICAN EX-HOSPITAL INTERNE

AT an annual meeting of the Hospital Graduates' Club, of New York, held two or three years ago, a letter from the late

Dr. Henry I. Bowditch, of Boston, was read, and the announcement was made that, so far as could be ascertained, Dr. Bowditch had "walked the hospitals" earlier than any other American physician then living, having been a house officer in the Massachusetts General Hospital in 1829. Dr. John L. Vandervoort, who for so many years was the librarian of the New York Hospital, and who died last summer, was an interne in that institution in 1832, and Dr. Benjamin W. McCready followed him in 1834. So far as we are able to ascertain, there is no American physician now living who antedates Dr. McCready as a hospital interne.

#### TUBERCULOSIS IN BUDAPEST.

THE *Deutsche Medizinisch-Zeitung* cites a statement of Professor Fodor's, in the *Pester medicinisch-chirurgische Presse*, No. 52, 1891, to the effect that the mortality from tubercular disease is relatively greater in Budapest than in any other large city in the world, the annual number of deaths being between 590 and 600 to each 100,000 inhabitants, while in Vienna it is between 540 and 550, and in London only between 180 and 190.

#### THE UNIVERSITY OF BUFFALO.

WE learn from the *Illustrated Buffalo Express* that work has been begun on a handsome and spacious new building for the School of Medicine, almost as large as that of the corresponding school in Columbia College. The Buffalo Medical College has for many years stood high among our American schools, and we are glad to note this evidence of prosperity.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending February 16, 1892:

DISEASES.	Week ending Feb. 9.		Week ending Feb. 16.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	0	86	0
Typhoid fever.....	9	7	7	6
Scarlet fever.....	210	25	225	39
Cerebro-spinal meningitis....	2	1	0	1
Measles.....	132	13	204	10
Diphtheria.....	122	23	123	37
Small-pox.....	11	2	8	1
Erysipelas.....	0	0	4	0
Varicella.....	0	0	18	0
Pertussis.....	0	0	1	3

**Insanity in Paris.**—*Progrès médical* says that a book recently published by Dr. Paul Garnier, physician to the special infirmary of the *Préfecture de police*, shows that between the years 1872 and 1888 insanity increased about thirty per cent. in Paris.

#### Society Meetings for the Coming Week:

MONDAY, *February 22d*: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, *February 23d*: New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society (private); Buffalo Obstetrical Society; Boston Society of Medical Sciences (private).

WEDNESDAY, *February 24th*: New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield); Philadelphia County Medical Society.

THURSDAY, *February 25th*: New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopaedic Society;

Hospital Graduates' Club (New York); Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).  
FRIDAY, *February 26th*: Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, *February 27th*: New York Medical and Surgical Society (private).

### Proceedings of Societies.

#### MEDICAL SOCIETY OF THE STATE OF NEW YORK.

*Eighty-sixth Annual Meeting, held at Albany on Tuesday, Wednesday, and Thursday, February 2, 3, and 4, 1892.*

The President, Dr. A. WALTER SUITER, of Herkimer, in the Chair.

(Concluded from page 188.)

**Early High Amputation in Senile Gangrene.**—Dr. C. A. POWERS, of New York, reported a case in which he had amputated through the middle of the femur at the New York Cancer Hospital, for arterio-sclerotic gangrene in a man of sixty-seven years, whose gangrene had extended to the foot and lower leg. His patient died on the fourth day from hypostatic pneumonia, yet a post-mortem examination of the stump revealed firm, primary union, no pus, and no areas of malnutrition. The paper was in support of Mr. Jonathan Hutchinson's recommendation that when the gangrene had extended from the toes to the sole or dorsum of the foot immediate recourse (barring contra-indications) should be had to amputation above the knee, inasmuch as it was more than probable that a lower amputation would be followed by gangrene of the flaps and increased danger to life. Dr. Powers cited some twenty-five cases of Küster's, recently reported by Heidenhain, an analysis of which gave strong confirmation of the proposition that in order to obtain sound tissues one must amputate through the thigh.

In the discussion, Dr. WILLY MEYER, of New York, and Dr. HERMAN MYNTER, of Buffalo, cited personal cases showing the value of the procedure.

**Surgical Shock.**—Dr. J. H. PACKARD, of Philadelphia, read a paper thus entitled. Shock and collapse were said to be non-identical, though their phenomena were similar. Collapse might result from other causes than shock. The various definitions of shock were referred to and criticised. Shock always signified suddenness of occurrence. It might be followed by reaction and that in turn by collapse. The term shock had come into use less than sixty years ago, though the condition had been recognized for ages. In former times shock had been supposed to be peculiar to gunshot wounds. Since the general introduction of machinery and the development of railroads, with the injuries which attended such modern appliances, the cases in which shock occurred had multiplied. Delcasse wrote upon this subject in 1834, and denominated the condition *commotion*. Morris described the condition in 1867, and since that date the condition had been referred to by many writers. Shock was a very common accompaniment of burns, especially if they were of a severe character. The condition was evidently due to a depression of nerve force, and it was intensified in cases in which there was great loss of blood. The temperature was usually lowered in such cases, though it might rise several degrees when reaction occurred. Cases were recorded in which the temperature had fallen to as low a point as 80° F., and such cases were almost invariably fatal. The symptoms of

shock were sometimes apparent in cases in which anæsthesia was induced in patients with an abundance of food in the stomach. Emesis having occurred, the symptoms of shock would disappear. Undue exposure of a patient during an operation or the use of an abundance of water in irrigating a wound encouraged shock, and this fact taught that patients should be kept as warm as possible at such times. Delays in operating should be avoided as far as possible, no time being lost in demonstrating the steps which were taken. If irrigation was necessary, only hot water should be used. The propriety of operating in the presence of shock, as in the case of accidents, had long been questioned; such a procedure seemed to check or prevent reaction, and death was often the result. When the pulse became irregular and weak, the anæsthetic should be withheld. Alcohol was sometimes harmful as a means of relief in shock; it was also sometimes useful by its rapid diffusion. External heat was a valuable means of treatment, and morphine was indicated if severe pain was present.

Dr. A. VAN DERVEER, of Albany, called attention to the profound shock that frequently attended injuries from crushing weights, and said that injuries of this character were often followed by bad results. It was by no means necessary that the loss of blood should be great for profound shock to occur.

Dr. L. S. PILCHER, of Brooklyn, suggested the hypodermic injection of nitroglycerin, in doses of  $\frac{1}{100}$  of a grain every hour or two, as one of the efficient means of overcoming shock.

Dr. MYNTER did not think that shock was usually due to loss of blood. One of the operations which was most frequently attended by profound shock was linear craniectomy, especially if the operation was prolonged by operating on both sides of the cranium. The loss of blood in such cases was small, but the nerve injury was apparently serious.

Dr. R. F. WEIR, of New York, suggested the hypodermic use of strychnine, in  $\frac{1}{2}$ -of-a-grain doses, as a means of relieving shock, also nitroglycerin, in  $\frac{1}{2}$ -of-a-grain doses, and rectal enemas of hot water.

Dr. ROBERT T. MORRIS, of New York, suggested as means of treatment the inhalation of nitrite of amyl until there was flushing of the face, also the measures suggested by the previous speaker.

**A Discussion on the Surgical Management of Genito-urinary Calculus.**—Dr. J. D. BRYANT, of New York, discussed the question of diagnosis and the indications for surgical treatment of stone in the kidney. The condition and shape of the stone would depend on the state of the kidney at the time the formation was accomplished. The diagnosis of stone in the kidney was often very difficult, and even in cases in which the symptoms pointed almost unmistakably to that condition an operation sometimes failed to reveal its presence. Rough and irregular stones caused much more disturbance than smooth ones; they might even cause serious disorganization of the kidney and death, and yet be very small. The symptoms might be classified as suggestive and convincing, the former leading to a possible diagnosis, the latter pointing to the condition with greater probability. Such symptoms as renal or lumbar pain and vesical and urethral irritation were suggestive symptoms. Abnormalities in the constituents of the urine might exist and no stone be present. Such a symptom was, however, suggestive, and might, at a subsequent period, be convincing, the stone in the mean time having developed. The true condition was sometimes revealed by vesical irrigation and cystoscopy. Operative and exploratory treatment was to be advocated if the suggestive symptoms did not disappear.

Dr. L. A. STIMSON, of New York, discussed the question of the surgical treatment of stone in the kidney. The subject was a complex one. If the stone was large and the kidney not dis-

organized its removal by nephrotomy was indicated. If the kidney was severely diseased, nephrectomy should be performed. In some cases nephrectomy was required as a secondary operation. The operation could be performed by the extraperitoneal or the transperitoneal method, the former being preferable and usually performed. The kidney was reached by a longitudinal incision in the lumbar region which was met by a transverse one. The kidney being exposed, its pelvis was to be explored with a needle or with the finger. Entrance to the organ was to be effected by an incision through its pelvis, if possible, but, if this was impossible or impracticable, the incision must be made through the cortex. Not only should the interior of the organ be explored and all calculi removed, but the exploration should be carried as far as possible into the ureter. The wound should then be packed with gauze and drained. If the organ was to be removed, all manipulations of it should be made with as little force and violence as possible. Special care should be exercised in securing the pedicle. The artery might be ligated separately, or, if a mass ligature was used, it should be an elastic one.

Dr. ARTHUR T. CABOT, of Boston, discussed the question of stone in the ureter. Impaction of calculi within the ureter might be caused by irregularities in their contour. Impaction might be so firm as to cause serious injury to the ureter, the kidney, or both, or the stone might be dislodged by the pressure of the urine from behind. The pain caused by a stone in the ureter was a most important consideration, not only on account of its subjective influence, but also on account of its influence in determining a diagnosis. Thickening of the wall of the ureter was one of the conditions that might attend the presence of a calculus. The state of affairs being assured, it would next be of importance to find out the exact location of the offending body, and this was usually very difficult except in the lowermost portion of the ureter, where it could be palpated through the vagina or rectum. Palpation through the abdomen in very thin people would sometimes enable one to locate it as high as the brim of the pelvis or even higher. In other cases the location must be determined by an abdominal incision. The treatment of this condition was considered as preventive, non-operative, and operative. Operative procedures would be influenced by the question of the presence of stone in only one or in both kidneys, and it must be remembered that if there were a stone in one there often was a stone in the other also. If an operation was decided upon, it was very desirable that it should be performed without opening the peritoneum. The incision which should be made in the loin to reach the ureter followed an irregular line and was described. This incision would enable one to reach all but the lower three or four inches of the ureter. An anterior incision was not practicable for the removal of the calculus, though it might be useful in locating it. The posterior incision obviated the division of the peritoneum. The ureter having been reached and incised, and the stone removed, the wound could either be closed with fine silk or allowed to remain open and heal by granulation. The latter method was believed to be preferable.

Dr. EDWARD L. KEYES, of New York, discussed the question of stone in the bladder, and that of what special indications should govern a choice of operation as between lithotomy and lithotripsy. He remarked that the three modern procedures, litholapaxy, cystoscopy, and prostatectomy, had changed the course of the treatment of stone in the bladder. The size of the stone did not now affect the treatment, so far as the result was concerned, or perhaps it would be more correct to say that the smaller stones were better treated with the lithotrite, the larger ones with the knife. Lithotomy, in some respects, required more skill than lithotripsy, and yet it was not always easy to

grasp and crush a small stone without doing injury to the tissues of the bladder. The age of the patient was not now a matter of such consideration as formerly. Crushing could be performed upon persons of all ages, and it should be preferred as an operative procedure in all cases prior to the period of puberty. For persons in middle life the perineal section was frequently the preferable operation, especially if stricture of the urethra or cystitis was present. For cases in which the stone was sacculated the suprapubic operation was to be preferred. For old men with enlarged prostate the suprapubic operation was to be preferred, and the prostate might be operated upon at the same time.

Dr. L. B. BANGS, of New York, discussed the indications for choicing between suprapubic lithotomy and lithotripsy.

**Fibroid Disease of the Heart.**—Dr. A. L. LOOMIS, of New York, read a paper on this subject. Heart failure with pneumonia, resulting fatally, was frequently attributable to fibrosis. Changes in the coronary arteries, or anything which caused changes in the parenchyma of the heart, might precede fibrosis. Some of the causes that induced fibrosis were toxic changes in the blood, mechanical interference with nutrition, and traumatism of various kinds. The most important causes were those that interfered with cell nutrition and lowered the vital force. Toxic causes acted primarily upon the cardiac walls. The diagnosis of fibrosis of the heart could sometimes be made during life, and even in the early stages of the disease. The disease should be carefully distinguished from valvular disease. Irregularity of the heart's action was likely to occur early in the disease and to be permanent. The heart's action was feeble and intermittent, and palpitation was frequently complained of. Unusual efforts of all kinds would cause difficulty. Precordial anguish followed at a later stage of the disease. If the diagnosis was made early, the development of the disease might be prevented, or its progress delayed. The treatment would consist mainly in the regulation of the diet, exercise, and mode of life. All suitable means should be adopted to increase elimination and improve the nutrition. The best remedial agents were mercury and iodide of potassium in small doses. Digitalis and other drugs of similar character would do no good and might do harm.

**Dilatation and Drainage of the Uterus for Disease of the Endometrium.**—Dr. W. GILL WYLIE, of New York, read a paper thus entitled. Until recent years chronic endometritis had been supposed to be due principally to displacements of the uterus, especially antelexions, and the treatment had been adapted mainly to the straightening of the organ. This treatment had consisted in the use of pessaries and various forms of intra-uterine stems. Such measures were usually ineffective, because the principle of drainage was usually overlooked. The author's method of treatment consisted in divulsion of the uterine canal and the introduction of a grooved, hard rubber stem within the uterus, which allowed of a free escape of all secretions. The treatment of the uterine cavity should be based upon the same principle as the treatment of any other diseased cavity, and drainage was at the foundation of such treatment. The intra-uterine tube should be left in position for a week or, in some cases, for a longer period. If the disease proved obstinate and pointed to the existence of serious lesions in the tubes and ovaries, it might be necessary to remove the latter.

Dr. W. M. POLK, of New York, believed that drainage as a general principle was most important in the treatment of endometritis. If it was ignored, the uterus might retain products of decomposition and serious results ensue. He dissented from the statement that the uterus could not be dilated sufficiently in all cases to admit the introduction of a gauze tampon and retain it. He believed that antiseptic gauze was the best material for

an intra-uterine tampon. He also insisted that the dilatation of the uterus and introduction of the tampon should be performed under an anæsthetic. He believed that by means of the tampon a certain number of cases of pyosalpinx could be efficiently drained, and that in this way abdominal operations might sometimes be avoided.

Dr. MORDECAI PRICE, of Philadelphia, believed that dilatation, drainage, and packing of the uterus were all useless. In cases in which such measures were taken it would usually be found that pyosalpinx was the cause of the trouble, and the trouble could be relieved only by removing the cause.

Dr. JOSEPH PRICE, of Philadelphia, believed that indications for operations within the pelvis were pre-ent now which had not been present, at least to any considerable extent, ten or fifteen years ago. It was this condition of affairs which justified the pelvic surgery of to-day. He also was of the opinion that there had been an excess of uterine and intra-uterine treatment. Perhaps it was responsible for much of the existing pelvic disease. Sterility, for which much of the gynæcological treatment was given, was better treated in many instances by rest on the part of the woman and separation from her husband.

Dr. P. F. MUNDÉ, of New York, believed in the existence of chronic endometritis, and in certain well-recognized methods of treatment. It was not fair to assume, as some of the previous speakers had, that those who advocated intra-uterine treatment, and did so after extensive experience, were lacking in judgment. The speaker was an advocate of both the dilator and the curette, and he also sometimes used the gauze tampon and the intra-uterine stem. He was also in favor of astringent and caustic applications to the uterus on proper occasions. He sometimes used a fifty-per-cent. solution of chloride of zinc in the uterus after curetting.

Dr. H. J. BOLDT, of New York, was in favor of drainage of the uterus by means of the gauze tampon. If disease of the annexa was ever caused by gynæcological treatment, it was owing to want of care on the part of the one who administered the treatment.

Dr. JOSEPH HOFFMAN, of Philadelphia, believed that endometritis was usually due to some form of displacement, or was the consequence of a tear in the vaginal portion of the cervix. He objected to the use of caustics in the treatment of this disease, but was in favor of dilatation to a certain extent.

**Four Cases of Unioocular Blindness immediately following Injuries of the Skull.**—Dr. P. A. CALLAN, of New York, read a paper in which the cases were narrated and the principle was deduced that in these and similar cases blindness was caused by compression of the optic nerve at the foramen opticum.

**Methods of advancing the Internal Rectus for Divergent Strabismus.**—Dr. L. HOWE, of Buffalo, read a paper thus entitled. The methods heretofore in use were described and their defects pointed out. The author showed a forceps that he had devised for seizing the muscle after it and its opposing muscle had been divided. Keeping control of this muscle, preventing its retraction, would obviate one of the most annoying features of the operation. He also described a method of introducing the suture which would prevent their slipping, and also prevent the puckering of the muscle under the conjunctiva, which was sometimes a source of great annoyance to the patient. This plan was also designed to prevent over-correction of the strabismus, and was believed to be an improvement upon Prince's method.

**A Hip Splint** was shown by Dr. S. R. MORROW, of Albany. It was similar in construction to the Gibney and the Taylor-Davis splint, but very much lighter, the metallic portion being of aluminium. Its weight was about sixteen ounces; the other instruments weighed five or six pounds. This difference in

weight would offer a decided advantage to the delicate children who were usually the subjects of hip disease.

## NEW YORK ACADEMY OF MEDICINE.

SECTION IN ORTHOPÆDIO SURGERY.

*Meeting of January 15, 1892.*

Dr. SAMUEL KETCH in the Chair.

**The Disappearance of Large Psoas Abscesses.**—Dr. T. HALSTED MYERS presented a case of lumbar Pott's disease to illustrate the disappearance of very large psoas abscesses without material interference with the general health during the process. In this case, which had a strong family tendency to tuberculosis, the abscesses had appeared early, had gradually increased in size, but after an attack of measles it had become much larger, so as to fill both iliac fossæ and form pouches in both inguinal regions as large as a man's fist. At this time the liver had been slightly enlarged, but there never had been a trace of albumin in the urine. Eight months later, though still anæmic, the child had felt well, had had an excellent appetite, and the liver had regained its normal size. Absorption was rapidly progressing. At present the child had a temperature ranging between 98.4° and 99.6° F., and a few of the cervical glands were enlarged; but he played hard all day, had a good appetite, and felt well. The abscesses had almost entirely disappeared, and recovery seemed assured.

Dr. NEWTON M. SHAEFFER said that he had seen this case from time to time, and could testify to the large size of the abscesses. This case would certainly have been considered by some a fit one for operative interference, notwithstanding such an operation would necessarily have proved rather serious, on account of its extent. As usual under proper mechanical treatment, the abscesses had disappeared.

Dr. V. P. GIBNEY said that in connection with this subject he desired to report an instructive case. About fifteen years ago a boy had been brought from the West to the hospital with disease of the lumbar spine. The brace at that time in vogue at the hospital had been applied, and the child had done well for two or three years, when he had experienced some pain in the left thigh and a tumor had appeared in the left iliac fossa. The speaker had advised the systematic use of hot-water douches over the parts, and the result of this treatment had been considered at the time to be quite brilliant. He had only just learned the sequel of this patient's history. Shortly after the disappearance of the abscess from the iliac fossa, and while still wearing the spinal support, an elongated tumor had made its appearance in Scarpa's space, and had then burrowed down until it had nearly reached the inner condyle. There had been then some redness and tenderness, so the hot douches had been resumed, with the effect of causing an entire disappearance of the tumor. Nothing further had occurred until several years afterward, when, after a fall or strain of some kind, a large and tender tumor had made its appearance very suddenly on the outer side of the thigh, at the junction of the middle and upper thirds. This had been accompanied by pain and considerable constitutional disturbance, and a surgeon had incised the abscess, removed some bone detritus, and irrigated the cavity. Since then, although the sinuses had been washed out daily with bichloride-of-mercury solution, and afterward with peroxide of hydrogen, and then dressed with sublimate gauze, they had been discharging pretty constantly, and there had been occasional symptoms of sepsis. The remnant of the sac could still be felt in the iliac fossa. The tumor, which appeared on the outer side of the thigh, was probably nothing more than the old abscess deflected by the concussion of the fall. The speaker

said that he had narrated the history of this case because it was one of those in which the abscess had disappeared under what was considered to be good treatment, and yet he was not entirely satisfied with this treatment. He had seen many cases in which the abscess had disappeared in this way, and he was glad when this had occurred, but sometimes he could not help feeling that it might be better if he could, under thorough anti-sepsis, remove this pus by a surgical operation, and so relieve the patient from this constant menace.

**The Use of Iodoform in the Local Treatment of Strumous Joint Diseases.**—This was the title of a paper by Dr. J. D. BRYANT, who used the terms "strumous disease" and "tuberculous disease" synonymously. For practical purposes the products of tuberculous joint disease might be said to be located in the joint cavity and its lining membrane and in the circumarticular tissue associated with this membrane. The rice and melon-seed bodies in these diseased joints were often infected with the tuberculous agents. In the present paper the author excluded from consideration disease of the integument and of the immediate subcutaneous tissues. The preparations of iodoform which had been used by the author had been ten-per-cent. solutions with ether or glycerin. The ethereal solution was easily obtained in an aseptic condition, it flowed freely through needles of small caliber, and, by its rapid diffusibility, quickly deposited the iodoform upon the disease products. But this very property of rapid diffusibility made it objectionable on account of the liability of producing constitutional effects and because of the irritation produced by the fluid, which made the injections extremely painful and often gave rise to circumscribed abscesses. A solution of iodoform in sterilized glycerin or oil had the advantage of not producing these unpleasant constitutional effects and of not being painful when injected, but, on account of its viscosity, it was necessary to employ needles of large caliber. It was well to remember that all iodoform solutions were prone to undergo chemical decomposition, especially when nearly saturated or when exposed to sunlight. Camphor had the property of increasing the solubility of iodoform in these fluids, so that a saturated solution of camphor in olive oil would dissolve six per cent. of iodoform. No definite rule could be laid down as to the amount of iodoform which could be injected without danger of producing constitutional effects; thus, a grain and a half had been known to give rise to these symptoms, while in other cases no such result had followed the introduction of one hundred and fifty grains. It was generally considered that thirty grains of iodoform might be injected, but the difference of action of the ethereal and the glycerin solution must be borne in mind.

The author then spoke of the different manifestations of iodoform poisoning, those cases being considered the most dangerous in which there was a rapid and compressible pulse, either with or without fever. Then the presence of iodoform in the human system was shown by a disagreeable taste; the introduction of a silver piece into the mouth would immediately develop a garlic taste, which, according to Poncet, was characteristic of the presence of iodoform. Another test was the production of a canary-yellow color when calomel was mixed with the saliva. He related in detail the histories of two cases to illustrate the action of the iodoform in the treatment of joint disease. In the first one the patient, aged eighteen, had been admitted to Bellevue Hospital on February 17, 1891, with a history of having suffered from disease of the knee joint for three years, during which time he had been treated in various ways without benefit. The synovial cavity had been greatly distended with fluid, there had been no special tenderness, and no increase in the temperature of the joint. There had been much relaxation of the ligaments, and lateral motion on hyperextension

Walking had not caused pain, but there had been so much relaxation of the lateral ligaments that locomotion had been impracticable without confining the joint with a bandage or splint. On February 21st the joint had been opened by a free incision, and its cavity thoroughly irrigated with a 1-to-2,000 solution of bichloride of mercury. Numerous melon-seed bodies had been evacuated and the wound then closed. The wound had healed by primary union and the joint had been diminished in size, but the previously overdistended soft parts had remained fleshy and the relaxed ligaments had made the joint very insecure. On April 1st the joint had been opened in two places—at the site of the former incision, and at the outer side of the quadriceps tendon—so as to lead directly into the outer pouch of the upward prolongation of the synovial cavity. After a thorough irrigation with a 1-to-2,000 solution of bichloride of mercury and the complete removal of numerous "rice-seed" bodies, the cavity had been irrigated with a ten-per-cent. ethereal solution of iodoform and the wounds closed as before. Primary union had occurred without reaction. A portion of the synovial membrane had been removed at this operation, and had been sent to Dr. Biggs, who had reported that there was no doubt about its being involved in the tubercular infection. From this time until May 1st the knee had diminished in size and increased in stability, yet the latter had not been sufficient to render the joint secure. On May 9th a small quantity of fluid had still remained in the joint, and, as the patient had been anxious to leave the hospital, two ounces of a ten-per-cent. solution of iodoform in glycerin had been injected directly into the joint cavity. There had been no reaction, and, after four or five days' rest in bed, the patient had been allowed to go around the ward, and on June 16th he had been discharged. There had been no pain, tenderness, or effusion for two weeks prior to his leaving the hospital. Should a similar case come under his observation, the author said that he should prefer to open the joint at once in two places, clean out the cavity by irrigation and manipulation, and, after perfect union had been secured, inject into the cavity two or three ounces of a ten-per-cent. solution of iodoform in sterilized glycerin or oil.

In a second case, one of old knee-joint disease, attended with considerable flexion of the leg and subluxation of the head of the tibia, occurring in a man twenty years of age, iodoform injections had been begun after other recognized methods of treatment had failed to produce any noteworthy local improvement. The case had been under the care of Dr. J. H. Girdner. Eight drops of a twenty-per-cent. solution of iodoform in ether had been injected at each of three separate points of greatest tenderness, into the deepest tissues, and perhaps some portion into the joint itself. Great pain had been produced at the site of the injection, followed by numbness of the limb, and persistent nausea for twelve hours; and as the same symptoms had followed a second injection, it had been decided to substitute a twenty-per-cent. solution of iodoform in glycerin. This latter preparation had caused less pain in the limb and no systemic disturbance. The injections had been repeated every two or three days. At the end of thirty days the joint had been free from pain and swelling, the doughy feeling had gone, there had been voluntary motion, and considerable weight could be borne by the limb. His general condition had also kept pace with the local improvement and at the present time the limb was nearly as strong as the other; there was considerable motion, so that the patient could walk on it without artificial aid. There could be no reasonable doubt of the tuberculous nature of the disease of the joint in this case, or of the curative effects of iodoform.

Dr. A. B. JUDSON had failed to see the necessity or desirability of using iodoform in joints which were under mechanical treatment. In children thus affected, local medication might be

ignored in favor of general treatment. He believed that the trouble was not so much a local fault as a failure, for some reason or other, of the system to arrest the morbid action and repair the damage already done, and the system, rather than the affected part, should receive most attention. Mechanical treatment was a local application, but its indirect action was of the utmost importance in relieving pain, permitting sleep, facilitating locomotion, and promoting general well-being. It prevented the injurious effects of habitual trauma, and provided for ultimate symmetry and ability. Beyond this roborant and reconstructive treatment, general medication was in order, reinforced by hygiene and an abundance of rich and wholesome food, in which cream and other forms of animal fat should be in excess. He believed the effects thus produced left no room for the administration of anti-strumous injections.

Dr. ROYAL WHITMAN had been surprised to hear the previous speaker express doubt as to the influence of iodoform on tuberculous processes, for it was not a matter of opinion, but of record. Bruns, Krause, and other investigators had shown that the membrane of tuberculous abscesses ordinarily consisted of four layers: (1) An outer layer of thick porous tissue, (2) a layer of spindle cells in a state of active proliferation, (3) actual tuberculous granulations, and (4) necrotic and degenerated tissue. The two inner layers contained the tubercle bacillus. Under the iodoform treatment it was found that healthy granulations sprang from the spindle-cell layer, the bacilli disappeared, and the tuberculous granulations and inner layer were converted into a fluid, which might be absorbed or withdrawn with an aspirator. Arens, in a recently reported series of two hundred and fifty-five cases of tuberculous disease of various joints, had stated that under the iodoform treatment forty per cent. had shown very marked improvement. The most favorable cases were those of disease of the wrist and elbow. Trendelenburg had given up the use of the ethereal solution in his clinic because of the pain produced. Instead, he used a twenty-per-cent. solution of iodoform in oil, injecting about one teaspoonful at intervals of eight days. Krause used a larger quantity—thirty to eighty cubic centimetres, injecting at intervals of three weeks. Bruns stated that eighty per cent. of all abscesses might be made to disappear by the use of iodoform, and the specific action of this drug on the tubercle bacillus seemed to be very generally recognized. Trendelenburg was now using oil and iodoform at a temperature of 100° F., with the object of making a solution of the iodoform in the oil and of securing its deposition in a more finely divided state.

Dr. SAMUEL LLOYD said that he had seen very remarkable results in his clinic following the use of injections of iodoform emulsion, both in joint difficulties and in tubercular adenitis; in fact, in the latter class of cases they acted so satisfactorily that they had been used almost to the exclusion of operative measures. In many cases where tubercular deposits had been found in the lungs, the change had been very decided after the injections, especially when these had been pushed up to the point of producing constitutional effects. In one or two cases where operative procedures had been undertaken, and, secondarily, injections had been used on a recurrence of the disease, the improvement had been much more rapid than after the first operation when the iodoform had not been employed. When using the iodoform injections in abscess cavities the results had not proved good until the cavity of the abscess had been washed with hot water or with some antiseptic solution. It was advisable, then, to inject the emulsion up to the point of causing some distention. Dr. N. Senn had had a similar experience, and in his recently published article on this subject he had said that he used weaker solutions of iodoform, but in larger quantities.

Dr. R. H. SAYRE said that in using these injections he had felt the necessity of employing the iodoform in a more finely divided state, and therefore he thought it was an advantage to use the heated oil. He recalled two cases of suppurating ankle-joint disease, one of which had been treated by injections of iodoform, and the other by injections of aristol. They had done equally well, and after about two months of treatment the evidences of inflammation had entirely disappeared and there had been no pain or tenderness about the ankle. A splint had been applied to take off the weight of the body. In a case of tubercular inflammation of the thumb he had obtained a good result from the injection of a ten-per-cent. solution of iodoform, and likewise in some abscesses.

Dr. H. L. TAYLOR said that he indorsed what Dr. Judson had said as to the value of mechanical treatment, and yet welcomed the method presented in the paper. His experience with iodoform in a few cases had convinced him that it had a specific action on tubercular tissue. One of his most striking cases was that of a typically tubercular subject, a youth of seventeen years, who had been for some time under observation of Dr. Da Costa for suspected pulmonary disease. He had been hobbling about without crutches, in spite of advice, for about a year after the development of symptoms of tarsal disease before he had come under the speaker's care. He had been made to use crutches, and the foot had been immobilized with an apparatus. After some months, a sinus having appeared, on the advice of Dr. Abbe, injections of an ethereal solution of iodoform into the joint had been begun. He could honestly say that the entire appearance of the affected parts had been changed after one injection, and the subsequent progress of the case to complete cure, although slow, had been steady. He had also used the iodoform emulsion in sinuses about joints, and he believed that this treatment produced beneficial effects, independently of its antiseptic action.

The CHAIRMAN said that about two years ago, while visiting the clinics in Germany, he had seen a good deal of this treatment with the ethereal solution of iodoform, and he had been impressed with the great frequency of symptoms of iodoform poisoning and with the general disregard of mechanical treatment shown by the German surgeons. Still he believed that in these iodoform injections we had a valuable adjunct to mechanical treatment, and one which had not been sufficiently tested by American orthopaedic surgeons.

Dr. BRYANT said that he had not had the slightest idea of substituting the iodoform injections for mechanical treatment, but he had thought that it could not fail to be a valuable adjunct to this treatment, on account of its well-known influence upon the tubercle bacilli, and because the injections could be made so easily. In the case of knee-joint disease that he had described, where the rice and lemon-seed bodies were in such large numbers, he did not believe that mechanical treatment alone would have cured the case; in fact, the patient had had this treatment and had not been benefited by it.

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## Book Notices.

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*Text-book of Comparative Anatomy.* By Dr. ARNOLD LANG, Professor of Zoology in the University of Zurich, etc. With Preface to the English Translation by Professor Dr. ERNST HAECKEL, F. R. S., Director of the Zoological Institute in

Jena. Translated into English by HENRY M. BERNARD, M. A. Cantab., and MATILDA BERNARD. Part I. London and New York: Macmillan & Co., 1891. [Price, \$5.50.]

THE constantly increasing attention that is being given in our American colleges to the subject of comparative anatomy makes the appearance of this translation of Professor Lang's famous work particularly timely and appropriate.

In the commendatory preface to the volume Professor Haeckel states that the author has, more than any former writer, made use of the comparative history of development in explaining the structure of the animal body, endeavoring always to give the phylogenetic significance of ontogenetic facts.

The present volume has chapters on the *Protozoa*, *Metazoa*, *Platodes*, *Vermes*, and *Arthropoda*. Prefacing each chapter there is a systematic review of the various classes and orders of each race, and at the close there is a list of the important literature on the subject.

The volume contains almost four hundred excellent illustrations, and is provided with a good index.

*The Physician as a Business Man; or, How to obtain the Best Financial Results in the Practice of Medicine.* By J. J. TAYLOR, M. D. Philadelphia: The Medical World, 1891. Pp. 144.

THE physician is proverbially a poor business man. There is probably no class of men who realize so little financially from their labors and from the capital invested, and who lose so large a percentage of their just dues. The very nature of the general practitioner's duties renders a certain amount of loss a necessity which the humane man can never prevent. Much, however, is preventable by good business methods. Such methods the writer of this little book endeavors to explain, and with a fair degree of success. The general principles proposed are excellent, but details regarding fees and methods of collection can apply only to limited regions, as customs in these matters are so widely different.

The best part of the book is that devoted to a discussion of the true value of medical and surgical services. The doctor's losses are largely due to lack of appreciation of such value by himself as well as by the patient, by long terms of credit, and by carelessness and loose business methods.

*History of Circumcision from the Earliest Times to the Present. Moral and Physical Reasons for its Performance, with a History of Eunuchism, Hermaphroditism, etc., and of the Different Operations practiced upon the Prepuce.* By P. C. REMONDINO, M. D. (Jefferson), Member of the American Medical Association, of the American Public Health Association, and of the State Board of Health of California. Philadelphia and London: F. A. Davis, 1891. Pp. x-346.

THIS book, while it evinces great study and research and contains a vast store of information regarding the subjects of which it treats, contains also a large amount of rubbish, some of it extremely disgusting. It is a strange combination of science and balderdash. The astonishing statement is made that a large number of physicians have had themselves circumcised while in college or after entering practice, as the result of their own convictions regarding its value. The author's sympathy for "the unlucky and unhappy wearer of a prepuce" will seem to most readers to be wasted. The more serious and scientific parts are marred by his strong prejudice in favor of the operation, which has biased his judgment and rendered his conclusions of little value. From a literary point of view the work is slovenly in the extreme. As a history of circumcision, emascu-

lation, castration, eunuchism, infibulation, muzzling, and numerous other strange practices, it contains much that is curious and interesting, and will repay reading.

#### BOOKS, ETC., RECEIVED.

A Treatise on the Ligation of the Great Arteries in Continuity. With Observations on the Nature, Progress, and Treatment of Aneurysm. By Charles A. Ballance, M. B., M. S. Lond., F. R. C. S., Assistant Surgeon to St. Thomas's Hospital, etc., and Walter Edmunds, M. A., M. C. Cantab., Resident Medical Officer, St. Thomas's Home. Illustrated by Ten Plates and Two Hundred and Thirty-two Figures. London and New York: Macmillan & Co., 1891. Pp. xxviii to 568. [Price, \$10.]

The Chinese, their Present and Future: Medical, Political, and Social. By Robert Coltman, Jr., M. D., Surgeon in Charge of the Presbyterian Hospital and Dispensary at Teng Chow Fu, etc. Illustrated with Fifteen Fine Photo-engravings. Philadelphia and London: F. A. Davis, 1891. Pp. viii to 212. [Price, \$1.75.]

The Treatment of Typhoid Fever, and Reports of Fifty-five Consecutive Cases, with only One Death. By James Barr, M. D., Physician to the Northern Hospital, Liverpool, etc. Introduction by W. T. Gairdner, M. D., LL. D., Professor of Medicine in the University of Glasgow, etc. London: H. K. Lewis, 1892. Pp. x to 212.

Hospitals and Asylums of the World; their Origin, History, Construction, Administration, Management, and Legislation, etc. By Henry C. Burdett, formerly Secretary and General Superintendent of the Queen's Hospital, Birmingham, etc. London: J. & A. Churchill, 1891. Vols. i and ii. Pp. xvi—701; x—348.

Nursing in Abdominal Surgery and Diseases of Women. A Series of Lectures delivered to the Pupils of the Training School for Nurses connected with the Woman's Hospital of Philadelphia, comprising their Regular Course of Instruction on such Topics. By Anna M. Fullerton, M. D., Physician in Charge of and Obstetrician and Gynecologist to the Woman's Hospital of Philadelphia. Illustrated. Philadelphia: P. Blakiston, Son, & Co., 1891. Pp. xiii—17 to 284.

Syphilis in Ancient and Prehistoric Times. By Dr. F. Buret, Paris, France. Translated from the French, with Notes, by A. H. Ohmann-Dumesnil, M. D., Professor of Dermatology and Syphilology in the St. Louis College of Physicians and Surgeons. "Syphilis To-day among the Ancients." In Three Volumes. Volume I. Philadelphia and London: F. A. Davis, 1891. [Price, \$1.25.] [No. 12 in the *Physicians' and Students' Ready-reference Series.*]

Diseases of the Skin. A Manual for Practitioners and Students. By W. Allan Jamieson, M. D., F. R. C. P. Edin., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary, etc. Third Edition, revised and enlarged. With Woodcut and Nine Colored Illustrations. Philadelphia: Lea Brothers & Co., 1892. Pp. xvi to 644. [Price, \$6.]

Consumption: How to Prevent it and how to Live with it. Its Nature, its Causes, its Prevention, and the Mode of Life, Climate, Exercise, Food, Clothing necessary for its Cure. By N. S. Davis, Jr., A. M., M. D., Professor of Principles and Practice of Medicine, Chicago Medical College, etc. Philadelphia and London: F. A. Davis, 1891. Pp. viii to 143. [Price, 75 cents.]

Tubal and Peritoneal Tuberculosis, with Special Reference to Diagnosis. By George M. Edebohls, M. D., New York. [Reprinted from the *Transactions of the American Gynecological Society.*]

Addresses on Anatomy. I. Comparative Anatomy as a Part of the Medical Curriculum. II. On the Teaching of Anatomy to Advanced Medical Students. By Harrison Allen, M. D., Philadelphia.

The Treatment of Appendicitis, with Illustrated Cases. By J. E. Summers, Jr., M. D., Omaha. [Reprinted from the *Omaha Clinic.*]

The Relation of Orthopædic Surgery to General Surgery. By Newton M. Shaffer, M. D., New York. [Reprinted from the *Boston Medical and Surgical Journal.*]

Tumor of the Brain. A Clinical Lecture delivered at the Arapahoe County Hospital, October 31, 1891. By J. T. Eskridge, M. D., Denver. [Reprinted from the *Denver Medical Times.*]

Bromoform in the Treatment of Pertussis. By E. J. Mellish, M. D. [Reprinted from the *Chicago Medical Recorder.*]

A Case of Orbital Cellulitis and Primary Mastoiditis Interna complicating Influenza; Opening of Mastoid Process; Recovery. By Charles Zimmermann, M. D., Milwaukee. [Reprinted from the *Archives of Otolaryngology.*]

The Treatment of Inguinal Hernia. By Alexander Dallas, M. D., New York. [Reprinted from the *Medical News.*]

Biennial Report of the Board of Trustees and Superintendent of the East Mississippi Insane Asylum, for the Years 1890 and 1891.

Report of the Sixth Annual Meeting of the Association of Executive Health Officers of Ontario, held at Trenton, August 18, 19, and 20, 1891.

Roosevelt Hospital, New York. Twentieth Annual Report, from January 1, 1891, to December 31, 1891.

## Reports on the Progress of Medicine.

### REPORT ON OPHTHALMOLOGY.

By CHARLES STEDMAN BULL, M. D.

**Some Experiments to determine the Lesion in Quinine Blindness.**—De Schweinitz (*Ophth. Rev.*, February, 1891) gives the details of eight experiments on dogs, and draws the following conclusions: When quinine is given hypodermically to dogs in quantities varying from one grain to the pound to four grains to the pound, blindness, generally accompanied by other general disturbance, is apparent in from three to fourteen hours. The exact date of the onset of the loss of vision was not determined; the earliest date of its appearance after injection which was noted was three hours. The blindness remained practically complete in one animal twenty-nine days after a single injection of three grains and three quarters to the pound. In one there was slight return of vision after thirty-six hours of blindness. In these animals the ophthalmoscopic picture was similar to that seen among human beings with quinine amaurosis; in one there was complete obliteration of the vessels on the optic disc, and in another blurring of the edges of the optic discs. In all, the pupils were immovably dilated. There were no very gross lesions, with one exception, in either the cross-sections of the nerves, or in the optic-nerve entrances, or the retina. In one case there was decided dilatation of the blood-vessels, and the central vein was plugged with a clot, with long fibrin prolongations, while white thrombi filled the smaller veins. In the other cases there was some dilatation of the blood-vessels at the nerve entrance, but to a much smaller degree. The transverse cuts of the nerves did not exhibit any marked lesion. In a few there appeared to be some slight increase in the connective tissue. In others the nerve bundles between the trabeculae of connective tissue were wider than normal. As regards the brain, the same lesion was present in all instances in sections taken from the cuneus—namely, a remarkable dilatation of the pericellular lymph spaces, with degeneration of the protoplasm of the cell. In dogs blind for a month there was no atrophy of the nerve fibers in the sense in which the word is ordinarily used; nor was there any appearance in the earliest stage of the blindness of neuritis.

**Operations upon Eyes blinded by Sympathetic Ophthalmitis.**—Story (*Ophth. Rev.*, March, 1891) lays down the following propositions for discussion: 1. No operation should be performed on an eye until all signs of sympathetic inflammation have disappeared, unless the intra-ocular pressure is acutely glaucomatous. 2. If an operation must be performed for glaucoma during active "sympathy," it should be a corneal or scleral incision, and no iridectomy should be attempted. 3. When all inflammation has disappeared, the best method of operating is that of Mr. Critchett, by which the iris is not wounded, hemorrhage is reduced to a minimum, and the least possible occasion is given to inflammatory reaction; and, lastly, no large opening is made in the globe through which a fluid vitreous may escape, as it does occasionally through an iridectomy, in quantities sufficient to produce collapse of the eyeball.

**Aniridia and Glaucoma.**—Collins (*Ophth. Rev.*, April, 1891) reports three cases bearing on this subject. The *first* was in a man, aged thirty-four, who had good sight when a boy, but could not bear a bright light. For two years previous to his admission to the hospital there had been a gradual failure of sight in his left eye, while that of the right, previously defective, had improved. He had worn glasses of sph. + D. 6 for eighteen months. He had three children, two of whom had the same ocular malformation as himself. An examination showed complete absence of both irides. Some fine granular opacities and a few vacuoles were seen in the right lens. There was deep cupping of the optic nerve in this eye. The tension was increased and vision was  $\frac{3}{60}$ . The nasal and lower parts of the field were much contracted. The left lens was opaque, and tension of the left eye was increased. The *second* case was in a woman, aged twenty-two, with congenital aniridia in both eyes and a perforating ulcer of the right cornea. There was ptosis with marked nystagmus. The left eye was normal as to cornea and lens. The right eye was enucleated, and, on its being opened, the ciliary processes were found stretched and atrophied, especially in the region of the ciliary staphyloma. The optic disc was deeply cupped, and the retina and chorioid were detached. The filtration area of the cornea was blocked by the intimate bit of the rounded nodule in which the ciliary body terminated. The examination showed that the apparent complete congenital aniridia, or the presence of a congenital coloboma of the iris, did not diminish the likelihood of a relief of tension being obtained by a sclerotomy in the former case, or an iridectomy in the latter. The *third* case was in a man, aged twenty-six, who twelve years before had had the right eye wounded by a chisel, which had caused blindness. The blind and staphylomatous eye was excised. The examination showed a thinning and bulging of the sclerotic in the whole circumference of the globe; there was a dense white cicatrix passing across the entire cornea, and adherent to this was the lens capsule. The nucleus and most of the cortex of the lens were absent. There was complete aniridia; the ciliary body was stretched and atrophied, and the optic disc was deeply cupped. The ciliary processes were intimately adherent to the posterior surface of the cornea at its periphery, in the region of the ligamentum pectinatum.

**Results of operating in Cases of Xerosis coexisting with Trichiasis.**—Scott (*Ophth. Rev.*, June, 1891) reports two cases illustrating this subject. The *first* was in a man, aged forty-five, who had trichiasis and xerosis in both eyes. He was seen three months after the operation for trichiasis, and in both eyes the cornea, fully sensitive, was clear and its surface was polished. The lacrymal secretion was normal, and the ocular conjunctiva had quite lost its former dried appearance and was smooth, glistening, and sensitive. The *second* case was also in a man with exactly the same condition, but in one eye.

**Filamentous or Fibrous Formation in the Cornea.**—Czermak (*Kl. Mon. f. Aug.*, July, 1891) draws the following conclusions from his observations: 1. Exudative material coming from an inflamed conjunctiva may, in some way not yet perfectly understood, gain entrance into the cornea through some ulcerated spots. 2. These filamentous structures contain mainly leucocytes within their vitreous basic substance. 3. By the movements of the eyelid and eyeball they undergo a milling or rubbing, which causes deformity in the shape of the cells, and, by a pressing and rotation together, leads to the development of these spiral filamentous formations.

**Parageusia with Ophthalmoplegia.**—Wherry (*Ophth. Rev.*, June, 1891) describes the case of a man, aged forty-seven, who had homonymous diplopia, which increased on looking toward the right side. There were no signs of tabes or of active neuritis. Both irides were dilated and immovable. Vision was not affected. The attack began three days previously while at dinner. He noticed that everything tasted bitter, and there was occasional diplopia. Two weeks later there was marked divergence with crossed diplopia, though each eye could move separately in every direction. Convergence was impossible. Some spots of numbness were noticed on the outer side of the left thigh and left little finger. There was severe nocturnal pain in the head. The parageusia lasted acutely during five days. The external squint and dilatation of the pupils lasted ten days longer, and then disappeared gradually. It was thought probable that the ocular symptoms were due to a syphilitic

lesion affecting the nuclei of the third nerve about the aqueduct of Sylvius, probably very minute.

**The Treatment of Squint by Advancement of the Recti Muscles.**—Bronner (*Ophth. Rev.*, July, 1891) bases his opinions on the records of fifty cases of strabismus treated by advancement of one of the recti muscles according to Schweigger's method. He thinks it of the greatest importance that the size and condition of the muscle should be ascertained as nearly as possible before the advancement is performed. In many of the cases tenotomy of the antagonistic muscle was necessary, and in some tenotomy or advancement had to be done on the muscles of the fellow-eye. In cases of divergent strabismus, tenotomy of the externus and advancement of the internus were necessary. In no case should the same muscle be cut more than once. Bronner thinks that advancement of the muscle is the best operation in all cases in which the squinting is amblyopic, and in which the angle of deviation measures more than 30°.

**Incipient Cataract; its Ætiology, Treatment, and Prognosis.**—Risley (*Ophth. Rev.*, August, 1891) refers to former papers of his in which the opinion was urged that, by regarding the hard cataract as one of the unavoidable concomitants of old age, the tendency had been to overlook the more potent factors in its production to be found in the pathological states of the intra-ocular tunics. He thinks the opaque lens must be regarded as an extraordinary condition to be explained by other causes than senility. In many cases it is well known that the apparently progressing opacity of the lens can be arrested; in others, the rapidity of its increase can be greatly retarded, thus maintaining a useful acuity of vision for a longer time, and, failing in this, the treatment instituted will place the eye in a more favorable state for operative interference. There are many cases of eyes suffering from irritative and chronic inflammatory processes of the retina and chorioid, which, as a rule, do not present the gross ophthalmoscopic changes which characterize the more destructive forms of retinal and chorioidal disease. These eyes are weak eyes, suffering from "eye-strain," and the majority of them show some refractive error, usually astigmatism, as well as muscular anomalies. The uncorrected errors of refraction are doubtless the most frequent cause of the conditions here described. In these cases there are almost always some changes in the lens, usually peripheral, which might come under the head of "incipient cataract." The results of treatment in this group of cases, faithfully pursued, are sufficiently encouraging. The improvement of vision noted in almost all the cases successfully treated was *in no case due to the absorption of the opacities already formed in the lens*, but to the improved condition of the chorioid and retina and the clearing up of the vitreous webs, or the granular or sand-like deposit so frequently discovered in the anterior part of the vitreous body. The treatment adopted was to require as complete rest as possible from all work at a near point, the use of smoked glasses when exposed to bright light, and the local employment of mild washes and astringents to the conjunctival sac, together with the moderate use of mydriatics, preferably homatropine. Internally potassium iodide or ferrous iodide, and potassium bromide or lithia if headache was a marked symptom. Any existing error of refraction is to be carefully corrected, and the correcting glasses are to be worn constantly, suitable correction for a near point being allowed for all necessary work. Risley draws the following conclusions: 1. Cataract, though a disease of advanced life, is not necessarily a senile change, but originates in local pathological states involving the nutrition of the eye itself. 2. In the stage of incipient cataract is amenable to treatment by such measures as are calculated to remove the pathological conditions upon which it depends, and we are justified in giving a more hopeful prognosis to many persons with commencing cataract. 3. Although the treatment may fail to arrest the progressive degeneration of the lens, the eye will still be in a better condition to undergo the trials of surgical interference.

**The Consensual Pupillary Light Reflex in Cases showing the Argyll Robertson Pupil Symptom in One Eye.**—Jessop (*Ophth. Rev.*, August, 1891) gives notes of five such cases; three were cases of tabes, one of doubtful tabes, and one probably of sclerosis of the posterior and lateral columns. In all, though the contraction of the pupil associated with accommodation was present in both eyes, the direct and consensual light reflex was lost in one and the same eye. In all

the cases the consensual light reflex was present in the sound eye, thus showing that the optic nerve was capable of carrying impulses to the light-reflex center of the opposite eye. The lesion in these cases is probably one affecting the light-reflex center for one eye near the terminations of the afferent part of the reflex arc. These cases strengthen and uphold the theory of the decussation of the optico-pupillary fibers.

**The Action and Uses of Prismatic Combinations.**—Percival (*Ophth. Rev.*, October, 1891) believes that prisms which correct the muscular defect completely will be almost always successful in these cases of hyperphoria, as the error in each eye rarely exceeds  $2^\circ$ , and is generally much less. The tendency to deviation in the horizontal plane requires closer study. There are two classes of cases of this nature which must be carefully distinguished: First, those characterized by feebleness of one or more of the muscles, with which is associated an impairment of movement. Second, those in which the range, though not contracted in extent, is in an unavailable situation. In such cases, indeed, the amplitude of the movement is often greater than normal, yet symptoms arise owing to the fact that the position of minimum tension is not consistent with parallelism of the visual axes. In the first class of cases, due to muscular weakness, prisms to relieve the defect should never be given if cure of the affection is the object in view. Progressive deterioration of the condition, necessitating repeated alterations in the glasses, is almost invariably the result if this line of action is pursued. It sometimes happens that our object is not to cure the affection—that is, in those paralytic cases which we regard as incurable. It is in the second class of cases—in those in which the range of movement is represented by an angle of  $18^\circ$  or more—that prismatic combinations may be ordered to be constantly worn, and here they are only applicable when the error is not greater than  $2^\circ$  in each eye. If the defect exceeds this limit, tenotomy of the preponderating muscles is indicated. Tenotomy has the disadvantage of diminishing the amplitude of movement, so that, unless the range is of the normal extent, advancement of the feeble muscles would be preferable, as thus the range is increased in amplitude, while it is also rendered more available by the alteration of its position.

**The Correction of Aphakia by Glasses.**—Dimmer (*Kl. Mon. f. Aug.*, April, 1891) thinks that when a spherocylindrical lens is ordered for an aphakial eye, after the usual method of examination, the glass as ground by the optician overcorrects the error. This is particularly the case in spherical lenses of more than D. 10, in combination with a cylindrical lens, and the visual acuity may thus be apparently decidedly diminished. In order to avoid this it is necessary to determine the error of refraction by a plano-convex spherical glass placed in front of the cylindrical glass in the test-frame.

**The Ophthalmoscopic Appearances in Hypermetropia and their Significance.**—Bristowe (*Ophth. Rev.*, November, 1891) considers that the peculiar appearance called the "hypermetropic disc" is found at all ages, and probably continues through life. It in no way interferes with the acuteness of vision, nor damages the usefulness of an eye, nor has it any definite relation to the degree of hypermetropia. An intense "pseudo-neuritis" may be present with a very low degree of error. The "watered-silk" retina exists only in early life, probably to infancy, and disappears with the advent of puberty. The "concentric striation" appears under exactly the same conditions as does the "watered-silk" retina, and like it has no relation either to the acuteness of vision or to the degree of error. He thinks there are two forms of hypermetropia—one where the eyeball is fully formed but has an abnormally small antero-posterior diameter, and another in which the hypermetropia is due to the immature development of the globe and its contents.

**Papilloma of the Cornea.**—Ayres (*Ophth. Rev.*, September, 1891) reports a case of this nature occurring in a woman, aged fifty, who had a large growth on the anterior portion of the left eye, involving the entire front of the ball. It looked like a cauliflower and projected one centimetre from the sclera; its horizontal diameter was 3.5 centimetres and its vertical diameter two centimetres. It began to grow six years before. Four years later it was excised, but grew again very rapidly. A portion was then excised every few weeks for six months. In August, 1887, it was as large as a hazel-nut and protruded between the lids. In August and September, 1887, small portions

were again cut away. In May, 1889, it had grown to an immense size, and was removed by Ayres, together with the eyeball. On examination, its structure was found to consist of exceedingly delicate papillæ, which appeared to spring from almost the entire anterior surface of the cornea. The growth probably originated in the conjunctiva.

**The Pathology of the Ophthalmoplegiæ.**—Collins and Wilde (*Ophth. Rev.*, October, 1891) point out in this paper that accumulating evidence makes it impossible any longer to regard a group of symmetrical oculo-motor paralyses as isolable into a unique malady called ophthalmoplegia, but that these must be considered in relation to ocular moroplegia on the one hand, and bulbar paralysis, locomotor ataxy, and infantile spinal paralysis on the other. The so-called ophthalmoplegia interna can no longer be classed as a peripheral palsy or as due to disease of the lenticular ganglion. Anatomical, physiological, and clinical facts point to nuclear lesion, most probably in the anterior part of the floor of the aqueduct of Sylvius. The authors have collected 141 cases of ophthalmoplegia. Syphilis was the cause in at least thirty-three per cent. When palsy of either iris or ciliary muscle coexisted with extra-ocular palsy, it was more frequently the former, which fact was a corollary to the accepted relation of the centers for them in the nucleus of the third nerve.

**A Theory of Glaucoma.**—Rheindorf (*Kl. Mon. f. Aug.*, February, 1891) does not believe that the existence of increased tension alone, or the so-called typical pressure excavation alone, or both these symptoms together, suffice to justify a diagnosis of glaucoma. There must be also present the clinical symptoms in the pupil, iris, and anterior chamber. He advises the removal of the transparent or cloudy lens in glaucoma, and rupture of the hyaloid membrane under the following circumstances: 1. When the anterior chamber does not re-establish itself after iridectomy. 2. When the anterior chamber does re-establish itself, but the visual acuity continues to diminish. 3. In absolute glaucoma in place of enucleation.

**The Formation of Vesicles at the Equator of the Lens.**—Magnus (*Kl. Mon. f. Aug.*, September, 1891) describes a peculiar pathological condition met with in some eyes. It consists of large vesicles along the equator of the lens and involving the neighboring parts of the lens. They are cone-shaped, perfectly transparent, and of varying size. Their broad bases rest against the surface of the lens and their points extend partly into the posterior chamber and partly into the canal of Petit. The cone-shape is always marked, but the slope from base to apex is gradual. The surface is smooth and without a wrinkle. The lens in their vicinity is perfectly transparent. The shape of the cones varies with the direction of the illumination. Sometimes these cones form a continuous circle round the lens. Magnus thinks that they have some connection with the fibers of the zonule. They vary in number as well as in size. They are probably produced by an exudation of fluid beneath the capsule, which lift the latter like a vesicle from the stratum beneath.

**The So-called Blennorrhœa of the Lacrymal Sac in New-born Infants.**—Peters (*Kl. Mon. f. Aug.*, November, 1891) thinks there are a number of such cases in very young infants which are not caused by inflammation of the mucous membrane, and hence should not be called "blennorrhœa." They are due to a defective absorption of the tissue at the entrance of the lacrymal duct, which hinders the exit of the cellular material in the lumen of the duct. There is therefore an actual atresia of the lacrymal duct. Here it suffices to press out the contents of the sac and then to fully irrigate the eyes, in order to bring about a perfect cure.

**A Case of Malignant Fibroid of the Orbit.**—Dunn (*Amer. Jour. of Ophth.*, December, 1890) describes an interesting case of orbital tumor occurring in a negro, aged nineteen, who had a growth protruding from between the lids of his left eye. It had made its appearance about nine months previously. Four months before the growth had been partially removed. Since then it had grown very rapidly, and when Dunn saw him it had filled the interpalpebral space. It consisted of two parts, an encapsulated central part and its prolongations along the conjunctiva and subconjunctival tissue of the lower *cul-de-sac*. The encapsulated portion was as large as a hickory-nut and pushed the eye upward and backward. The eyeball was apparently perfectly healthy,

but below were a number of small vessels running from the tumor to the edge of the cornea. The surface of the growth was red, rough, and warty, and was covered with a dirty, purulent secretion. It was sensitive to the least pressure. The eyeball was first enucleated, and the growth was then removed in what seemed its entirety. It was nowhere adherent to the eyeball. On section, it was found to consist mainly of bands of fibrous tissue and individual fibrille, and contained but few small round cells.

**The Treatment of Blepharospasm.**—Allport (*Amer. Jour. of Ophth.*, January, 1891) advises that spasm of the orbicularis muscle be treated systematically by stretching its fibers forcibly. The procedure consists merely in placing a strong, short speculum between the lids, and opening its blades until it is deemed that the muscle has been thoroughly stretched. The speculum is then firmly set and allowed to remain in its expanded condition for about five minutes, when it should be removed. The procedure is quite painful, and in some cases may require general anesthesia. It is often advisable to repeat the operation several times at intervals of a few days.

**The Injurious Influence of the Accommodation upon the Increase of Myopia of the Highest Degrees.**—Fukala (*Amer. Jour. of Ophth.*, March, 1891) considers that the loss of the power of accommodation in myopes of the highest degree is not a disadvantage, but is of considerable advantage. The use of the accommodation, according to eminent authors of our own times, injures such eyes, in that the myopia is increased, because accommodation increases the intra-ocular pressure. Myopes use their accommodation less than hypermetropes, therefore the accessory portion (or circular fibers) atrophies. The atrophy once begun, and being transmitted by heredity, is certain to progress, as does also the elongation of the optical axis. Under the influence of this condition the ciliary muscle is more and more changed into a tensor chorioideæ, which in its turn causes the pathological changes in the sclerotic and chorioid. By its contraction the ciliary muscle of the myope must necessarily pull more forcibly on the chorioid than the muscles of the hypermetrope, in whose eyes the circular fibers are much more developed.

**Remarks on the Ophthalmometer of Javal and Schiotz.**—Ostwald (*Rev. gén. d'ophthal.*, March 31, 1891) draws the following conclusions from his use of this instrument: 1. This ophthalmometer indicates exactly the radius of the cornea. 2. The number of dioptries indicated by the instrument is a quarter too great. 3. The steps of the sight are also a quarter too great. 4. The astigmatism of the cornea is therefore only about three quarters of what the instrument shows. 5. A good part of what has been regarded as correcting contractions of the ciliary muscle is explained by this difference between the values indicated by the ophthalmometer and the actual values of the corneal astigmatism. 6. Hence the results and conclusions from the observations made with this ophthalmometer must be carefully controlled by other means of examination. 7. The ophthalmometer of Leroy and Dubois has much greater precision, though even here the values given are a quarter too great.

**The Refracting Power of the Cornea; Ophthalmometry and the Correcting Cylinder for the Corneal Astigmatism.**—Ostwald (*Rev. gén. d'ophthal.*, May-June, 1891) gives the following *résumé* of his observations: 1. The refracting power of different meridians of the cornea is found a quarter too large by the ophthalmometers actually in use. The same is true of the corneal astigmatism. 2. The corneal astigmatism is not identical with the correcting glass placed in front of the cornea, but is a quarter less. The correcting cylinder should not be considered as a separate and distinct glass. It only represents the difference between the two spherical glasses which correct the ametropia of the two principal meridians.

**The Micro-organism of Trachoma, Microsporion Trachomatosum.**—Noiszewski (*Ctrbl. f. prakt. Aug.*, March, 1891) has discovered a micro-organism which differs from any hitherto described. By the aid of a certain solution of gold and glycerin and by the simultaneous action of the sun's rays on the degenerated tissue of the conjunctiva, he has found the micro-organisms of trachoma, which consist of mycelium, hyphens, and conidia in irregular masses. He has succeeded in producing cultures on gelatin and causing them to grow in calves' eyes, and in these cultures the long, perfectly straight lines of *Micro-*

*sporion trachomatosum* are very characteristic. Inoculations of pure cultures upon the conjunctiva of rabbits always give positive results, but only after four or five weeks have elapsed.

**The Action of Tuberculin on the Inoculated Tuberculosis of the Rabbit's Eye.**—Alexander (*Ctrbl. f. prakt. Aug.*, July, 1891) gives the following results of his experiments: 1. The tuberculous process in the eye was not arrested by the injections, but steadily advanced. 2. The necrosis of the tuberculous tissue showed no difference in any of the animals under observation. 3. Hemorrhages appeared in all three of the injected cases, but did not occur in the fourth animal, used for a check experiment. 4. The number of tubercle bacilli were much greater in the three injected animals than in the fourth "control animal." 5. The shape and appearance of the bacilli were in all cases perfectly normal.

**A Case of Lepra of the Eye.**—Hirschberg (*Ctrbl. f. prakt. Aug.*, October, 1891) reports a case of nodular lepra of the eye occurring in a Greek, aged thirty-nine, who had lived for ten years in upper Egypt, and who had suffered from general lepra for about six years and from ocular lepra for a year. The right eye read Sn. XII at six inches, the left eye read Sn. 1½ at the same distance. On the temporal margin of the cornea in the right eye there was a reddish nodule on the sclera, about 8 mm. long in a horizontal diameter, 6 mm. wide, and 4 mm. thick. The nodule encroached on the cornea. There was a grayish exudation upon the iris in the inferior quadrant reaching to the periphery. There were also posterior synechie. The left eye showed a similar but smaller nodule exactly at a corresponding spot, which was partially separated from the cornea, but sent a tongue of infiltration into the cornea. The patient declined any operative interference.

**The Gland of the Aqueous Humor, Ciliary Processes, or Uveal Tract.**

—Nicati (*Arch. d'ophthal.*, xi, 1 and 2) draws the following general conclusions from his investigations: The aqueous humor is secreted by the surface which covers internally the ciliary processes, from the ora serrata to the commencement of the iris. Conducted by the canal of Petit, the openings of the spaces between the ciliary processes and the suspensory ligament, the posterior chamber and the pupil, it is emptied into the anterior chamber, whence it is absorbed by the lymphatic channels of the iris. This secretion is the product of a gland, the uveal gland, composed of an epithelium (pars ciliaris retinæ), a vascular and serous well or spring (the chorio-capillaris), and a contractile apparatus (the cilio-chorioid muscle), which accumulates the blood in the well. There are two kinds of aqueous humor: the ordinary, non-fibrinous variety, and the fibrinous or neuro-paralytic variety. The ordinary, non-fibrinous variety is secreted by the glandular epithelium, which interposes as a barrier to the salts introduced by the blood. It does not diffuse these salts unless the blood contains an inordinate quantity of them. Division of the cervical sympathetic favors this diffusion. The liquid of the anterior chamber is subject to an incessant movement of circulation, which prevents stasis and the deposit of opacities on the posterior surface of the cornea. The fibrinous variety, which is produced when the anterior chamber has been emptied, or the nerves of the cornea have been divided, is secreted by the interstices between the epithelial cells. Physiologically it is a reflex secretion provoked by a disturbance of equilibrium between the ocular pressure and the blood pressure. The nerves of the deep corneal layers are the peripheral seat of this reflex. The nervous mechanism of the fibrinous secretion consists of a secretory apparatus constantly in a state of tension, situated in the ophthalmic ganglion, and of an inhibitory apparatus situated in the medulla and ganglion of Gasser. The reflex or secretion occurs whenever the inhibition is suspended, either automatically by puncture, or directly by experimental division of the trifacial. Irritation of the iris and isolated paralysis of the blood-vessels of the eye hasten and exaggerate the reflex. Two pathological conditions are the result of diseased conditions of this uveal gland—glaucoma and detachment of the retina. Glaucoma is, generally speaking, synonymous with retention of the aqueous humor. This retention in youth produces distention of the channels and spaces in which the aqueous humor circulates, or anterior hydrophthalmia. It provokes, by compression of the retina, venous stasis in this membrane and in the vitreous—that is, œdema of the retina and vitreous, or hydrophthalmia posterior. The acute attack is induced by spasmodic œdema of the chorio-capillaris consecutive to irrita-

tion of the iris. The progressive anterior detachment of the retina is produced by the aqueous humor flowing through a rupture of the canal of Petit.

**Destruction of the Lacrymal Sac by the Thermo-cautery and its Total Extirpation in Fistulæ and Rebellious Tumors.**—Terson (*Arch. d'ophthal.*, xi, 3) draws the following conclusions: 1. In lacrymal fistulæ, cauterization of the sac by the thermo-cautery should be done as soon as the ordinary means of treatment have failed. 2. In certain cases of purulent inflammation, with slight dilatation and without fistula, the thermo-cautery should be employed. 3. In voluminous lacrymal tumors, and especially when the pocket is encysted, the total extirpation of the sac, followed or not by the thermo-cautery, gives the most satisfactory results.

(To be continued.)

## Miscellany.

**The Systematic Use of the Eye in Teaching Anatomy.**—The *Medical News* for February 13th publishes the following abstract of a paper read by Dr. W. P. Carr, of Washington, at the recent meeting of the Association of American Anatomists:

In this iconoclastic age a sentiment seems to be growing among medical men that lectures are of little use for didactic purposes. I wish to enter my protest against this idea, and to point out what I consider an important method of enhancing their value. The aim of the lecturer, I take it, is not so much to teach anatomic details that are much better learned from books and dissections, as to teach the student, first, how to study, how to understand, how to fix in mind the broad outlines and principles of the laws of morphology, the meaning of structures; and, secondly, to teach him those methods of observation that will enable him to add the necessary details for himself. In doing this we all recognize the importance of engaging the eye as well as the ear of the student. I have become more and more convinced of the importance of a systematic appeal to the student's eye and ear at the same time, and more and more convinced that word-pictures alone, no matter how forcible and true, make but comparatively dim and transient impressions upon the brain. Most anatomic facts are remembered by means of mental pictures—mental photographs upon the brain. Suppose you wish to remember the shape of some object. You call up a mental picture of it that you have, at some former time, stored away in your brain. Not only so, most of these mental photographs are composite photographs, made by numerous impressions, placed one over the other. Especially is this the case when the object to be remembered is a familiar one; and frequently, blended in the general outlines of the picture, and yet distinct, you may recognize some individual object of the class you wish to recall. Let me mention the great trochanter of the femur. Immediately there rises before your mind's eye a representation of the upper end of that bone. You see the trochanter, its position, shape, and relations; and most likely you recognize in the composite the outlines of some particular femur that you have handled oftenest, or that diagram in your anatomy that so frequently meets your eye. These facts show, I think, that it is by means of composite mental photographs that we retain the memory of form, memory of relation, and memory of position. The important question is how best to produce and fix these images.

Naturally, different persons possess in very different degrees this power of mental photography, as is evidenced by the ease with which some recall the features of absent friends, and the utter lack of such ability in others. But I am sure the faculty can be cultivated and brought to a satisfactory degree of efficiency in all, or nearly all, persons. To do this we must begin with simple figures, and gradually add details. Every one can remember such simple figures as the cross, square, circle, etc., but few can carry in mind a complicated arabesque. I think the older anatomists had some such idea in mind when they tried to find in the bones fanciful resemblances to familiar objects.

They were trying, perhaps unconsciously, to use some simple image already formed upon the brain as a durable basis upon which to build a more elaborate composite. But the idea may to great advantage be carried much further. I shall never forget how, when beginning the study of anatomy, I was helped in fixing the human ethmoid by a few chalk marks placed upon the board by my professor, Dr. Elliott Canes [Coues?]. Simply a cross, to represent a front view of the vertical plate and crista galli, and the horizontal plate, and an oblong mass of white suspended from the arm of each cross, to represent the lateral masses. By comparing this image with the bone itself, a mental photograph was formed too simple ever to be forgotten. Having formed in this way a simple, durable image, it becomes an easy matter to modify it in detail. We may add the turbinal processes, the ossa plana, show their relation to the orbits and the frontal bone, and, having gone as far as convenient with the chalk, refer to more elaborate diagrams for details, and finally let the student finish by studying the bone itself. And how much more intelligently he can do it after we have prepared him in this way, by giving him a simple, durable, but plastic image as a basis, and by explaining to him the morphologic significance of the bone, as well as other interesting and practical facts relating to it. All the other bones may be treated in the same manner. The superior maxilla, for instance, may be built up on a triangular pyramid; the scapula upon a triangular prism, corresponding exactly to the triangular rod of cartilage from which it is developed; and even a bone of as variable form as a vertebra may be illustrated in such manner that a composite mental photograph of it is formed in which all of its variations are recognized, from the stunted tip of the coccyx to the typical dorsal vertebra, or the occipital bone, and even the other vertebral segments of the skull.

The ruder the drawing the better, for we do not now wish to impress the shape of the component parts, but the shape of the bone as a whole, and the relative position of its parts simply represented by masses of black and white.

There are, however, some things that can not be illustrated by even the most carefully prepared flat picture. Such things as the facial nerve in the aqueduct of Fallopius, the ventricles of the brain, the fissure of Sylvius, can not be drawn satisfactorily upon a plane surface. It is impossible to show the thing itself to a large class of students on account of its small size. In such cases we must resort to models large enough to be seen from all parts of the room. It will not answer to have a small model in the hands of each student, unless, with a pointer, we have a demonstrator stand over each student as the lecture proceeds. For teaching purposes I have a large, rough model of the left side of the brain, made of papier-maché, five feet long and yet light and easily handled. It is rough and apparently simple-looking, and yet I can show upon it the relative position and general shape of nearly every important part of the brain, both internal and external. I conceived the idea of making it mainly to show what I can not show in diagrams, the lateral ventricle, particularly its descending horn, the manner in which the pia mater enters to form the chorioid plexus, the velum interpositum, etc., and the fact that the five vesicles of the foetal brain remain distinct in the adult.

My conclusions are:

1. That we remember form, position, and relations by means of mental photographs.
2. That these are composite photographs.
3. That they may be easily modified from time to time, but can not be easily effaced or radically altered.
4. That these images are formed by the eye and understood through the ear.
5. That the power of mental photography varies in different persons, but may be cultivated in all, or nearly all, to a satisfactory point.
6. That the way to do this is to produce, first, a very simple impression, which, consequently, will be durable; and then more and more complicated images, that will not only coincide with and strengthen the first, but will, at the same time, add the necessary details.
7. That in doing this the primitive designs are best drawn upon the blackboard before the student's eyes; and that, afterward, a series of large diagrams should be used, or models in case diagrams are not satisfactory.

8. That the student is by these means taught how to appreciate and study Nature for himself in a calm, scientific, and observing manner.

An Army Medical Board will be in session in New York city, N. Y., during April, 1892, for the examination of candidates for appointment in the Medical Corps of the United States Army, to fill existing vacancies. Persons desiring to present themselves for examination by the board will make application to the Secretary of War, before April 1, 1892, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from whence they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates, based on personal knowledge, from at least two physicians of repute as to professional standing, character, and moral habits. The candidate must be between twenty-one and twenty-eight years of age, and a graduate from a regular medical college, as evidence of which his diploma must be submitted to the board. Further information regarding the examinations may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

The Medical Department of the Army consists of one surgeon-general with the rank of brigadier-general; one assistant surgeon-general, one chief medical purveyor and four surgeons with the rank of colonel; two assistant medical purveyors and eight surgeons with the rank of lieutenant-colonel; fifty surgeons with the rank of major; and one hundred and twenty-five assistant surgeons with the rank of first lieutenant of cavalry for the first five years of service, and of captain of cavalry subsequently until their promotion by seniority to a majority.

With the rank stated in each case the pay and emoluments of the rank are associated. The salary of each grade is a fixed annual sum payable monthly; but at the end of each period of five years of service the annual sum representing the pay of the grade is increased by ten per cent. until forty per cent. is added. After twenty years of service the forty per cent. additional continues to be drawn, but the further increase of the pay by ten per cent. additions ceases—*i. e.*, an officer, although he may have served twenty-five or thirty or more years, can, under existing laws, have no more than forty per cent. added to his pay proper by way of increase for length of service. The pay of a first lieutenant of cavalry, or of a medical officer during the first five years of his service, is \$1,600 a year, or \$133.33 a month. At the expiration of his five years of service he becomes, by virtue of that fact, a captain, and his pay is that of a captain of cavalry, \$2,000 a year, increased by ten per cent. for his years of service, *viz.*, \$2,200 annually, or \$183.33 monthly. At the end of his tenth year of service this rate of pay is increased by the service-addition to \$2,400 annually, or \$200 a month, and after five years more the service-addition makes his pay \$2,600 annually, or \$216.67 a month. If he continues in the rank of captain, at the end of twenty years of service his monthly pay becomes \$233.33; but about this time promotion to a majority is usually obtained, and a major's annual pay of \$2,500 with forty per cent. added, makes the monthly pay of the major and surgeon \$291.67. Subsequent promotion, investing the individual with the rank of lieutenant-colonel, colonel, and brigadier-general, augments the monthly pay respectively to \$333.33, \$375, and \$458.33. Compulsory retirement at the age of sixty-four years increases the rapidity of promotion to the younger men; and when retirement is effected, either by age or by the accidents of service prior to reaching the retiring age, the rate of pay subsequently drawn is seventy-five per cent. of the total salary and increases of the rank held by the individual at the time of his retirement. Thus, a major retired for broken health after twenty years' service draws seventy-five per cent. of \$291.67 a month; a colonel retired for age, seventy-five per cent. of \$375. The medical officer has the right of selecting quarters in accordance with his rank, and when stationed in a city where there are no Government quarters, commutation money, intended to cover the expense of house rent, is paid to him. The Government provides forage and stable room for the horses of the medical officer, and when he is traveling under orders the expenses of transportation are paid by the Quartermaster's Department.

Among the privileges granted to medical as to other officers of the army is that of leave of absence on full pay. The authorized leave

amounts to thirty days annually. This leave is not forfeited if not taken during the year, but is credited to the officer, who may thus accumulate a continuous leave of four months on full pay. If he desires to be absent for a longer period than four months, and the permission is accorded him, he is reduced to half pay for all time in excess of the four months or maximum of accumulated leaves of absence. Absence from duty on account of sickness does not affect the relations of the officer with the paymaster; he continues to draw full pay.

A commission in the Medical Department of the Army is an instrument which is good for life, premising conduct consistent with its retention on the part of its possessor; but it involves no contract which binds the individual to service for any given number of years. On the contrary, should the medical officer find on experience that civil life has greater attractions for him than that of the army, there is nothing to prevent him from at any time tendering the resignation of his commission.

A young medical officer on appointment is usually assigned to duty for a few months at some large post where there are other officers of his department, to afford him opportunity of becoming acquainted with the requirements of the Army Regulations and the routine duties of military life. After this he goes to some post west of the Mississippi River, where he serves a tour of duty of four years. An assignment in the East follows the leave of absence which is usually taken at this time; and in after years his stations are selected so as to give him a fair share of service at what may be called desirable posts as an offset to the time spent at less desirable stations.

Candidates for appointment to the Medical Corps should apply to the Secretary of War for an invitation to appear before the Army Medical Board of Examiners. The application should be in the handwriting of the applicant, should give the date and place of his birth and the place and State of which he is a permanent resident, and should be accompanied by certificates based on personal acquaintance from at least two persons of repute as to citizenship, character, and moral habits. Candidates must be between twenty-one and twenty-eight years of age (without any exceptions), and graduates of a regular medical college, evidence of which, the diploma, must be submitted to the board. The morals, habits, physical and mental qualifications, and general aptitude for the service of each candidate will be subjects for careful investigation by the board, and a favorable report will not be made in any case in which there is a reasonable doubt.

The following is the general plan of the examination:

1. The physical examination will be rigid; and each candidate will, in addition, be required to certify "that he labors under no mental or physical infirmity or disability of any kind which can in any way interfere with the most efficient discharge of any duty which may be required."

2. Oral and written examinations on subjects of preliminary education, general literature, and general science. The board will satisfy itself by examination that each candidate possesses a thorough knowledge of the branches taught in the common schools, especially of English grammar, arithmetic, and the history and geography of the United States. Any candidate found deficient in these branches will not be examined further. The examination on general science will include chemistry and natural philosophy, and that on literature will embrace English literature, Latin, and history, ancient and modern. Candidates professing proficiency in other branches of knowledge—such as the higher mathematics, ancient and modern languages, etc.—will be examined therein, and receive due credit for their special qualifications.

3. Oral and written examinations on anatomy, physiology, surgery, practice of medicine, general pathology, obstetrics, and diseases of women and children, medical jurisprudence and toxicology, materia medica, therapeutics, pharmacy, and practical sanitation.

4. Clinical examinations, medical and surgical, at a hospital, and the performance of surgical operations on the cadaver.

Due credit will be given for hospital training and practical experience in surgery, practice of medicine, and obstetrics.

The board is authorized to deviate from this general plan whenever necessary, in such manner as it may deem best to secure the interests of the service.

The board reports the merits of the candidates in the several branches of the examination, and their relative merit in the whole, according to which the approved candidates receive appointments to existing vacancies, or to vacancies which may occur within two years thereafter. At the present time there are fifteen vacancies to be filled.

An applicant failing in one examination may be allowed a second after one year, but not a third.

No allowance is made for the expenses of persons undergoing examination, but those who are approved and receive appointments are entitled to transportation in obeying their first order assigning them to duty.

**Mortality in Cities in the United States.**—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyuan, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for February 12th :

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—									
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Meningitis.	Whooping-cough.
New York, N. Y.....	Feb. 6.	1,515,301	790	79	1	1				424	18	16	7
Brooklyn, N. Y.....	Feb. 6.	806,343	387	49						22	18	1	
St. Louis, Mo.....	Jan. 30.	451,770	192							4	3	8	
St. Louis, Mo.....	Feb. 6.	451,770	194							6	5	5	
Boston, Mass.....	Feb. 6.	448,477	185	23						1	7	5	3
Baltimore, Md.....	Feb. 8.	434,439	213	34						13	22	1	
San Francisco, Cal.....	Jan. 30.	298,997	18							3	1	3	1
Cincinnati, Ohio.....	Feb. 5.	296,908	135	15						4	1	4	
Cleveland, Ohio.....	Feb. 6.	261,353	105	4							3	3	12
Pittsburgh, Pa.....	Feb. 6.	238,617	112	8						10	10	1	
Washington, D. C.....	Jan. 30.	220,392	170	16						2	1	1	
Detroit, Mich.....	Jan. 30.	205,876	118							6	3	3	
Detroit, Mich.....	Feb. 6.	205,876	91							1	3	4	
Minneapolis, Minn.....	Feb. 6.	164,728	51							2	2	1	
Louisville, Ky.....	Feb. 6.	161,129	65	4							2		
Rochester, N. Y.....	Jan. 30.	133,896	65	11						1	2		
Rochester, N. Y.....	Feb. 6.	133,896	50	3						2	1	2	
Kansas City, Mo.....	Jan. 23.	132,716	33	6						1	1	1	
Kansas City, Mo.....	Jan. 30.	132,716	27	5							1		
Providence, R. I.....	Feb. 6.	132,145	69										
Denver, Col.....	Jan. 23.	106,713	36	7							1	2	
Denver, Col.....	Jan. 30.	106,713	22	4							4		
Indianapolis, Ind.....	Feb. 6.	105,436	32	3						2	3		
Toledo, Ohio.....	Feb. 5.	81,434	25								1		
Richmond, Va.....	Jan. 30.	81,388	34	7									
Richmond, Va.....	Feb. 6.	81,388	29	3						1			1
Nashville, Tenn.....	Feb. 6.	76,168	17	5								1	
Portland, Me.....	Feb. 6.	35,425	23								1		
Binghamton, N. Y.....	Feb. 6.	35,065	17	2						2		3	
Mobile, Ala.....	Feb. 6.	31,076	22	3									
Altoona, Pa.....	Dec. 5.	30,337	6									1	
Altoona, Pa.....	Dec. 12.	30,337	9									2	
Altoona, Pa.....	Dec. 19.	30,337	11	3								1	
Altoona, Pa.....	Dec. 26.	30,337	16	2								1	
Altoona, Pa.....	Dec. 31.	30,337	6									1	
Galveston, Texas.....	Jan. 29.	29,081	15	2									
Auburn, N. Y.....	Feb. 6.	25,858	13	2									
San Diego, Cal.....	Jan. 20.	16,159	8										
Pensacola, Fla.....	Jan. 30.	11,750	3								1		
Pensacola, Fla.....	Feb. 6.	11,750	10	2									

**The Function of the Hair-tufts in Man.**—In the January number of the *Journal of Anatomy and Physiology*, says the *Lancet*, Dr. Louis Robinson formulates a theory to account for the persistence in man of the tufts of hair usually present in the axillæ and over the pubes. These he imagines to be the persistent remnants of hair-tuft developed with reference to the clinging or grasping power of the young, and as a means of enabling them to cling to the parent when he or she, as the case might be, was not in a position to spare an arm without much imperiling the chances of escape or rendering movement difficult. Naturalists have observed that young apes hang beneath the body of the mother and sustain themselves by grasping the hair, and it is stated that certain male gibbons assist in carrying the helpless young. It is an interesting point that in these apes the period of immaturity is prolonged almost as much as in man. Other considerations which Dr. Robinson looks upon as supporting his theory are the appearance of the hair at puberty, its appearance in both sexes, and the fact that it often appears earlier and more plentifully on the female. It also exists in parts where the young of tree-climbing animals could attach their hands without danger of violent contact from obstacles, and Dr. Robinson has ascertained by measurement that in most cases the situation of the axillary and pubic tufts is within easy reach of the hands

and feet of infants when their limbs are extended, if the body of the adult is in the position taken by that of an anthropoid ape in climbing. The theory is no doubt ingenious; but objections to it readily occur. Dr. Robinson considers some of the most obvious of these, such as the existence of similar hair elsewhere and the sensitiveness exhibited by the skin when the hair in those parts is pulled. These, of course, are capable of being explained; but the theory would be very much strengthened if any example could be quoted of an anthropoid ape in which these tufts are actually used in the manner suggested by the author. Their development, if the theory is correct, must have been very much greater in his ancestors than it is in man at the present time to account for their persistence now, not only in the absence of any use for them for so many ages, but actually in spite of very considerable drawbacks to their existence, such as must exist in the friction to which they are exposed.

**The New York Academy of Medicine.**—At the next meeting of the Section in Obstetrics and Gynæcology, on Wednesday evening, the 25th inst., the following papers are to be read: Floating Kidney and Disease of the Generative Organs in the Female, by Dr. T. Schmitt; and Manual Rectification of Occipito-posterior Positions, by Dr. Egbert H. Grandin.

**To Contributors and Correspondents.**—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Lectures and Addresses.

GASTRIC ULCER:

A CLINICAL LECTURE

DELIVERED AT THE WOMAN'S HOSPITAL OF PHILADELPHIA,

By FREDERICK P. HENRY, A. M., M. D.,

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE IN THE  
WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA.

I wish to make this clinic both complementary and supplementary to the didactic course, and, with this end in view, I will endeavor to illustrate the latter by appropriate cases, and occasionally I will introduce a patient for the express purpose of enabling me to discuss a subject which otherwise would have to be postponed until the next winter's session.

The patient before you is one of the complementary cases—that is, her symptoms all point to an organ the diseases of which we have lately been studying in systematic detail. She has pain in the epigastric region shortly after eating, of a dull aching character, felt at times in the spine between the shoulder blades, and immediately relieved by vomiting. The relief which follows emesis is so prompt and so decided that the patient has acquired the habit of vomiting by irritating the fauces with her index finger. There is some tenderness in the epigastrium, only elicited by strong pressure, which is perhaps due to the fact that the layer of adipose tissue on the abdominal surface—the *panniculus adiposus*, as it is technically styled—is decidedly thick. It may also be due to the fact that the lesion which is the cause of this tenderness is seated on the posterior wall of the stomach.

I would specially direct your attention to the well-nourished condition of this patient. She is stout and florid, and, in fact, presents every external appearance of health. In speaking of gastric ulcer, you may recollect that I emphasized the fact that the external appearance, the so-called *facies*, of the sufferers from this disease was often such as to contradict the idea of an organic affection. This, of course, only obtains in the early stages of gastric ulcer, and you may also recollect my having mentioned that when in these cases failure of health occurred, it was apt to be sudden and decided.

From the fact of my having mentioned gastric ulcer, you have doubtless already surmised that I suspect this affection to be present in the case before us. Before, however, formally pronouncing a diagnosis of gastric ulcer, we must be careful to exclude other affections which resemble it. Cancer is out of the question. There is no symptom of stenosis of either orifice; there is no emaciation; on the contrary, the woman is stout and well nourished; there are no enlarged supraclavicular lymphatic glands; and, finally, as I hope to be able to show you presently, hydrochloric acid is abundantly present in the gastric secretions.

Let us next inquire as to the possible presence of chronic gastric catarrh. You are all familiar with the symptoms of this affection, for we have lately studied it in what I believe to be as thorough a manner as is possible with our present means of research. We have learned that while there is in

catarrh a sense of uneasiness and distention after eating, actual pain is rarely present, and when complained of is not described as being severe. The anorexia is also more complete than in ulcer. In fact, in ulcer the appetite may be good, being restrained for fear of the pain excited by its indulgence. Vomiting, when present, occurs at irregular periods, for example, before breakfast, and the vomited matters are mingled with mucus, or may consist solely of this substance. Symptoms other than pain, referable to the nervous system, are more common in chronic gastric catarrh than in ulcer, such as vertigo, insomnia, and hypochondria. The tongue is usually heavily coated, whereas in ulcer it is often remarkably clean. Finally, hydrochloric acid is often absent from the gastric secretions in cases of catarrh, especially when it is attended with abundant secretion of mucus.

Functional gastric disorder, the so-called nervous dyspepsia, is another affection that must be excluded before we can regard our patient as a case of gastric ulcer.

In nervous dyspepsia there are cructations of gas which are distinguished from those occurring in cases of catarrh by the fact that they are tasteless and odorless. Vomiting is rare. The appetite may be altogether absent or anorexia may alternate with periods of hyperorexia or bulimia. In catarrh the appetite is persistently absent. In nervous dyspepsia there is often pain in the stomach, but it occurs at irregular periods, not immediately after eating, as in ulcer, and, in fact, the pain may sometimes be relieved by eating. The tenderness in these cases is sometimes relieved by firm, steady pressure, whereas in ulcer the tenderness is in direct ratio to the degree of pressure.

There is one symptom to which I have not yet alluded, and which, if present, would settle this diagnostic problem offhand. This is hæmatemesis, which, of the three affections we have in mind—viz., ulcer, catarrh, and dyspepsia nervosa—is characteristic, not to say pathognomonic, of the first. Now, it is uncertain whether or not this patient has vomited blood. You may well inquire why there should be any uncertainty about the matter, and the reply is that recently streaks of blood appeared in the vomited matters, and that the slight hæmorrhage may have been due to the patient's efforts to relieve herself by vomiting. You will recollect my having told you that she excites emesis by thrusting her finger down her throat, and it is possible that in performing this manœuvre she may have injured the mucous membrane of the fauces. There are, however, no traces of any such injury.

In lecturing on gastric ulcer, I insisted on the fact that an ulcer can not be produced in a healthy animal by an injury of the gastric mucous membrane; but I said that if after such injury the gastric juice was rendered hyperacid by the occasional injection into the stomach of a solution of hydrochloric acid—for example, of the strength of five *pro mille*—the loss of substance, instead of rapidly healing, would degenerate into a typical round ulcer.

Again, ulcer will develop after an injury to the stomach of a chlorotic woman, even though the gastric juice be of normal acidity. Injury alone will not excite ulcer; otherwise this disease would be one of the commonest, for the

stomach is daily exposed to traumatism from thermal and mechanical causes.

For the production of gastric ulcer two things are necessary: 1. Traumatism. 2. A disproportion between the composition of the gastric juice and that of the blood.

This disproportion usually lies in the direction of hyperacidity of the gastric juice; but in a chlorotic woman whose gastric and other tissues are ill nourished, the gastric juice may be *relatively* hyperacid, even although the percentage of hydrochloric acid may be normal. In other words, the gastric tissues of a chlorotic female are less prone to heal after injury than are those of a person in good health—that is, they are less able to resist the corroding action of the gastric juice, and less able to institute the process of repair.

Our patient is certainly not chlorotic, and therefore if she is suffering from gastric ulcer we should expect to find a hyperacid condition of her gastric juice.

In the bottle in my hand there are two or three drachms of a perfectly clear, watery fluid, which is the filtrate of the matters vomited by this woman about an hour after eating. In this other bottle is a small amount of a yellowish liquor, which is composed of phloroglucin, two grammes; vanillin, one gramme; absolute alcohol, thirty grammes. This is the famous test for hydrochloric acid in the gastric secretions invented by Dr. Günzburg, of Germany, about which I have said so much in my lectures on the diseases of the stomach. It is undoubtedly the best test for the presence of hydrochloric acid in the gastric secretions, and is practically free from all sources of fallacy. I am, besides, especially interested in Günzburg's test because I believe I was the first to call public attention to it in this country. You will find it described by me in an editorial article in the *Medical News* for January 14, 1888, entitled Free Hydrochloric Acid in the Gastric Juice. The original article in which it was described by Günzburg appeared in the *Centralblatt für klinische Medicin* for October 1, 1887.

I will now proceed to apply this test in your presence. I pour two or three drops of the gastric filtrate into a watch-glass and add to it the same amount of the test solution. I then heat the mixture over a spirit-lamp, taking care not to boil it, and in a few seconds brilliant streaks of red appear in the edges of the fluid—*i. e.*, in its thinnest portions—which gradually spread until the bottom of the glass is entirely red. I advise you by all means to use a watch-glass for this test instead of the porcelain dish usually employed by chemists, because the watch-glass can be placed under the microscope and examined with a lower power by transmitted light. If this is done, it will be found that the red material which has formed on heating the mixture is largely made up of minute crystals which present a beautiful microscopic picture.

The object of heating the fluid was simply to drive off the water by evaporation, and thereby make the solution of hydrochloric acid more concentrated. This test is one of extraordinary delicacy, demonstrating hydrochloric acid in the gastric secretions when it is present in them to the extent of one twentieth of one per mille—0.05 pro mille.

I have now demonstrated the existence of free hydrochloric acid in the gastric juice of our patient, and, from the decided response to Günzburg's test, I am confident that it is present in undue amount. In cases of more doubtful diagnosis than the one we are studying we should go further in our chemical research and determine the percentage of hydrochloric acid in the fluid vomited or withdrawn from the stomach. This is readily ascertained by the well-known chemical process of titration. I did not attempt a quantitative analysis, because the amount of the filtrate was insufficient for that purpose.

I believe myself to be fully warranted in pronouncing a diagnosis of gastric ulcer in this case. Everything points in this direction: The sex—ulcer largely preponderating in females; the age, which is certainly not advanced; the character of the pain and its immediate relief by vomiting; the comparatively good state of the bodily nutrition; and, last, and most important, the abundant presence of hydrochloric acid in the gastric juice. These facts, I repeat, each one of which is significant, point unmistakably in the direction of gastric ulcer.

*Prognosis.*—We come now to consider the question of greatest interest to the patient—the prospect of recovery. Barring accident, this, under proper treatment, is good. We can not see this ulcer, and therefore know nothing concerning its area and its depth. It may have destroyed nothing more than the mucosa, while, on the other hand, it may have destroyed the submucosa and the muscularis, being prevented from perforation by the delicate serous covering of the stomach. Again, its base may be adherent to neighboring organs. Such considerations should make us guarded in our prognosis.

Hæmorrhage is another event that may occur at any moment.

The best safeguard against accident is the immediate institution of proper

*Treatment.*—The patient should be placed at rest. Bodily exertion of all kind should be strictly forbidden, for muscular movements might rupture protective adhesions, and so cause the fatal accident of perforation. Of all muscular acts, those concerned in vomiting are most injurious in these cases, and therefore pain should be relieved and muscular irritability allayed by opium or one of its preparations. Opium also accomplishes another important indication in obtunding the sense of thirst so often present in these cases. Nourishment should be administered for a few days by the rectum, but, in case of objection to this repugnant measure, the diet for a week at least should consist of peptonized milk mingled with lime-water. The latter substance is added for the purpose of neutralizing the excessive acidity of the gastric juice. Bicarbonate of sodium will accomplish the same result, but is not a safe remedy on account of the evolution of gas which follows its administration. Beef peptones and eggs may be gradually added to the peptonized milk, and by degrees a more liberal diet is permitted.

Medicinally, I can recommend nothing in addition to opium except the subnitrate of bismuth in large doses—say thirty grains three or four times daily. It serves to

neutralize acidity, and may, as some hold, form a protective coating upon the ulcerated surface. Benefit has apparently been derived from the use of nitrate of silver, but, in my opinion, such benefit is only apparent. It seems to me absurd to expect any local effect from nitrate of silver in these cases. The stomach is surcharged with acid secretions, which decompose this drug immediately. It might as well be decomposed beforehand by placing it in a glass of salt and water, and the patient directed to swallow it.

We will advise this patient to live on an exclusive diet of peptonized milk mingled with lime-water, in the proportion of half an ounce of the latter to four ounces of the former. We will keep her strictly quiet, in bed if possible; and we will order, besides, half a drachm of subnitrate of bismuth every four hours. In addition we will allay pain and vomiting with suitable amounts of morphine. For the latter purpose, one eighth of a grain daily may suffice, while, on the other hand, one grain in divided doses may be necessary.

If these directions are carried out, I hope to present her to you, on some subsequent occasion, much improved in every respect.

## Original Communications.

### THE

### RADICAL CURE OF CONFIRMED FLAT-FOOT.\*

BY ROYAL WHITMAN, M. D., M. R. C. S.,

ASSISTANT SURGEON TO OUT-PATIENTS,  
HOSPITAL FOR RUPTURED AND CRIPPLED.

THE term flat-foot is in some respects an unfortunate one, in that it does not correctly describe the affection, of which the important condition is abduction, and because most physicians and patients understand by flat-foot an inherited weakness which is to be endured or relieved by braces rather than to be actively treated and permanently cured.

I propose, therefore, to call your attention to some of the predisposing and exciting causes of weak foot, its progressive character and results, and to explain somewhat in detail the treatment which has been very successful in the cases falling under my observation.

Clinically, without attempting to enumerate all the varieties of this very common affection, cases may be divided into groups.

1. The cases known as weak ankles in weak or rhachitic children, or accompanying slight knock-knee.

2. The long weak foot seen in adolescence. These children are usually brought on account of prominence of the internal malleoli which are thought to be "growing out." The symptoms are awkwardness in walking, with fatigue on any overexertion. Here we find a prominent scaphoid, slight abduction and limitation of the movement of adduction, but usually no pain or tenderness on pressure. These cases are of importance, because in later years,

under the increased work to which the feet are subjected, they may develop into the most confirmed and painful deformity.

3. Weak feet in older subjects, particularly women who are obliged to stand much of the time. In these cases the pain is very severe, but ceases when the feet are not used. There is usually but little spasm of muscles or limitation of motion—that is, the feet can be easily replaced in proper position, but are markedly flattened when weight is borne. There is great sensitiveness to pressure on the painful points, and often redness and swelling. This variety is very common, and is the form that most physicians associate with the term flat-foot.

4. The most interesting and important class with which this paper is chiefly concerned, usually seen in young adults. Here we find marked deformity and muscular spasm, so that the foot is quite rigid and can not be replaced in normal position. The arch is more or less flattened, but the important condition is the abduction—that is, when the feet are placed side by side there is a wide interval between the two great toes which the patient can not lessen, the power of adduction being limited or lost. In these cases the disability is very great, and the pain persists even when the feet are not actively used.

5. True flat-foot, or pes planus, which may be actually inherited or the result of rhachitis in infancy. There are often no symptoms, and the condition need only be considered when pain is present.

It must be borne in mind that these varieties blend with one another, and that pain and discomfort do not in any sense correspond with the degree of deformity.

Flat-foot is considered by the writer as an acquired partial dislocation, caused by a disproportion between the weight to be sustained and the strength of the supporting structures. This broad definition includes everything that may weaken the foot or place it at a disadvantage in the performance of its functions, such as improper shoes and their consequences—corns, bunions, ingrown toe-nails, deformities of the toes, etc.—inproper attitudes in activity and rest, local injury, or acquired or inherited weakness or disease; while overweight may mean long standing, laborious occupation, or simply increase in body weight. The examination of a large number of sufferers from flat-foot, a considerable proportion of whom were young and vigorous adults whose muscular development enabled them to engage in the most laborious of occupations, has confirmed me in the belief that the breaking down of the arch, in this class at least, is not the result of intrinsic weakness of muscles,\* or primary relaxation of ligaments,† or congenital deformities of bone,‡ or because there was some peculiar disease of cartilage,§ or primary muscular paralysis, atrophy,|| or spasm,^ or because the patient had worn high heels ◇—according to the various theories that have been advanced by writers on the subject—but because the feet, originally sufficiently strong, had been placed at a serious disadvantage in the performance of their functions.

As a clear understanding of the causes of flat-foot is

\* Read before the Harvard Medical Society of New York, October 3, 1891.

\* The usually accepted theory.

† Tillaux and Lefort.

‡ Stokes. § Gosselin. || Sayre. ^ Duchenne. ◇ Mayo-Collier.

essential to a proper apprehension of its successful treatment, I shall try to explain what these disadvantages are and how they may be overcome and avoided.

*Attitudes.*—The attitude of adduction is the strong position, the attitude of abduction the weak one.

The elastic walk of a barefoot child illustrates the first, a soldier presenting arms the second position. In the first instance the feet are under the control of the adductor muscles, and the ligaments are relieved from strain; in the second, or attitude of rest, the ligaments bear the greater part of the weight. Thus adduction, which implies muscular activity, is the most favorable attitude for supporting weight; abduction, the most unfavorable.\* A glance at the anatomical structure of the foot will make this clear. In a general way it may be divided into two arches—an outer or strong arch, solidly braced and usually in direct contact with the sole of the shoe, composed of the os calcis, cuboid, and two outer metatarsals; and an inner and weaker arch, made up of the os calcis, astragalus, scaphoid, three cuneiform and three inner metatarsal bones, directly under control of the adductor muscles, whose strength and activity are essential to its support. Again, the astragalus is perched upon the os calcis, “like a lady on horseback,” at a point somewhat internal to its base, so that the weight of the body transmitted through it tends to tip the os calcis over to the inner side, allowing the astragalus to slip downward and inward. A certain amount of inward rotation of the astragalus as the foot broadens and flattens under weight is normal,<sup>8</sup> but before it becomes excessive the strong adductor muscles contract, the great toe is braced to resist the lowering of the arch, and the weight is thrown toward the outer side of the foot.

The more the feet are habitually turned outward in standing and walking, the greater the strain upon the arch; the more they are turned inward toward the line of the walk, the greater the protection of the weaker side of the foot. To illustrate, if the feet in walking are pointed straight ahead in the line of the walk, flexion and extension at every step, or muscular activity, is essential, because the toes, being in front of the body, must be walked over, and the weight of the body lifted at every step by muscular contraction. If they are turned outward, the weight is first thrown upon the heel, then directly upon the weakest part of the foot, and we have the passive, inelastic walk of the weak, aged, and flat-footed. If the foot is to be actively used, it is essential that its component parts should be in healthy condition; thus it will be understood how corns, bunions, ingrown toe-nails from improper shoes, weakness from injury, or the result of gout or rheumatism, may make active flexion of the foot painful so that it is avoided by turning the toes outward. I have also shown in a former paper that the faulty position of the feet is habitual in a very large proportion of individuals.† Muscles are weakened by disuse and improper shoes, and under the influence of overwork, injury or disease, overstrained arch and later

flat-foot may develop. To illustrate this point Fig. 1 and Fig. 2 have been drawn from life. Fig. 1 represents the passive walk with eversion of the feet, the weight of the body falling on the inner or weaker side. Fig. 2 shows the proper attitude, the muscular activity and protection of the arch being very apparent. The subject of this paper being the treatment of confirmed flat-foot, I shall briefly describe

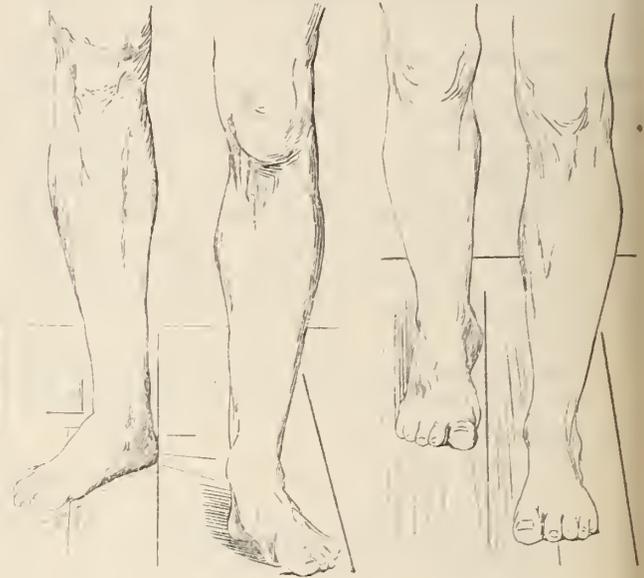


FIG. 1.

FIG. 2.

the anatomical conditions which may be present in such a case, with its symptoms, and then the steps by which a radical cure may be accomplished.

In confirmed flat-foot we shall find an exaggeration of the condition before indicated: the os calcis tipped over to the inner side and rotated inward; the astragalus rotated inward and dislocated downward and inward; the entire fore-foot, everything in front of the medio-tarsal joint, thrown downward and outward; the foot is as it were broken in the center. The arch has to a great extent disappeared; there is a marked projection on the inner side caused by the displaced astragalus and scaphoid, while the foot is lengthened and broadened in shape.

The overworked peronei muscles are in a state of spasm or are actually shortened, and resist any attempt at reduction of the deformity. The adductors have lost their power, and, in addition, there is usually a loss of function of the toes with callosities and corns. Often there is more or less swelling of the feet with excessive sweating.

Dissection\* shows weakened and atrophied muscles, overstretched ligaments, changes in the bones with the formation of new facets, and other evidence of the chronic inflammation which has accompanied the gradual progression of the affection. Such changes are, however, the result of many years of neglect, and illustrate the importance of early diagnosis and treatment.

The affection is easily recognized. Persistent pain,

\* Whitman. Observations on Forty-five Cases of Flat-foot. *Boston Medical and Surgical Journal*, June 14, 1888.

† *Transactions of the American Orthopaedic Association*, i.

\* Symington, *Journal of Anatomy and Physiology*, October, 1884. Humphrey, *Lancet*, March 20, 1886. Stokes, *Annals of Surgery*, October, 1885. Von Meyer, *Ursache und Mechanismus der Entstehung des erworbenen Plattfusses*, 1883. Hueter, *Grundriss der Chir.*, 1882.

weakness, and discomfort about the arch of the foot, increased by standing or walking, particularly on going up or down stairs, which necessitates an extra exertion of the affected joints, with tenderness on pressure at the junction of the astragalus and scaphoid, are perhaps the earliest symptoms. In some cases the arch may appear perfectly normal, while in others the foot is entirely flat.

The usual symptoms, some of which are always present, are as follows:

1. The peculiar inelastic walk, the weight being thrown upon the heels, the feet turned outward to avoid activity; as patients express it, "the feet have lost their spring."

2. The deformity—the flattening of the arch, and the projection on the inner side of the foot, when weight is borne—a deformity which later becomes permanent, from muscular spasm, contraction, and shortened ligaments, with inflammatory adhesions between the bones.

3. Pain in the feet, with local tenderness on pressure, referred to the following points in order of frequency:

1. The astragalo-scapoid junction.
2. Below the external malleolus.
3. The dorsum of the foot.
4. The center of the heel.
5. Beneath the great toe joint.

The pain is often reflected up the inner or outer side of the leg to the knee or hip.

4. Extreme stiffness of the feet after sitting, or on rising in the morning, or cramps at night in the feet or calves, symptoms usually associated with the more advanced cases, indicating, I believe, beginning changes in the bones, with the formation of new facets. To illustrate, two patients have recently consulted me who refused to sit down in my office because the effort to stand was so painful after the momentary relaxation of the muscular tension.

In considering the question of early diagnosis, the intermittence of symptoms should be borne in mind; thus, a weak foot when subjected to overstrain becomes painful. After a few weeks' rest the pain ceases, to recur several months later under similar irritation. There are, too, rheumatic symptoms in a weakened foot; the pain, often accompanied by redness and swelling, is worse in damp weather, or the affection may be the result of weakness following true rheumatic inflammation, although this is comparatively rare. As flat-foot is so constantly mistaken for rheumatism, it would be well to remember that rheumatic inflammation is rarely confined to one member or joint, that persistent pain in the feet is almost always of local origin, and that local treatment for local pain and deformity is always in order, while medicinal treatment, except for the rest of the affected parts, which may be advised, is worse than useless, as it postpones the recognition and proper treatment of the true affection. If this proposition, that persistent local pain demands local examination and treatment, were accepted, many sufferers might be relieved from years of pain and discomfort.

In considering the treatment of a case of flat-foot, the important question is this: Can it be replaced in proper position? If it can—that is, if its movements are free and unembarrassed, not limited by muscular spasm or in-

flammatory adhesions—the treatment is very simple. An efficient support, a proper shoe, an avoidance of faulty positions, with exercises for strengthening the weakened muscles, will at once relieve the patient. If, however, the reduction of the deformity by manipulation is impossible, it should be treated as any other dislocation should be—adhesions should be broken up and the deformity reduced. This variety, which I have included in the fourth class, is the most interesting and important, because the patients are usually young adults; the deformity is extreme; the affection rapidly progressing; the patients are almost completely disabled; the symptoms are so urgent that they are very amenable to treatment, and the results are most satisfactory. Excessive muscular spasm and rigidity in a young person I have come to look upon as a very favorable indication, as it shows muscular strength and integrity of bone—the same distinction that one might make between a recent dislocation with the accompanying pain and the passive acceptance of the situation in a displacement of long standing. A radical cure is possible in all recent cases of flat-foot, and relief of pain and, to a great extent, of deformity may be assured in every case.

Some writers hold out the forlorn hope that when the deformity is complete—that is, when the astragalus rests upon the sole of the shoe—pain ceases. I need only mention the fact that I have treated patients after twenty years of continuous and increasing discomfort. The treatment of this class of cases is conducted on the following principles:

1. Forceful reduction and overcorrection of the deformity.
2. A temporary support to prevent relapse.
3. A proper shoe.
4. Manipulation to stretch contracted and shortened tissues.
5. Exercises to strengthen weakened muscles.
6. A re-education of the patient in the proper manner of walking and supporting weights.

In brief, the application of the simplest surgical princi-

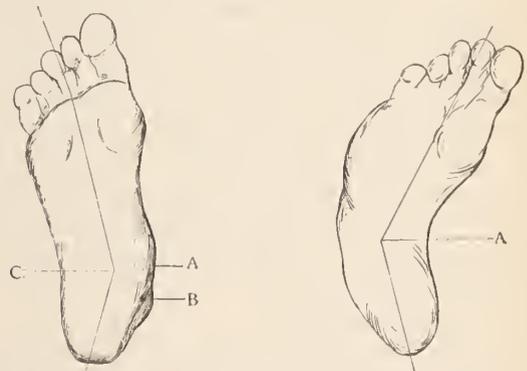


FIG. 3. Flat-foot before operation. A, the projection of the displaced astragalus and scaphoid; B, the inner malleolus; C, the mediotarsal joint, showing the outward displacement before, the inward rotation behind, this point.

ples. Under ether, the foot is forcibly moved in all directions to break up adhesions, and is then forced into a position of extreme adduction or equino-varus and retained there

by a well-padded plaster bandage. Although great force is sometimes used, the after-symptoms are usually slight, and the patient, if he desires, is allowed to walk about on the plaster bandages on the following day. In about a week, or earlier, if there is no pain in the feet, the bandages are removed and plaster casts are taken for the support which is to be used.

Casts are easily and quickly made in the following manner: Seat the patient in a chair; in front of him place another chair of equal height; on it lay a thick pad of cotton batting and cover it with a square of cotton cloth. Put about a quart of cold water into a basin with a tablespoonful of salt; sprinkle plaster on the surface, stirring until the mixture is of the consistence of thick cream, then pour it upon the cloth. Flex the patient's knee and allow the outer side of the foot, previously oiled, to sink into the plaster, raising the edges of the cloth until rather more than one half the foot is covered. When this is hard, spread vaseline on its upper surface, and, having mixed a smaller quantity of plaster, cover the exposed surface of the foot; the toes need not be included. When hard, the two halves are removed and their inner surfaces oiled. They are then bandaged to one another and the interior filled with plaster of the same consistence as before. When the outer shell is removed, we have a reproduction of the foot ready for further manipulation. This consists in changing the cast with the exercise of a certain amount of judgment, so that it may resemble a perfect foot—that is, to scrape away the projection on the inner side if any remains, and to deepen the inner and outer arches. Several years ago I was in the habit of making the brace on an actual reproduction of the foot, but experience showed that it was possible, by the treatment to be described, to still further overcome deformity which could not be corrected by the forcible reposition under ether. When completed, the casts should stand squarely on the table with no inclination to either side; they are then sent to the founder to be reproduced in iron.

The feet are, if the case is one of long standing, again placed in adduction and the plaster bandages reapplied. No anæsthetic is necessary, as the previous overstretching, with the subsequent rest, has to a great extent removed the resisting muscular spasm. In from one to three weeks, according to the judgment of the surgeon, the bandages are removed and active treatment begun. The flat-foot on which forcible over-correction has been performed is now, although in good position, stiff, and all its movements are restricted and painful, and if the patient is allowed to go about without support and further treatment, a recurrence of the deformity is inevitable.

The subsequent treatment is carried out with the aim of regaining free and painless movement in every direction, particularly in adduction. The foot is first immersed for ten minutes in hot water, afterward vigorously massaged, especially about the dorsum, and is then slowly forced into a position of adduction. This manipulation, first described by me in the *New York Medical Journal* of October 11, 1890,\* has gradually assumed greater importance, and is

now considered an essential for the successful treatment of the affection. It is conducted as follows: The patient is seated in a chair; the surgeon stands in front of him. Let us suppose that the left foot is to be adducted or, as patients express it, twisted. The surgeon places the foot between his knees; his left hand encircles the heel, the fingers grasping the projecting os calcis and tendo Achillis; the ball of the palm lies against the mediotarsal joint on the inner aspect of the foot; the right hand grasps the outer side of the fore-foot and toes; then by steady pressure of the thigh muscles the fore-foot is forced inward over the fulcrum formed by the projecting palm which lies upon the left knee, the fingers holding the heel steadily in place. This inward twisting is at first resisted by a mixed voluntary and involuntary muscular spasm, which gradually gives way under steady pressure. When the limit of adduction has been reached, the foot is firmly held until all pain has subsided, when the patient is instructed to make voluntary movements while the foot is in the corrected position, flexion and extension of the toes, and to contract the flexor muscles of the foot. The foot is then released, and twenty minutes of voluntary exercise follow, and at intervals during the day the patient, by active muscular efforts and passive motion, constantly works to one end—namely, to regain the lost power of adduction—while once daily the inward twisting is performed by the surgeon. Under this treatment the pain and stiffness rapidly disappear, and the foot constantly assumes a better position. The results that can be attained by this treatment persistently carried out, even in cases of long standing and apparently hopeless deformity, are surprising. I wish to call your attention to the fact that forcible *over-correction* followed by persistent passive stretching of contracted tissues is quite different in principle from the simple forcible correction of deformity with indefinite retention of the feet in plaster and silicate bandages, as practiced by Roser, Lorenz, and Smith. Meanwhile the brace is made of thin steel.\*

It is molded on the iron cast while hot, and is then tempered so that it is unyielding under the weight of the body.

Its shape may be seen in the diagrams (Figs. 5, 6, and 7). A broad internal upright portion covers the



FIG. 5.—A, the astragalo-scapoid joint.

astragalo-scapoid joint, the weak point of the foot; a molded arm reaches from the center of the heel to a point just behind the bearing surface of the ball of the

\* Persistent Abduction of the Foot.

\* The best sheet steel, No. 19 or 20 gauge, cut with the grain.

great toe; an outer arm passes beneath the os calcis and cuboid bones, and upward slightly on the outer aspect of the foot, which is thus held firmly in the brace, and can not slip away to the outer side, as is the case with braces which depend upon the shoe to hold the foot in position. As the patient is instructed in the proper walk, he throws his weight first on the outer side of the foot, thus pressing the external arm down against the sole of the shoe, a movement which at the same time causes the internal projection to press more firmly against the inner side of the foot. This pressure tends to turn the fore-foot inward, relieving the arch from weight. In addition, this brace differs in the following points from those with which I am familiar, in that it is an accurate adjustment to a cast of the corrected foot; that it, by the inward flange,



FIG. 6.—C, the great-toe joint; D, the center of the heel.

prevents abduction, a movement which precedes the lowering of the arch; that the brace is complete in itself and does not depend upon the shoe to prevent deformity; that it is not



FIG. 7.—B, the calcaneo-cuboid joint.

in any way attached to the shoe, but retains itself in proper position—it may thus be changed from one shoe to another, and may be kept clean and free from rust; that it allows the foot to rest upon its natural supports, the heel and the ball of the foot, provides support only to the weak points, and does not in any way restrict normal motion and activity, which are to be encouraged by insisting that the patient shall assume the proper attitude in walking. This brace is not a spring; it is inelastic, as it is intended to hold the foot in normal position, not to allow a recurrence of previous deformity. Finally, it is comfortable; the painful pressure on the sole of the foot, often complained of when simple arched supports are used, being absent.

It is nickel-plated or tin-plated and is then japanned. No covering is used, and, as it fits the foot perfectly, its presence in the shoe can not be detected.

The shoe to be recommended is one of the Waukenphast pattern, with a sole broad enough to support the foot, having an inward twist to allow room for the great toe. In advanced cases of flat-foot I usually build up the inner side of the sole after the method known as Thomas's, in order to

throw the weight more to the outer side while the foot is still weak. The patient is then allowed to go about his usual occupations, no restriction being placed upon walking, provided the proper attitude, with but little divergence of the toes, is assumed.

The entire treatment described has consumed on an average three weeks. Daily exercises are still continued with the stretching until the movements of the foot are absolutely free and unembarrassed. One of the best gymnastic exercises for strengthening the feet is to raise the body on the toes twenty or thirty times, morning and night, as recommended by Ellis (*Lancet*, September 26, 1885). It will, however, be remembered that the best possible exercise is a proper walk. In an ordinary case the braces can be dispensed with in about six months, when a cure may usually have been accomplished, although all symptoms have disappeared long before.

The limits of this paper have simply allowed me to outline this method of treatment; many aids in gymnastic and local treatment will suggest themselves. The essentials for entire success are a complete reduction of deformity, a complete recovery of the lost power of adduction, an increase in muscular strength and activity, and an avoidance of improper attitudes in standing and walking. The success that follows persistent treatment of confirmed flat-foot is most gratifying, and my experience justifies me in asserting that no affection of equal importance can be so easily relieved and permanently cured.

In conclusion, it may be well to mention the operative treatment of flat-foot. The operation described by Golding Bird,\* Ogston,† and, with modifications,‡ by various others, consists essentially in destroying the mediotalar joint by producing an ankylosis between the astragalus and scaphoid bones. I have not seen a sufficient number of cases to judge of its merits; the few that I have seen presented a stiff but useful foot with a partial relief of pain and deformity. Most of the reported operations have been performed on children and young adults, the most favorable class for cure with preservation of normal joints, a result which must be vastly superior to any relief that may be obtained by an operation which aims at the destruction of the most important joint of the foot. The essential difference between the two methods of treatment is this: The one recognizes the fact that a foot subjected to the predisposing and exciting causes outlined may, by slow progression, reach a stage of extreme deformity; and that the affection is curable by a reversal of the conditions under which it developed. The other assumes the impossibility of cure and endeavors to relieve the symptoms by substituting an ankylosed joint for muscular strength and activity. The first method requires patience, persistence, and the intelligent co-operation of the patient. The second requires nothing but the ability to perform a cutting operation. There is, however, a class of patients in most destitute circumstances, with no shoes, no money, no homes. Here

\* *Guy's Hospital Reports*, 1882.

† Ogston. *Lancet*, January 26, 1884.

‡ Hare. *Lancet*, November 9, 1889.

hospital treatment is a necessity, and hospital treatment for flat-foot at least implies an operation. For this class the operation—and, in my opinion, the only cutting operation which should ever be performed for flat-foot—is the supra-malleolar osteotomy of Trendelenburg,\* first performed here by Dr. Willy Meyer.† The object of the operation is the production of artificial bowlegs, thus throwing the weight off the arch to the outer side of the foot. Dr. Meyer's results have been very satisfactory. The disadvantages of the operation are the time that is necessary for consolidation of the divided bones and the very noticeable bowing of the legs, which would preclude its use in patients of more æsthetic temperament. I should suggest that the breaking up of adhesions and over-correction of the deformity would be a useful preliminary to the operation. Finally, I may again urge the importance of an early recognition and intelligent treatment of this affection which has such an important influence on the future prospects of the young, and in later years may reduce the sufferer and those dependent on him to the most extreme destitution.

126 WEST FIFTY-NINTH STREET.

#### A CASE OF INTRINSIC EPITHELIOMA OF THE LARYNX. †

By MORRIS J. ASCH, M. D.

R. G., aged seventy years, came to me in the autumn of 1889, complaining of hoarseness. He had no cough or any evidence of disease beyond the interference with his voice. He was a hale, hearty man, living much in the open air, hunting during the winter in the South, and yachting and devoting himself to the care of his country place in the North during the summer. He was a retired physician, and consequently able to describe his symptoms with accuracy. He complained only of the hoarseness, which was brought to his notice by his inability to call his dogs as formerly, and which he attributed to having taken cold. There was no pain, dyspnoea, or dysphagia. A laryngoscopic examination was difficult, owing to the extreme sensitiveness of the pharynx, but the application of an eight-per-cent. solution of cocaine soon produced tolerance. Even then, owing to the thickened and depressed epiglottis, an examination was difficult, but the mirror revealed the ventricular band of the left side irregular in outline and swollen to such a degree as to conceal the vocal cord of that side. The left aryteno-epiglottic fold was unchanged; the mucous membrane darker than normal, smooth, and without ulceration. The subglottic region was invisible, owing to the narrowing of the rima glottidis. The laryngeal image was that of a chronic hypertrophic laryngitis. A few topical applications were made with apparent relief of the hoarseness, and the patient left for his Southern home. In the spring of 1890 he returned. He was full of life and vigor, was perfectly well in every way, except that the hoarseness persisted. The larynx presented nearly the same general appearance as at the previous examination, except that the deposit in the ventricular band of the left side had increased and there was some swelling in that of the right side. There was no dyspnoea or pain, and the local applications were con-

tinued and seemed to give relief; but the continuance of the swelling for so long a period and the absence of any improvement after treatment caused me to apprehend the existence of malignant disease, although there was nothing in the condition of the patient or in the appearance of the part to warrant any such diagnosis with certainty. There was no soreness over the larynx, though the thyroid cartilage was slightly enlarged; neither was there any glandular enlargement in its vicinity. In November the patient, on his way South, returned again to the city, with no change in his condition or in the appearance of the larynx. He was cheerful, and sure that a mild climate would bring him back in the spring quite cured, although he was warned of the probable gravity of his case.

In March, 1891, he presented himself unexpectedly at my office, showing evidence of great suffering. His voice was almost extinct, his breathing difficult, and he was weak and emaciated to a degree. The increasing dyspnoea had compelled him to return North thus early in order to obtain relief. Examination showed the lumen of the larynx almost entirely occluded by an irregular swelling from both sides, the merest chink remaining to give passage to air, which found its way between the irregular prominences on either side; no ulceration of any kind was visible, and the appearance was that of an irregular swelling with a smooth surface. There was a small, enlarged submaxillary gland on the left side. The patient was at once informed of the gravity of the situation and an immediate tracheotomy advised. This he declined, although the danger of delay was pointed out to him, until he could terminate certain important business affairs; to this I was obliged reluctantly to consent, though I feared that a sudden termination might occur at any moment. The dyspnoea was so extreme that comfort in respiration was only secured when the patient was at rest. He visited me daily, always refusing to permit the operation until the morning of April 5th, when he presented himself with his respiration embarrassed to such a degree that there was no longer any question as to delay. He was taken to the New York Eye and Ear Infirmary, where, in the presence of Dr. C. T. Poore and the house staff, I performed tracheotomy. The dyspnoea by this time was so intense that I deemed it unsafe to administer an anæsthetic, and I injected a few drops of a two per-cent. solution of cocaine over the proposed line of incision, with the effect of rendering the parts insensible to pain and enabling the patient to undergo the operation without inconvenience. It was found impossible to extend the neck to any degree, as, on attempting to raise the shoulders, suffocation immediately ensued, and in consequence the operation was rendered extremely difficult, the cricoid cartilage being nearly at the level of the episternal notch. The first incisions, which were almost bloodless, having been made, the trachea was opened through the upper rings. Owing to its ossification, a partial resection had to be made to permit of the introduction of the tube, the relief from which was immediate. The patient did well for some days, when a severe attack of grippe—which was prevalent at the time—caused him considerable discomfort, and from the effects of it he did not recover for three weeks. Immediately after the operation deglutition was painful, but this soon passed away, and on April 26th, when he left the infirmary to return to his lodgings, he could swallow with perfect comfort. His only annoyance next to his weakness, which persisted, was the frequent clogging of the tracheal tube with a sticky mucus, which required constant attention to prevent untoward results. As his neck was extremely thin, it was thought that perhaps this might be caused by irritation resulting from the impinging of the tube on the posterior wall of the trachea, so a new one was ordered, having a shorter horizontal member than the one in use, and with a curve of a quarter of a circle. This tube partially relieved the

\* *Archiv für klin. Chir.*, xxxix, 4.

† *N. Y. Med. Journal*, May 24, 1890.

‡ Read before the American Laryngological Association at its thirtieth annual congress.

symptom, but not entirely. About the middle of May the expectoration was streaked with blood, which, as the lungs were perfectly sound and the external wound in good condition, gave rise to the fear that the disease might be spreading downward and ulcerating. Early in June the patient, having gained strength, was removed to his country seat on the North River, where for a time he did well. In a few weeks, however, spasmodic attacks of dyspnea came on, which he attributed to plugs of solid mucus occluding the tube, and which he relieved by removing the tube and coughing the mass through the opening in the trachea. Desirous to have my opinion as to the cause of the trouble, he took passage on the night of the 11th of July on a night boat on the Hudson River. Soon after his embarkation a severe attack of dyspnea came on, which his attendant was unable to relieve. A thick fog prevailing at the time prevented the captain of the boat for several hours from making a landing to obtain the services of a physician, and when finally medical aid came, he was dying from exhaustion.

*Autopsy*—Permission having been granted to examine the larynx only, the condition of the other organs could not be ascertained. The body was thin, but much less emaciated than before the operation. Externally, the opening of the tracheal wound was in good condition, no granulation or diseased tissues being observed, nor was there any trace of disease external to the larynx. The larynx and three rings of the trachea were removed from the body. On inspection from above, the lumen of the larynx was seen to be entirely occluded by smooth irregular masses springing from the ventricular bands of either side. On dividing it posteriorly in the middle line and exposing the interior of the larynx, the cartilages of which were ossified, these growths



were found to be in contact and to fill up the entire cavity. The left ventricular band was enormously swollen and the vocal cord of the same side ulcerated. Extending downward from its inferior border to a point level with the middle of the tracheal opening and covering the entire laryngeal wall of the left side was a papillary mass ulcerated on its lower portion. On the right side the ventricular band was infiltrated, but not to so great a degree as the left. The vocal cord was thickened, and below it a mass of diseased growth extending nearly to the lower border of the thyroid cartilage. Just to the right of the median line at the base of the cricoid cartilage and above the upper margin of the tracheal wound was a globular pedunculated tumor of the size of a large pea. There was no erosion or growth below the level of the tracheotomy wound. The submaxillary gland on the left side was enlarged. The specimen was sent to Dr. R. G. Freeman for examination, who made the following report:

The specimen shows considerable swelling of the glottis and upper part of the larynx. Below the vocal cords, on the anterior wall of the trachea, a growth five sixteenths of an inch in diameter and three sixteenths of an inch in height projects. Just below this is the artificial opening due to tracheotomy. The upper lip of the opening is somewhat thickened. The tumor involves all the upper portion of the larynx and the anterior wall

of the lower portion. Specimens were taken for examination from the posterior and lateral walls of the glottis, and from the growth from the anterior wall below the cords.

*Microscopic examination* showed the tumor to be an epithelioma. The cells are grouped in a reticular arrangement with a varying amount of stroma. In places they are arranged in concentric masses, forming epithelial pearls. In some parts there is an extensive production of spheroidal cells. There is some necrosis on the surface. The mucous glands are inflamed and some of these ducts are occluded by inflammatory changes.

There are certain points in this case which make it of special interest. *First*, the absence for so long a period of positive signs of malignant disease; and, *secondly*, the nature of the irritating cause producing the spasmodic attack which finally destroyed life.

The first point is accounted for by the fact that the case, being one of *intrinsic* cancer, was naturally slow in growth. There was no external manifestation of the disease, unless the slight glandular swelling could be so considered; nor was there any evidence of infection of any other organ. There was a thickening of the mucous membrane of the ventricular bands with infiltration of the muscles and loss of motion, which swelling forbade a view of the subglottic lesion, which, if visible, might probably have revealed its true nature; but there was no ulceration, no lancinating pain in the ear or elsewhere, no reddened base, nor any certain sign of malignant disease—only swelling and dysphonia; and in this case a fragment removed for microscopic investigation might have proved deceptive, for the sections taken from the upper portion of the ventricular band showed evidences of inflammatory action more markedly than of epithelioma. Even at the last, when the increasing stenosis rendered operation necessary, there was no absolute proof of cancer. This could only be deduced from negative data by clinical experience. Tubercle and syphilis being excluded, there could be nothing to account for the condition but malignant disease.

From the point of view well taken by Butlin, that intrinsic cancers not only differ essentially from those of extrinsic origin by their limitation to a circumscribed area, but, being less actively malignant, are less likely to recur, this case would seem to have been a favorable one for excision, were it not for the advanced age of the patient warranting the opinion that tracheotomy would afford relief during the probable term of his natural life. Thyrectomy was out of the question, as the ossified state of the cartilage forbade the idea that the larynx could be sufficiently dilated to permit of a thorough operation being performed. In the treatment of the case, pyocyanin blue was employed locally and internally, but without any apparent effect. Taken internally in doses of three grains, it produced vomiting and could not be continued.

The cause of the paroxysms of dyspnea is obscure, unless it can be attributed to the globular mass projecting into the windpipe, producing them as asthma is caused by similar proliferations into the upper air passages. I attribute the fatal termination immediately to cardiac weakness, the result of the grippe with which he was attacked after the operation.

## INTUBATION FOR THE RELIEF OF STENOSIS IN TUBERCULAR LARYNGITIS.\*

By F. E. HOPKINS, M. D.

THE following case is presented, not only because of some points of interest which it may have in itself, but because it involves the suggestion of intubation as a substitute for tracheotomy in stenosis due to tubercular disease of the larynx:

Mrs. B., American, of German parentage, aged thirty-nine, seventh in a family of eleven children. Four sisters are living, and all are of the stout Germanic type, their ages ranging from thirty to forty-five years; all in good health.

A sister died in Germany, aged forty-six; cause unknown. A brother died of pneumonia in October, 1890, aged thirty-six. The remaining children died in infancy. The father is living and in good health at the age of seventy-eight. The mother died at fifty-three of typhoid fever. The grandparents, both paternal and maternal, reached a good old age, dying at ages ranging from seventy-four to eighty-eight. Of the uncles and aunts, one, an uncle, died at the age of sixty-five of peritonitis. A maternal uncle died of "consumption" at the age of twenty-five. An aunt died at seventy-seven, her twin sister six months later; causes unknown. An aunt is living and in good health at the age of sixty-seven.

It is thus seen that the woman's history is exceptionally good for a hospital patient, and it helps to account for her powers of resistance against the disease from which she suffers.

Mrs. B. always enjoyed good health till November, 1885, when she had an attack of pneumonia. The attack was not a severe one, but was followed by a laryngitis and a cough, which continued till she came to the Manhattan Hospital in June, 1886. During this interval from November to June she received no special treatment, and the symptoms had increased in severity.

Through the kindness of Dr. Charles H. Knight, under whose care this patient was when she first came to the hospital, I am able to present the following notes of her condition then:

At the time this patient first came to the Manhattan in 1886 her general condition was good. She had but little cough, and that without expectoration. By physical examination no evidence of pulmonary disease could be discovered. Her object in coming to the clinic was to get relief from hoarseness, which had annoyed her for several weeks.

On examining the larynx with the mirror the following conditions were seen: The mucous membrane in general was pale. The vocal bands were somewhat hyperæmic and thickened, and on phonation failed to approximate. The arytenoids and aryepiglottic folds were normal in appearance. At the posterior commissure, however, in the interarytenoid space there was distinct thickening, the mucous membrane being lobulated and decidedly pale in color. Two wart-like masses could be seen projecting into the lumen of the larynx, no doubt sufficient to interfere with the action of the vocal bands. The ventricular bands were normal, and there was no ulceration present.

The diagnosis of laryngeal tuberculosis was based upon the anæmia of the larynx and the post commissural infiltration. No attempt was made at that time to confirm the diagnosis by microscopic examination of the sputa or of scrapings from the larynx. The subjective symptoms gradually subsided under

treatment, the voice was restored, but the thickening of the posterior wall of the larynx persisted. Several applications of lactic acid were made without any marked effect.

Soon after this, treatment was suspended and the patient disappeared, the correctness of the diagnosis having been seriously questioned, owing to the non-development of pulmonary symptoms, and the steady improvement of the patient's condition.

The patient returned to us in June, 1888, just two years from her first visit. She had improved greatly in appearance, having gained in strength and weight. She said she had been well during the period of her absence. She had married in September, 1887.

I will here remark that the patient had no treatment from June, 1886, to January, 1891, except that at the Manhattan Hospital.

The query quite naturally arises, Was this a case of primary tuberculosis of the larynx, and was this cured by the treatment she received at that time?

When she came for treatment in June, 1888, she was again suffering from cough and hoarseness, but the larynx at this time also did not present the characteristic appearance of the tubercular process, although the thickening and infiltration previously referred to was more marked than on her first visit. There was, however, evidence of beginning pulmonary disease, there being a limited area of dullness at the apex of the left lung.

She attended the clinic with some regularity again for a time, secured relief from the distressing symptoms, and again disappeared.

Since about the 1st of July, 1890, she has failed steadily, though up to that time she had regarded herself as well. This long period of quiescence, covering about three years and a half, is certainly worthy of remark, and attention is called to it in connection with the query already suggested.

The last few months have witnessed the familiar decline, steadily advancing emaciation, increasing cough with expectoration, night sweats, hectic, and loss of strength.

The area of pulmonary involvement has gradually increased, there being at present dullness on percussion down to the sixth intercostal space, upon the left side, with a cavity in the upper lobe.

An examination of the sputa by Dr. Ira Van Gieson, pathologist of the hospital, reveals the presence of tubercle bacilli.

The ulcerative process in the larynx advanced, the larynx presenting for some months past the typical appearance of this disease. There was a steady encroachment upon the lumen of the larynx, due to thickening and infiltration of all the surrounding parts, the interarytenoid thickening being especially noticeable, the latter exaggerated condition being seen by reference to Fig. 1.

This thickening was considered by the members of the staff, who watched the process going on in this larynx, as an inflammatory infiltration rather than an œdema, because of its slow advance, and because of the firmness and solidity of the tissues involved.

For three weeks preceding January 30th last, suffocative attacks came on nightly and increased constantly in severity. There was also marked dyspnoea on exertion. Her general condition declined more rapidly. She had no appetite; was so weak that her visits to the hospital were serious drafts upon her strength. Her expression was one of painful anxiety. It was evident that tracheotomy would soon become necessary because of the steady narrowing of the already dangerously narrow rima glottidis, and that operation was advised by members of the staff.

I resolved to try intubation instead, should it become neces-

\* Read before the Section in Laryngology and Rhinology of the New York Academy of Medicine, October 28, 1891.

sary, and instructed the patient's friends to call upon me in case of emergency. I was called to the case on the evening of January 30, 1891, and found the woman in great distress from the dyspnoea. Respiration, 60; pulse, 126; and temperature, 101.5° F. She was extremely weak, as she had not been able to sleep for several nights. She had been unable to eat, all her energy being expended in the effort to secure sufficient air for existence.

Examination of the larynx revealed a condition which is illustrated in Fig. 1. The vocal bands were more thickened than is shown in the drawing, and, because of the infiltration in the posterior commissure, were fixed in about the position shown, neither separating nor approximating except in slight degree.

The interarytænoid thickening had advanced to such an extent that the vocal cords were covered for fully a third of their length.

The ventricular bands were much thickened and appeared like firm fibrous masses, encroaching upon the rima glottidis upon either side.

The posterior commissural thickening was doubtless responsible most largely for the stenosis, for, besides being an obstruction in itself, it interfered with the movement of the cords.

The drawing represents the condition in inspiration, and the glottis, as shown, is probably slightly larger than the reality. After cocainizing the pharynx and larynx, the attempt was made to insert the largest tube in my case—the O'Dwyer set—that intended for a child of twelve years.

The patient co-operated intelligently and with great coolness, considering her condition.

Three attempts were made to insert this tube, and all the force was employed that it seemed prudent to use, but the tube failed to pass. Even the size smaller met with much resistance—a resistance due largely, no doubt, to muscular spasm.



FIG. 1.



FIG. 2.

The presence of the tube excited violent paroxysms of coughing. After the tube had been in position some minutes, and after the cord attached to it had been removed, the coughing was less severe. Although the tube was so small, the patient breathed much easier than before its insertion, and when I left she was comfortable.

The tube was expelled later during an attack of coughing. The dyspnoea, however, was relieved and the patient passed a better night than for three weeks.

For twenty-four hours following she suffered considerable local pain and swallowed with difficulty, although there had previously been no dysphagia. She also coughed more than usual, expectorating blood-stained mucus, this and the dysphagia being due to the traumatism of intubation.

A reference to Fig. 2, which shows the condition of the larynx five days after intubation, will show why the dyspnoea was relieved, although the tube was worn so short a time.

The force exerted upon the tube tore away a portion of the posterior commissural thickening, and doubtless the remainder subsided somewhat by contraction, and from relief to the engorgement from the bleeding. This allowed the cords an increase of their limited range of motion. Moreover, the removal of that thickening reveals a loss of tissue in the vocal bands before unseen, and which increased slightly the lumen of the larynx.

With the relief of the dyspnoea the patient's appetite again improved, and there followed a gain in strength and general condition.

She resumed her visits to the clinic for a short time on February 17, 1891.

A portion of tissue was removed from the posterior commissural thickening and submitted to Dr. Jonathan Wright for microscopic examination, with the idea that perhaps tubercle bacilli would be found here also. None was observed, but the report is of interest, since it reveals the condition present in the process under consideration.

The following is Dr. Wright's report: "Specimen consists of two or three small masses of tissue about the size of wheat grains. The largest one, when cut and stained, shows the following microscopic structure: the surface is fairly smooth and consists of a layer of pavement epithelium cells, in places of normal thickness, in others considerably proliferated in the 'thorny layer.'

"The basement substance, or body of the mass, is composed of œdematous, fibrous connective tissue, the fibrillæ being separated from one another by infiltrations of serum and fibrin and a few white blood-cells.

"The blood-vessels are some of them enormously dilated and contain granular detritus. There is no glandular structure to be seen. There are no papillæ. The structure is therefore analogous to that of the so-called nasal mucous polypi, excepting that it has, as one would expect in the larynx, an investment of pavement instead of columnar epithelium. Diagnosis: Polypoid degeneration of the mucous membrane of the larynx."

Mrs. B. so far recovered her strength that she not only helps to take care of herself, but assists in the care of her husband, who is now confined to the bed, being in the second stage of pulmonary tuberculosis.

Here, then, is presented another point of interest. Is Mr. B.'s case one of infection?

I will give his history briefly, leaving the question open.

Mr. B., thirty-three years old, born in Maryland of American parentage, is the oldest in a family of three children. A sister died in childhood of diphtheria. A brother is living, aged twenty-nine, and in good health. The mother died at thirty-one of some puerperal disease, two days after the birth of this brother. The father died suddenly, at forty-four, of "heart disease."

Grandparents, paternal and maternal, reached an advanced age.

Of the uncles and aunts, so far as known, but two have died—a paternal uncle, at sixty-three, of consumption, and a paternal aunt, at fifty, cause unknown. Mr. B. is tall and broad-shouldered, and was apparently a man of more than ordinary strength.

He has led a seafaring life since the age of sixteen, and for the latter years was mate of his vessel, a sailing craft. He was married, as already stated, in September, 1887. He was never sick until March, 1888, when he was at sea during the memorable blizzard. He was much exposed at this time, and con-

tracted a severe cold. He has had frequent "colds" since, but has never been confined to the house.

The last attack at sea was after prolonged exposure in August, 1890, when he gave up his position and attempted to find some easier work in the city. Previous to this time his stays at home here had been of a week's duration or less, and at intervals of two or three months.

From August to November, 1890, he drove a mail wagon as a "night extra." He was obliged to give this up at the latter date because of a steady loss of strength.

Since that time he has failed steadily, presenting the familiar symptoms of pulmonary tuberculosis.

The foregoing was written early in March; since then both the patients have died—Mr. B. on April 14th, and Mrs. B. five weeks later. Mrs. B. had no suffocative attacks after the intubation. In fact, during the last weeks of her life the lumen of the larynx, enlarged by the destructive ulceration, was greater than it had been during any time in the preceding year, as shown in Fig. 3.

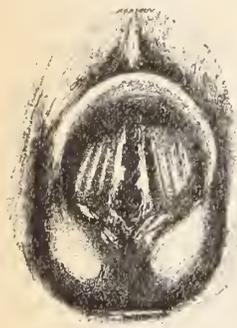


FIG. 3.

The only record of intubation for the relief of stenosis in tubercular laryngitis of which I have been able to learn is that reported in the July number of the *Journal of Laryngology and Rhinology*. M. Massei is reported as having intubated in three cases of tubercular laryngitis. He says of the operation that "stenosis may be got to yield in a surprisingly short space of time."

At the time this paper was written I learned that the operation had twice been done in this city—once by Dr. Dillon Brown; the patient was dying and intubation was done for the promotion of euthanasia; once also by Dr. D. C. Cox, under like circumstances and for the same purpose.

In the condition under consideration it is not unwarrantable to make the assertion that the operation ought always to be done instead of tracheotomy.

The case and quickness with which the operation may be done; the comparative absence of shock; the absence of a wound in tissues predisposed to necrosis; the fact that air reaches the lungs through the natural passages; the possibility that after a few hours or days the tube may be dispensed with—in fact, all the familiar arguments in favor of intubation appeal with great force for its use in these cases.

Instead of tardily and reluctantly yielding to the importunities of friends for relief by tracheotomy—an operation of doubtful utility—one may early offer intubation with as much hopeful enthusiasm as can be summoned in so desperate a condition, knowing that as large a measure of relief will be gained with the doing of relatively no damage.

To put the question simply: Shall the patient be given air by a method which adds materially to his suffering, and rarely prolongs life beyond a narrow limit, or by a method which allows respiration to go on as freely as after tracheotomy, adds nothing to the risks of the sufferer, and offers the possibility of prolonging life to such limit as the general condition allows?

In conclusion, I wish to acknowledge my indebtedness to Dr. Charles H. Knight for his material assistance, and to Dr. Van Gieson and Dr. Wright for their kindness in making microscopic examinations.

## A CONSIDERATION OF FUNCTIONAL DISTURBANCES OF THE HEART AND THEIR REMEDIES,

*with the History of a Case of Functional Trouble  
characterized by Irregular Rhythm and Force  
and Intermittent Action which has persisted for Two Years.\**

By C. E. LOCKWOOD, M. D.

FUNCTIONAL disturbances of the heart, as has been often remarked, comprise the large majority of heart affections for which physicians are consulted, because, as has been noted by Dr. Walshe, "the amount of local suffering entailed by disturbance wholly or in the main dynamic is often greater than that produced by actual organic disease." The importance of their careful study is therefore apparent.

The study of the nervous supply of the heart, upon the derangement of which so many functional irregularities depend, is one surrounded by many difficulties, and our information on this point is very incomplete. It seems to be generally admitted that by the cardiac ganglia at the base of the heart, which are intimately connected with the sympathetic system of nerves, the rhythmical movements are carried on, even when the heart is removed from the body, and that the controlling or inhibitory nerve is the pneumogastric. It is well known, says Dr. Fothergill, that excitation of the pneumogastric will slow ventricular contraction, and, if powerful enough, arrest it altogether. In animals the right possesses the inhibitory power more than the left. In the pneumogastric there are certain fibers which exert an accelerating action and increase the rapidity of the heart's action. Irritation of the medulla oblongata will also produce a similar effect if certain nerve tracts are uninjured; so impaired action of the vagus or stimulation of the accelerating fibers may be the cause of tachycardia. According to Stricker, says Dr. Austin Flint, there exists in the medulla oblongata a center the stimulation of which increases the rapidity of the heart's action, and from this center fibers descend in the substance of the spinal cord, pass out with the communicating branches of the lower cervical and upper dorsal nerves to the sympathetic, and go to the cardiac plexus. It has been shown that, after division of the pneumogastric, stimulation of the accelerator fibers increases the number of beats of the heart. And when we consider how intimately the heart is connected with the brain and other organs, through the pneumogastrics and the sympathetic system, the great wonder is that its functions are not more frequently disturbed. Such derangement of the heart functions as can not be shown during life or after death to be connected with organic lesions we call func-

\* Read before the Section in General Medicine of the New York Academy of Medicine, November 17, 1891.

tional, although some lesion of the organ may exist and not be discoverable by our present methods of examination during life.

Functional disturbance of the heart, according to Walshe, is connected more or less constantly with the following conditions: Perverted innervation, as in hysteria; the menopause; uterine and ovarian excitement; spinal irritation; various neuralgiæ; sudden fright; overexertion of the faculties of the mind; prolonged mental anxiety; chorea; emotion; dyspepsia; gastric catarrh, etc. It is also caused by: *An altered condition of the blood*, due to hæmorrhage, anæmia, gout, chronic rheumatism, functional derangement of the liver, chronic liver disease, or uræmia; *nervous exhaustion*, abuse of the sexual organs, and other causes; *mechanical interference*, as when the stomach or intestines are distended with flatus, and in pregnancy, tight lacing, or pleuritic effusion; and *certain poisonous influences*, such as the use of stimulants, tobacco, etc.

In regard to the actual symptom-producing agent in tobacco, when smoked in excess, there seems to be some difference of opinion among authorities, some contending that nicotine is not present in tobacco smoke. Dr. W. L. Dudley, of Nashville, Tenn., concluded from his investigations that carbonic oxide was the *most poisonous constituent of tobacco smoke*, derived, of course, from combustion; and, further, that more injury resulted from cigarettes than cigars or pipes, as the smoke was *inhaled*, poisoning the blood with carbonic oxide. Nicotine, like prussic acid, is a compound of carbon, nitrogen, and hydrogen; it contains no oxygen, the formula being  $C_{10}H_7N$ . When exposed to air and light it undergoes a chemical change and acquires a brown color; its energy as a poison is thereby reduced. Bernard says he found the *modus operandi* of the partially decomposed poison to be different from that of nicotine. The functions of the lungs and heart were directly affected by it, while the pure poison chiefly spent its physiological action on the capillary circulation. We must therefore conclude that tobacco smoking or chewing to excess is especially disturbing to the heart functions. Dr. Fothergill says: "The effect of tobacco is to render the heart action quicker, beat feebler, and to promote liability to palpitation."

As regards the effects of alcohol upon the heart, it seems to be well settled that in small quantities its first effect is to stimulate the heart, causing a slight increase in frequency and a marked increase in force, accompanying which is a dilatation of the cutaneous capillaries, and probably also those of the brain. In poisonous doses, a lessening of the heart's power by one twentieth and the blood-pressure by one sixth occurs. Nothnagel explains this as a reflex result, due partly to the severe irritation of the vagus, partly to a direct affection of the heart plexus and pneumogastric center in the brain.

Theine and caffeine are powerful neurotic agents, and when indulged in to excess have a very decided action on the cardiac ganglia; according to Dr. Fothergill, they render the heart irritable, excited, and arrhythmical in its contractions. He also says that, "looked at from a chemical point of view, the principles of coffee and cocoa are closely allied

to tea; and it seems difficult to explain how symptoms are relieved by substitution of coffee and cocoa for tea. Still, clinically, the fact remains. It is said tea contains, besides theine, a volatile intoxicating oil, and this may make the difference."

Functional disorders of the heart have been divided into five groups: Slow, intermittent, irregular, and frequent pulse, and inordinate vascular pulsation.

"In the variety characterized by infrequency of the heart's action it may be assumed," says Dr. Flint, "that the causative agency is exerted through the pneumogastriacs. The inhibitory function of this nerve is affected in the same way as by the galvanic current in the experimental observations on animals in illustration of this function." This view is corroborated by the frequent association of this variety of disorder with notable cerebral disturbance. According to Sir Dyce Duckworth, slow pulse has been most frequently noticed after *acute disease*, and has been found in cases of malarial poisoning, after jaundice, or with *increased arterial tension*. *Injuries to the head, meningitis, and cerebral abscess* are also causes of this form of pulse. Dr. Southey, of England, has reported a case where the patient had fibroid thickening of the upper membranes of the spinal cord in which the pulse was quicker than normal. In a paper by Dr. Seymour Taylor, published in the *Lancet*, for June 6, 1891, entitled Remarks on the Slow Heart, the author makes the following observations which he thinks it well to remember:

"1. That there is a series of cases in which it is a perfectly healthy phenomenon, occurring in tall, muscular men, and in whom it is quite consistent with health, and even prolonged life.

"2. That it is often a manifestation of advanced mechanical disease of the heart, or of disease of the aorta and its primary vessels.

"3. That it occurs as a result of prolonged anæmia or other diseased conditions of the blood, including certain fevers.

"4. That it may supervene after abuse of tea, coffee, and tobacco, or the use of various medicinal drugs, as quinine, cocaine, aconite, nitrate of potash, or as the result of some poisons, as from snake-bites.

"5. That it is often a sequel of grave neurotic changes and disorders, and is thus correlated with derangements of respiration, digestion, and other functions.

"6. That we find it also in cases of shock from sudden fright, in epilepsy, and in abdominal injuries or operations."

In regard to the significance of slow pulse as a symptom of organic disease, Dr. Russell, of Birmingham, England, says that he has collected thirty-eight cases of slow pulse, and in thirty of them organic disease was found to coexist; and of three cases in which the pulsations ranged from 26 to 38 a minute, all had been accompanied by organic disease.

Dr. Austin Flint says that cases of slow heart are very rare in healthy subjects, and that a persistent slowness can not be acquired except rarely without some serious impairment of health. This dictum is doubted by Dr. Seymour

Taylor, as he says all departures from normal states tend to increase the frequency of the heart's action.

*Intermittent pulse* is generally caused by dyspepsia, the excessive use of tea, coffee, or tobacco, or gout, sudden fright, etc.

Dr. Webber, of Boston, has published an account of two cases of intermittent pulse following sudden fright in which there were no other symptoms of cardiac disturbance, no murmurs, no enlargement; he regarded them as choreic in character, and the patients both recovered under arsenical treatment.

*Irregular pulse* is due to about the same causes as mentioned under the last head.

*Frequent pulse* is caused by dyspepsia, disease of the liver, or by some deep-seated nervous disorder. The menopause has been assigned as a producing factor of this form of heart disturbance by Professor Kisch, of Prague, who locates the cause in hyperplasia of the ovarian stroma.

*Inordinate vascular pulsation* is found chiefly in middle life and in leucocythæmia. Hysteria and gout are both causes of this form, according to Sir Dyce Duckworth. Dr. Da Costa has described a number of cases in which forced work or slight exertion in those whose constitution had been impaired by poor nutrition or disease seemed to be productive of this trouble; he found it to be most quickly developed in those unaccustomed to fatigue or subject to readily quickened circulation. The symptoms of this form of functional heart disorder have been graphically depicted by Dr. Da Costa, and are great frequency of the action of the heart, constantly recurring attacks of palpitation and pain in the precordial region, an abrupt, jerky impulse, sometimes of irregular rhythm, with a short first sound and a very distinct second sound.

"The disorder is very obstinate, and much exercise is impossible. The malady often exists when the general health is perfect."

Dr. Halbert has recorded two interesting cases of this kind in the *College and Clinical Record*—one in which the pulse was forcible and reached 120 a minute; the other in which the pulse reached 160. In both the impulse was felt over the abdominal and iliac arteries, and auscultation showed no organic disease in either case; treatment by rest in the recumbent posture, restricted diet, and two drops of tincture of aconite every three hours resulted in cure in one case in three weeks; in the other case the same treatment, with the addition of eight grains of quinine three times a day, effected a cure in six days.

The treatment of functional heart disorders would naturally be such as would be indicated by the evident cause when that can be ascertained—in those characterized by perverted innervation, removal of exciting causes, rest, nutrition, tonics, etc.

In hysteria, compound spirit of ether, valerian, and other antispasmodics are useful; at the menopause, the bromides and mild systematic purging, with wet applications to the lower part of the abdomen, combined with suitable dietetic and hygienic measures, as recommended by Professor Kisch.

In cases following or accompanying chorea or caused by sudden fright, arsenic has seemed to be useful.

Where the heart affection is due to dyspepsia, gastric catarrh, anæmia, gout, rheumatism, or disease of the liver or kidneys, the treatment appropriate to such complaints would be indicated.

In nervous exhaustion due to sexual excess, we should remove the cause and use such measures as will restore normal nerve tone.

In mechanical interference with the heart, removal of the cause should be effected, if possible.

Where the trouble is due to the excessive use of alcoholic stimulants, tea, coffee, or tobacco, discontinuance of their use and the administration of heart tonics, such as digitalis, belladonna, and nux vomica, combined with agents which lessen nervous irritation, such as the bromides, are to be used.

As regards the medicinal treatment in general, Dr. Da Costa has found digitalis and digitaline especially useful in cases characterized by inordinate frequency, tincture of aconite in very forcible pulsation, and belladonna and atropine where irregularity was a marked quality.

Dr. Janeway favors the administration of morphine hypodermically for cases of tachycardia, and Sir Walter Foster, of Birmingham, England, recommends quinine in such doses as ten grains, three times daily, with the use of the continuous current applied to the sympathetic in the neck in "run-away pulse." Dr. Solis-Cohen speaks well of sulphate of sparteine in doses of a quarter of a grain, four or five times a day, in cases needing a remedy of comparatively rapid action and regulating power—that is, a power (as he expresses it) to render steady and continuous the previously unsteady and intermittent heart-beats, and recommends belladonna in the irritable, irregular, and feeble overacting heart of some cases of tobacco poisoning.

CASE.—T. C., white, aged twenty-four years, born in Ireland, a collector, consulted me on February 21, 1888.

*Family History.*—His father died at the age of sixty-three years; cause of death, paralysis. His mother died at the age of sixty years; cause of death unknown. He has three brothers and three sisters living and well.

*Personal History.*—He has always been well, except, *he says*, that he had a catarrhal throat affection last fall, and that his stomach has not been in a satisfactory condition for two years. He appears to be of a nervous temperament. He complains that during the past two weeks he has suffered from a soreness over the stomach on moving or walking, has had a headache most of the time, and palpitation occurs on the least exertion; his throat is dry, his bowels are constipated, and he has a burning sensation in the chest.

*Physical Examination.*—The heart's action is irregular in force and rhythm, at times intermittent. The number of pulsations at the wrist is 108, as near as I am able to estimate, the counting of the pulse at the wrist being attended with much difficulty, on account of the difference in the force of the beats, some pulsations being hardly perceptible. The apex-beat is on the mammary line and somewhat raised, and I am unable to detect any murmur. On investigation as to the cause of the troubles, the patient says he thinks his occupation as a collector has been attended with considerable overexertion, as he has been obliged to go up and down many flights of stairs daily. I am unable

to elicit a classical history of dyspepsia. He says he does not smoke or use tobacco in any form, or tea or coffee to excess; neither is there any history of prolonged mental exertion, worry, or sexual excess. He speaks of having been disappointed in love. There are no symptoms of gout. He is somewhat anæmic in appearance, and says he has never had syphilis.

The patient's age (twenty-four years) rather precluded atheroma of the coronary arteries, and his weight (one hundred and twenty pounds and three quarters) and the absence of subcutaneous fat did not indicate fatty degeneration. In view, therefore, of the history of overexertion, mental depression due to disappointment in love, and the evident neurotic temperament of the patient, I diagnosed the case as one of *heart neurosis*, and recommended measures to restore the impaired nerve tone and regulate the action of the heart, with the avoidance of all circumstances calculated to call upon the heart for increased effort, moderate exercise in the open air, no emotional excitement; the drinking of two quarts of milk daily in addition to his usual diet; cod-liver oil with iron after meals; buckthorn cordial, from a teaspoonful to a tablespoonful at bed-time, to overcome constipation; and a mixture of equal parts of tincture of nux vomica and tincture of digitalis, ten drops three times a day.

*September 18, 1888.*—Heart's action the same as when last seen in February, 1888; same treatment advised, except that I prescribed ten drops of tincture of digitalis three times a day.

*September 11, 1889.*—Patient reappears after lapse of one year; heart's action the same; has lost flesh; same general treatment advised; for constipation, aloin, one fifth of a grain; strychnine, one sixtieth of a grain; extract of belladonna, one eighth of a grain at bed-time.

*25th.*—Weight, one hundred and twenty-six pounds, a gain of five pounds since September 11, 1889. Heart's action the same; prescribed one thirty-second of a grain of strychnine and ten drops of tincture of digitalis three times a day to regulate heart action; the application of a belladonna plaster to the chest over the region of the heart, and continuance of general measures as to nutrition and hygiene.

*October 7th.*—Pulse more regular at the wrist; heart action more regular with the exception of some hesitation, so to speak, at times; weight, one hundred and twenty-eight pounds, a gain of seven pounds and a quarter since September 11, 1889; prescribed one twenty-fourth of a grain of strychnine and ten minims of tincture of digitalis three times a day; general treatment continued.

*13th.*—Heart action more regular, but dicrotic every eight beats; prescribed a mixture of strychnine, iron, quinine, and phosphorus, as a general tonic; and for the constipation, which still remained obstinate, maltine with cascara, one or two teaspoonfuls at bed-time.

*December 2d.*—Weight, one hundred and thirty-one pounds, a gain of ten pounds and a half since September. Heart action arrhythmical, hesitating, and dicrotic. Treatment unchanged.

*January 16, 1890.*—Weight, one hundred and thirty-three pounds and a quarter. Heart action the same; prescribed tincture of strophanthus, five drops three times a day.

*February 10th.*—Heart action irregular; prescribed conval-lamarin, one one-hundredth of a grain three times a day.

*March 10th.*—Heart action the same; complains of full feeling in region of the epigastrium, probably due to indigestion; prescribed tincture of nux vomica, eight drops before each meal and five grains of bismuth and soda after eating; and, with a view to regulate heart action, five drops of fluid extract of convallaria three times a day.

*20th.*—Heart intermits every sixth beat, but in other respects

is more regular; prescribed mixture of bismuth, tincture of nux vomica; dilute nitro-hydrochloric acid and pepsin before meals to aid digestion.

*April 1st.*—Weight, one hundred and thirty-three pounds. Heart intermits about every tenth or fifteenth beat, but more regular in other respects, due perhaps to better action of the stomach.

*11th.*—Heart action dicrotic every tenth beat; prescribed tincture of digitalis and tincture of strophanthus, equal parts, ten drops three times a day.

*May 7th.*—Heart action irregular as to rhythm; prescribed sulphate of sparteine, one fourth of a grain three times a day.

*June 3d.*—Heart action more regular; intermissions occur every twenty beats; advised to keep up nutrition and continue cod-liver oil.

*October 14th.*—Weight, one hundred and twenty-three pounds; loss in weight since May, 1890, ten pounds. Heart intermits every ten or fifteen beats; prescribed cod-liver oil, iron, and two quarts of milk in addition to regular meals.

*30th.*—Weight, one hundred and twenty-seven pounds and five eighths. Pulse, 84; no intermission, but occasionally notice a double beat; prescribed tincture of digitalis, ten minims, and one thirty-second of a grain of strychnine three times a day.

*December 15th.*—Dr. R. C. M. Page, at my request, made a careful examination of the patient with the following result: Liver and spleen normal; apex beat of the heart on the mammary line and somewhat raised; intermission felt best in the carotids; eyesight good; no enlargement of the thyroid gland; respiratory murmur perfect, except it is wavy, which is peculiar to nervous people with palpitation; false intermission at the wrist; anæmic murmur in the pulmonary interspace; venous hum marked in the neck at the right side.

Dr. Page expressed the opinion that the case was a heart neurosis with anæmia, and well worth watching for the development of exophthalmic goitre. Prescribed a mixture of tincture of nux vomica, two drachms; powdered rhubarb and sodium bicarbonate, each one drachm; water, to two ounces. A teaspoonful to be taken before meals and at bedtime.

Dr. Page thought that gastric catarrh, torpid liver, or anæmia might produce such a neurosis. Urine examined: reaction acid; specific gravity, 1.020; no sugar; no albumin; some crystals of oxalate of calcium and some urates found.

*February 9, 1891.*—Heart action the same. Patient was carefully examined by Dr. Janeway, who found the heart slightly enlarged with displacement of the apex to mammary line and raised; found no adhesions between visceral and parietal layers of the pericardium; slight murmurs were heard at the apex, which he thought due to irregular action of the papillary muscles. Dr. Janeway thought the hypertrophy was due to the irritable heart condition and said the murmurs were more audible after rapid exercise or partial respiration, and expressed the opinion that the trouble was a heart neurosis choreic in character, and advised that the patient take a mixture of equal parts of tincture of strophanthus and tincture of nux vomica, ten drops three times a day; that he pay careful attention to his general health and avoid all excitement; and for stomach symptoms, a mixture of tincture of nux vomica, bicarbonate of sodium, and rhubarb, and three grains of salicin three times a day.

*March 3d.*—Pulse, 84; heart action the same. In view of the choreic nature of the case, I prescribed Fowler's solution of arsenic, two drops to be taken after meals, and the dose to be gradually increased up to ten drops.

*May 13th.*—Patient has taken Fowler's solution of arsenic in gradually increasing doses until he reached ten drops three times a day. Heart action unchanged. Prescribed one sixtieth of a grain of atropine, to be taken three times a day, in accord-

ance with Dr. Da Costa's view that this drug is especially useful in irregular action of the heart.

25th.—Heart action still irregular in force and rhythm.

The points of interest in this case seem to me to be—

1. The evident neurotic character of the affection, its persistency, and the very slight annoyance or discomfort experienced by the patient.

2. The difficulty of assigning a cause for the irregular heart action.

3. The inefficacy of all medication looking toward regulation of the disturbed heart action.

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**A Bill to restrict the Use of Hypnotism**, drafted, it is said, in the office of the *Buffalo Enquirer*, has been introduced into the New York Legislature. The bill is as follows:

*An act to prohibit public exhibition of hypnotic experiments and to prohibit hypnotic treatment by any one except duly licensed physicians.*

The people of the State of New York represented in Senate and Assembly do enact as follows:

Section 1. It shall be unlawful for any person except duly licensed physicians in the course of lectures to medical students or before scientific bodies to give exhibitions of or perform hypnotic demonstrations in public.

Section 2. It shall be unlawful for any person not a duly licensed physician to hypnotize another.

Section 3. Any person violating either of the foregoing provisions of this act shall be guilty of a misdemeanor.

Section 4. This act shall take effect immediately.

The bill is warmly advocated by several Buffalo physicians, and will doubtless have the support of the medical profession throughout the State.

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#### THE BABY STUDENTS' RELIEF BILL.

In our issue for February 13th we spoke of the disgraceful purport of a bill that was then under consideration by a committee of the Senate of the State of New York, having for its object to relieve certain medical students of the necessity of passing the State examination. We are glad to see that the committee on legislation of the Medical Society of the State of New York has since issued a circular, dated February 17th, calling on the physicians of the State to influence members of the Assembly to vote against the bill, which has already been passed in the Senate. The committee very properly says in its circular that there is no valid argument in favor of the bill, but that its passage by the Senate has been brought about by personal solicitation and selfish appeals. Personal effort should therefore be resorted to against it in the Assembly.

"The law governing the practice of medicine in the State of New York," says the circular, "is being copied all over the country; it is said by educators to be one of the fairest and best laws on the statute books of any government in the world; almost daily requests for a copy of this law are received from all quarters of the globe, and its praises have been sounded in congratulatory letters to its projectors by physicians and laymen from far and near. Should such an excellent law, passed after more than twenty years of struggle in legislative halls, be emasculated year after year because of the lethargy of our professional brethren, when those selfishly interested are so energetic and persistent? The answer rests with you and all of us. If you desire to crush out this yearly cry on the part of the students against high medical standards, if you desire to preserve intact the excellent law which it is now sought to amend and practically nullify, write or telegraph your member of Assembly *at once* (delay is now dangerous) that the entire medical profession, not only of the State but of the country, regardless of creed or pathy, is opposed to Assembly Bill No. 513; that it is special and selfish legislation calculated to benefit the few to the detriment of the many, *and that it should not prevail*. If you value a higher standard in the profession of medicine, if you believe in adding to its dignity and worth, you will not put this letter aside until you have lent your aid toward the defeat of this proposed legislation."

Besides issuing its circular, the committee has worked diligently by individual correspondence to rouse the profession to the need of speedy action, and we are informed that a most gratifying response has been the result. The medical societies of Fulton, Albany, Kings, Erie, and other counties had delegations present at a hearing held on Wednesday, the 24th inst., before the Assembly committee on public health, and there

were also present representative physicians from New York city, Brooklyn, Buffalo, Elmira, Syracuse, Gloversville, Albany, and other large places—homœopathic and eclectic as well as those of our own “school”—to protest against the proposed legislation. In addition, several of the more influential of the newspapers have published editorial articles opposing the bill.

It must not be supposed that all the students who could take advantage of the proposed law are enlisted in favor of its enactment; indeed, in one school, that of Niagara University, of Buffalo, they have passed a resolution declaring that the law as it stands is good enough for them.

The Legislature should understand that the medical profession opposes the bill not from any selfish or illiberal motives, but solely in the interest of the public welfare; all that the profession asks for itself is not to be deprived of the means of keeping itself clean.

MINOR PARAGRAPHS.

AN ASYLUM FOR SUPERANNATED INSTRUMENTS.

ACCORDING to a London letter to the *American Practitioner and News* for January 16th, old and discarded surgical instruments can be put to a good purpose by being sent to missionaries in foreign lands. A benevolent member of the Royal College of Surgeons has made a suggestion that all old-fashioned and discarded surgical implements be brought out of their dark corners and placed in the hands of the secretaries of those societies which employ medical missionaries. The gentleman who makes this appeal states that he knows of an instance of a missionary who had no other instruments than an ordinary case-knife and a pair of scissors with which to remove the frozen foot of a North American Indian in whose case an operation was so imperative that he proceeded to operate with these. Fortunately the patient survived. A beginning has already been made by forwarding certain superfluous instruments and appliances to the Missionary Training College in East London. Old operating-cases, dental instruments, tourniquets, trocars, sounds, catheters, etc., may all be welcome and find their best value in the hands of those lonely pioneers, many of whom are a hundred miles distant, perhaps more, from any possible assistance.

COMPRESSION OF THE CAROTIDS AS A THERAPEUTIC MEASURE.

IN a recent number of the *Gyógyászat* Dr. Leopold Roheim, of Budapest, publishes a case of eclampsia which he had, after the failure of a large number of remedies, successfully treated by compressing the carotids with his fingers. The publication of this case recalls the fact that the whole subject of carotid compression in its relation to the treatment of nervous diseases was thoroughly worked up by Dr. J. Leonard Corning over ten years ago. Not content with following the ancient practice of pressing upon the carotids with the fingers, Dr. Corning devised a number of ingenious instruments by means of which he was able to compress those arteries and faradize the subjacent sympathetic and pneumogastric nerves at the same time. He has embodied the results of these researches in a number of papers, and notably in a little book, *Carotid Compression*, published in 1882. Dr. Corning's contributions are especially valuable, as the conclusions arrived at are based upon a large array of cases of nervous disease in which the method was given a thorough trial. Cases of headache, eclampsia, convulsions of children,

epileptic convulsions, and obstinate insomnia as it occurs in the insane were treated successfully in this way.

MONTHLY BULLETIN OF THE SECRETARY OF THE RHODE ISLAND STATE BOARD OF HEALTH.

DR. CHARLES H. FISHER, of Providence, has begun again to publish his little sanitary serial, called the *Bulletin of the State Board of Health*. It was discontinued in June, 1891. The fourth volume opened in January, 1892. It is essentially a voluntary publication on the part of Dr. Fisher, whose purpose is the double one of having a printed record of mortality, meteorology, etc., for the use of health officials and for enlightening the public and the public schools about the sanitary duties of boys, girls, teachers, and citizens. The Rhode Island Institute of Instructors has found this latter feature so well carried out that it has publicly asked Dr. Fisher to continue the publication and has promised a liberal advocacy of its objects.

HIGH TEMPERATURE IN INTERMITTENT FEVER.

DR. STEPHEN MACKENZIE, in the *British Medical Journal* for February 13th, reports a case of intermittent fever in which twice the temperature was 107° F., once 109°, twice 113°, and once 113·8°. The observations were made with the thermometer in one or the other axilla; sometimes two thermometers were placed in the axilla and found to correspond. On account of rigors the temperature could not be taken in the mouth. The periods of hyperpyrexia were exceedingly brief, sometimes a return to normal temperature occurring in five minutes. The patient recovered.

A BENGALI MEDICAL JOURNAL.

THE *Indian Medical Gazette*, of Calcutta, says in its January number that it has received the first and second issues of *Veshukdorpon* (the mirror of medicine), a monthly medical journal written in simple Bengali, so that it can be read by the native doctors and civil hospital assistants of all grades and denominations. The character of its contents is commended by the *Gazette*.

ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending February 23, 1892:

DISEASES.	Week ending Feb. 16.		Week ending Feb. 23.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	86	0	16	4
Typhoid fever.....	7	6	13	5
Scarlet fever.....	225	39	209	31
Cerebro-spinal meningitis.....	0	1	0	1
Measles.....	204	10	224	17
Diphtheria.....	123	37	134	35
Small-pox.....	8	1	7	3
Erysipelas.....	4	0	2	0
Varicella.....	18	0	16	0
Pertussis.....	1	3	2	0
Mumps.....	0	0	4	0

**The County Society Prize.**—Members of the Medical Society of the County of New York are invited to compete for the annual prize of one hundred dollars or a one-hundred-dollar gold medal, to be awarded for the best essay on any medical or surgical subject by the society at its annual October meeting, the award being subject to the following conditions:

1. The competitor must be a member of this county society in good and regular standing.

2. The competitor's identity must not be revealed until after the report of the committee on prize essays has been presented at the annual October meeting, each essay in competition being designated simply by a motto and accompanied by a sealed envelope exhibiting the same motto, and inclosing the author's name.

3. If, in the judgment of the committee, no essay is presented that is sufficiently meritorious, no award will be made.

All essays competing should be sent to the chairman of the committee, Dr. E. B. Bronson, No. 123 West Thirty-fourth Street, on or before the first day of October, 1892.

**The Medical Association of Georgia** will hold its forty-third annual meeting in Columbus, on April 20th, 21st, and 22d, under the presidency of Dr. G. W. Mulligan, of Washington.

**The Randall's Island Hospitals.**—Dr. William J. Morton has been appointed neurologist on the medical board.

**The Pan-American Medical Congress.**—The Medical Society of the County of Kings, N. Y., has appointed a committee consisting of Dr. J. H. Raymond (chairman), Dr. A. J. C. Skene, and Dr. Alexander Hutchins to co-operate with the officers of the congress.

**The Royal College of Physicians of London.**—It is stated that the recently published list includes 295 fellows, about 500 members, and about 3,300 licentiates. Only the fellows manage the organization.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from February 7 to February 20, 1892:*

GLENNAN, JAMES D., First Lieutenant and Assistant Surgeon. The leave of absence granted on surgeon's certificate of disability is extended fifteen days.

FISHER, WALTER W. R., Captain and Assistant Surgeon. The leave of absence granted is extended fifteen days.

The following named officers, having been found by army retiring boards incapacitated for active service on account of disability incident to the service, are, by direction of the President, retired from active service this date, under the provision of Section 1251, Revised Statutes: BURTON, HENRY G., Captain and Assistant Surgeon; TAYLOR, ARTHUR W., Captain and Assistant Surgeon. February 5, 1892.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending February 13, 1892:*

BRYANT, P. H., Assistant Surgeon. Ordered to the Naval Hospital, Philadelphia, Pa.

PERCY, H. T., Passed Assistant Surgeon. Detached from Coast Survey Steamer Patterson and granted leave for two months.

DECKER, C. J., Passed Assistant Surgeon. Detached from Naval Hospital, Philadelphia, and ordered to Coast Survey Steamer Patterson.

URIC, JOHN F., Passed Assistant Surgeon. Ordered to the Naval Hospital, Portsmouth, N. H.

WELLS, HOWARD, Surgeon. Detached from the Naval Hospital, Portsmouth, and to wait orders.

GUTHRIE, JOSEPH A., Assistant Surgeon. Ordered to Naval Station, Port Royal, S. C.

YOUNG, L. L., Assistant Surgeon. Detached from Naval Station, Port Royal, S. C., and ordered to the Receiving-ship Independence.

**Marine-Hospital Service.**—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the three weeks ending February 6, 1892:*

PURVIANCE, GEORGE, Surgeon. Detailed as chairman of the Board of Examiners. February 3, 1892.

HUTTON, W. H. H., Surgeon. Detailed as member of the Board of Examiners. February 3, 1892.

SAWTELLE, H. W., Surgeon. Granted leave of absence for ten days. January 30, 1892.

IRWIN, FAIRFAX, Surgeon. Granted leave of absence for fourteen days. January 26, 1892.

MEAD, F. W., Surgeon. Detailed as recorder of the Board of Examiners. February 3, 1892.

CARTER, H. R., Passed Assistant Surgeon. Granted leave of absence for seven days. January 20, 1892.

CARMICHAEL, D. A., Passed Assistant Surgeon. When relieved, to proceed to Port Townsend, Washington, and assume command of the service. January 23, 1892.

GLENNAN, A. H., Passed Assistant Surgeon. When relieved, to proceed to South Atlantic Quarantine and assume command of the station. January 23, 1892.

WHITE, J. H., Passed Assistant Surgeon. Relieved from duty at South Atlantic Quarantine; to assume command of the service at Savannah, Ga. January 20, 1892.

CARRINGTON, P. M., Passed Assistant Surgeon. When relieved, to proceed to Evansville, Md., and assume command of the service. January 20, 1892.

MAGRUDER, G. M., Passed Assistant Surgeon. Relieved from duty at New Orleans, La.; to assume command of the service at Portland, Oregon. January 23, 1892.

VAUGHAN, G. T., Assistant Surgeon. When relieved, to report to the Supervising Surgeon-General. January 20, 1892.

COBB, J. O., Assistant Surgeon. Ordered to examination for promotion. February 3, 1892.

STONER, J. B., Assistant Surgeon. Ordered to examination for promotion. February 3, 1892.

CONDUCT, A. W., Assistant Surgeon. When relieved, to proceed to Wilmington, N. C., and assume command of the service. January 23, 1892. Ordered to examination for promotion. February 3, 1892.

GARDNER, C. H., Assistant Surgeon. Assigned to temporary duty at Baltimore, Md. January 27, 1892.

#### Promotions.

CARTER, H. R., Surgeon. Commissioned by the President as Surgeon. January 28, 1892.

VAUGHAN, G. T., Passed Assistant Surgeon. Commissioned by the President as Passed Assistant Surgeon. February 6, 1892.

#### Appointment.

GARDNER, C. H., of Maryland. Commissioned by the President as Assistant Surgeon. January 28, 1892.

#### Society Meetings for the Coming Week:

MONDAY, *February 29th*: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, *March 1st*: New York Obstetrical Society (private); New York Neurological Society; Elmira Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburgh Medical Association; Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., County Medical Association (Lewiston); Essex, Mass., South District Medical Society (annual—Salem); Baltimore Academy of Medicine.

WEDNESDAY, *March 2d*: Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton); Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

THURSDAY, *March 3d*: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, *March 4th*: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *March 5th*: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

#### Answers to Correspondents:

No. 372.—You do not state what form of electricity you have used. We should expect a favorable action from local faradization, using a weak current; also from the administration of drop doses of tincture of cantharides hourly for four hours each day.

No. 373.—We think not.

## Book Notices.

*Therapeutics: its Principles and Practice.* By H. C. Wood, M. D., LL. D., Professor of Materia Medica and Therapeutics, and Clinical Professor of Diseases of the Nervous System, in the University of Pennsylvania. A work on Medical Agencies, Drugs, and Poisons, with special reference to the Relations between Physiology and Clinical Medicine. Eighth edition of A Treatise on Therapeutics, rearranged, rewritten, and enlarged. Philadelphia: J. B. Lippincott Co., 1891.

This oft-reviewed work comes to us in its eighth edition, enlarged and improved, but not revolutionized as in its seventh edition. Its favorable reception and flattering reviews, if indeed any praise could flatter it, by the profession of not only our own, but almost every civilized country, leave little to be said for it which would not be trite and commonplace. In the branch of therapeutics, however, so many discoveries and so much experimentation are being made that a book which was authority three years ago would be at best a book of reference to-day. The author must be wide awake and ever on the alert to study new drugs, new works and conclusions upon old ones, and new theories and methods of applying them. In this respect, as in others, Dr. Wood has proved himself a man of diligence and careful scrutiny.

No doubt there are many of the newer remedies that he has failed to notice in his work, but most of them are very new or have not as yet established their right to a place among the standard therapeutic agencies. One of the greatest charms in the study of this work is that the reader is not asked to believe upon general hearsay. The studies have been made by the author himself, or his conclusions drawn from competent authorities, which he invariably cites. The facts of experimentation are presented and the author's conclusions therefrom laid down, leaving the reader the liberty to draw different ones if the processes of reasoning seem imperfect to him. It is not a work of dogmatic axioms, but one of rationalism in therapeutics, and it directs the practitioner to a higher plane than that of the older works, which, teaching from empiricism, told the student that mercury was good for syphilis, quinine for fever, and opium for diarrhœa. It would be impossible in our space to point out the different features worthy of commendation in this work; the points for criticism are few and far between. The most serious fault we can find with the book is the meagerness of advice with regard to the application of remedies in special diseases. If every reader was a practical physiologist or thorough logician, this would not be a fault; but such is not the case, and a fuller list under each drug of the diseases in which it has been successfully used would make the work more popular at least.

The arrangement of the drugs in classes, according to their physiological actions, is to our mind the only scientific and satisfactory one, both for reference and for study. The division of the work into two parts will be a novelty to most of Dr. Wood's older students. Part I, on Remedies, Remedial Measures, and Remedial Methods which are not Drugs, comprises a new and interesting portion of the book. Here are treated not only the general considerations and miscellaneous remedial measures—such as massage, metalotherapy, and feeding of the sick—but also the management of general bodily conditions, including exhaustion, obesity, and the gouty diathesis. Divisions are also made of Heat and Cold and Electricity, all of which are treated of in the author's clear and convincing manner. On the whole, this is a work worthy of the high place it has taken in medical literature and one of which every American should be proud.

*Lessons in the Diagnosis and Treatment of Eye Diseases.* By CASEY A. WOOD, C. M., M. D., formerly Clinical Assistant, Royal London Ophthalmic Hospital (Moorfields), etc. With numerous Woodcuts. Detroit: George S. Davis, 1891.

This little manual is intended to aid the physician to detect and treat the diseases of the eye which are most frequently overlooked in the course of general practice. It is subject to the same criticism which may be made regarding most of the manuals of this series, that too much is attempted to be told in a small space.

*The Pathology, Diagnosis, and Treatment of Intracranial Growths.* By PHILIP COOMBS KNAPP, A. M., M. D. (Harvard), Clinical Instructor in Diseases of the Nervous System, Harvard Medical School, etc. Boston: Rockwell & Churchill, 1891.

This is the essay for which was awarded the Fiske prize for 1890. Dr. Knapp wisely decided to present a series of new cases, even though some of them were defective, rather than to collect more typical published cases from the great number already reported. The essay is therefore based on the records of forty personal cases with autopsies. He has, however, availed himself freely of the literature of the subject, especially in the discussion of symptomatology. In the chapter on treatment also he has given a complete list of all reported cases of operations.

Of the forty cases collected by the author, eleven were not uncomplicated cases of brain tumor, but cases in which the patient died of something else, and the tumor was merely a co-existing lesion, giving rise during life to no apparent disturbance.

In thirteen cases there were symptoms of some cerebral trouble, but they were not definite enough to permit of a correct diagnosis. In only sixteen cases was it possible to make a diagnosis of the existence of an intracranial growth, and in eight of these a correct focal diagnosis was also made. The number of characteristic cases, when thus analyzed, is so small that the author could hardly do more than use them in illustration of facts already established, rather than attempt to add to our existing knowledge of the subject. He gives, however, a very clear and complete exposition of this knowledge, especially in the chapters on symptomatology and diagnosis. His remarks on treatment also are characterized by a judicious conservatism.

*Philadelphia Hospital Reports.* Vol. I, 1890. Edited by CHARLES K. MILLS, M. D., Member of the Neurological Staff. Philadelphia: Detre & Blackburn. 1891.

This publication should receive a warm welcome from the medical profession in this country. Those physicians who are familiar with the reports published by Guy's Hospital and other institutions abroad have long regretted the regular publication of similar works in the United States.

A part of this volume is given up to historical sketches and reminiscences of the Philadelphia Hospital and Almshouse, beginning with their establishment early in the last century. The almshouse was founded in 1742, and the hospital proper in 1753, and it is but fitting that their ancient origin should receive recognition in this initial volume.

The main body of the work is made up of twenty-five clinical reports by various members of the medical staff. Neurology is represented by Dr. Mills, Dr. Dercum, and Dr. Sinkler; surgery, by Dr. Porter and Dr. Deaver; general medicine, by Dr. Musser, Dr. Henry, and Dr. Solis-Cohen; obstetrics, by Dr. Hirst and Dr. Davis; and pathology, by Dr. Forward. An interesting experimental study of the *Bacillus subtilis*, by Dr. J.

Leffingwell Hatch, should also be mentioned. His conclusions are in agreement with the opinion of Klein that this bacillus represents a class of non-pathogenic bacilli.

There are other writers whose names are only less well known than those given above, almost every member of the large hospital staff having contributed one or more papers.

Philadelphia is to be congratulated on this evidence of medical enterprise, and we hope that New York will not be tardy in following her good example.

*Guy's Hospital Reports.* Edited by W. DAVIES-COLLEY, M. A., M. C., and W. HALE WHITE, M. D. Vol. XLVII, being Vol. XXXII of the Third Series. London: J. & A. Churchill, 1890.

This volume, in addition to the usual number of valuable clinical studies, contains a very interesting and discriminating memoir of the late Sir William Gull. An autotype portrait completes the impression gathered from the memoir, and gives one a good idea of the striking presence of that distinguished physician.

As to the reports themselves, it is difficult to single out any for special mention. There are two, however, that we have found unusually instructive—namely, a paper entitled Chiefly concerning Bruits, by Dr. GOODHART, and another by Dr. W. Hale White, on The Pathology and Prognosis of Pernicious Anæmia.

Dr. C. H. Golding-Bird also contributes an interesting study of Congenital Wryneck and Facial Hemiatrophy, in which he advances a new and striking theory of the pathology of these affections when associated in the same individual.

Other reports by various writers combine to make a volume full of clinical information.

*On the Medical and Surgical Uses of Electricity.* By GEORGE M. BEARD, A. M., M. D., and A. D. ROCKWELL, A. M., M. D., etc. Eighth Edition, with over 200 Illustrations. New York: William Wood & Co., 1891.

To this edition the surviving author, Dr. Rockwell, brings broadened views and a richer experience. The vagueness and uncertainty that formerly occupied some of its pages have in a large measure been eliminated, and in place of suggestions we have experiences and positive advice. The chapter upon dosage in electricity is well-worded and instructive, being a great improvement upon that in the former editions. The chapter upon the different physiological and therapeutic effects of the induced current is new and highly interesting. The cuts, many of them new, are not of the highest type, but are generally accurate. In attempting to show the application of electricity to every form of disease much useless material has been brought into the book, and this, too, without giving the negative conclusions which the experiences justify. We do not depreciate the usefulness of electricity in many conditions, but it is not well to allege for it curative virtues in every ill that flesh is heir to. Dr. Rockwell would inspire more confidence if he told us candidly that there were some infirmities in which electricity was of no use. Fewer cases with more detail would give the student a better idea of the methods of applying electricity and of its ultimate results. On the whole, this work deserves its popularity.

#### BOOKS, ETC., RECEIVED.

*A Manual of Operative Surgery.* By Frederick Treves, F. R. C. S., Surgeon to and Lecturer on Anatomy at the London Hospital, etc. With Four Hundred and Twenty-two Illustrations. Vol. I.: General

Principles; Anaesthetics; Operations upon Arteries and Nerves; Amputations; Excisions; Operations upon Bones, Joints, and Tendons. Pp. xvi to 775. Vol. II.: Plastic Surgery; Operations upon the Neck and Abdomen; Operations upon Hernia; Operations upon the Bladder, Scrotum, Penis, and Rectum; Operations upon the Head and Spine, Thorax, and Breast. Pp. xiii to 775. Philadelphia: Lea Brothers & Co., 1892. [Price, \$9.]

*A Dictionary of Treatment; or, Therapeutic Index, including Medical and Surgical Therapeutics.* By William Whitla, M. D., Professor of Materia Medica and Therapeutics in the Queen's College, Belfast, etc. Revised and adapted to the Pharmacopœia of the United States. Philadelphia: Lea Brothers & Co., 1892. Pp. 9 to 921. [Price, \$4.]

*Surgical Diseases of the Ovaries and Fallopian Tubes, including Pregnancy.* By J. Bland Sutton, F. R. C. S., Assistant Surgeon to the Middlesex Hospital, etc. With One Hundred and Nineteen Engravings and Five Colored Plates. Philadelphia: Lea Brothers & Co., 1892. Pp. xvi to 500.

*First Lines in Midwifery: a Guide to Attendance on Natural Labor for Medical Students and Midwives.* By G. Ernest Herman, M. B. Lond., F. R. C. P., Obstetric Physician to the London Hospital and Lecturer on Midwifery, etc. With Eighty Illustrations. Philadelphia: Lea Brothers & Co., 1892. [Price, \$1.25.]

*The New Cure of Consumption by its own Virus. Illustrated by Numerous Cases.* By J. Compton Burnett, M. D. Second Edition, revised and enlarged. Philadelphia: Boericke & Tafel, 1892. Pp. xi-13 to 187.

*Sleep, Insomnia, and Hypnotics.* By E. P. Hurd, M. D., Member of the Massachusetts Medical Society, etc. Detroit: George S. Davis, 1891. [The Physicians' Leisure Library.]

*Notes on General versus Local Treatment of Catarrhal Inflammations of the Upper Air-tract.* By Beverley Robinson, M. D., New York. [Reprinted from the *Climatologist*.]

*Apparatus for collecting Water for Bacteriological Examination.* By Samuel G. Dixon, M. D., Philadelphia. [Reprinted from the *Times and Register*.]

*Annual Address before the State Board of Health of Pennsylvania.* By Professor Samuel G. Dixon, M. D. (Read on May 15, 1891, at the Sanitary Convention at Altoona.)

*Injury to the Spine: Invention and Application of Paper Jacket.* By J. Marshall Hawkes, M. D., New York. [Reprinted from the *Medical News*.]

*The Part played by Leucocytes in Inflammation in the Light of Recent Bacteriological Investigations.* By William T. Howard, Jr., M. D., Baltimore. [Reprinted from the *Maryland Medical Journal*.]

*Pneumonic Fever; its Mortality, with a Consideration of some of the Elements of Prognosis.* By Edward F. Wells, M. D., Chicago. [Reprinted from the *Journal of the American Medical Association*.]

Twenty-first Annual Report of St. Catherine's Hospital, Brooklyn.

## Reports on the Progress of Medicine.

### REPORT ON OPHTHALMOLOGY.

By CHARLES STEDMAN BULL, M. D.

(Continued from page 222.)

**Clinical Contributions to the Physiology of the Ophthalmic Ganglion.**—Querenghi (*Arch. d'ophthal.*, xi, 3) draws the following conclusions from his observations: 1. Through the ophthalmic ganglion pass the nervous fibers by means of which the irritation or impulse is conveyed to the muscle of accommodation. 2. The ganglion is also traversed by the constrictor nervous fibers going to the pupil, which react to reflex irritation of the same eye. 3. It presides over the particular sensibility of the cornea. 4. The constrictor nerve fibers of the pupil, which react to the luminous reflex of the other eye and to the movements of convergence, come directly from the central organs with

out the intermediary aid of the ganglion. These fibers probably pass to the eye with the long ciliary nerves.

**The Origin of Tuberculosis of the Uveal Tract.**—Valude (*Arch. d'ophthal.*, xi, 3) gives the results of his experiments as follows: 1. As long as the tuberculous deposit remains inclosed with the envelopes of the eye, and as long as no tuberculous fungi develop, the disease extends but little beyond its original deposit. 2. In an infected organism the wounding of the healthy eye is not followed by any special reaction. It thus seems that the eye behaves toward the tuberculous infection very differently from the way the subcutaneous cellular tissue or the bones or articulations behave. 3. The propagation of the tuberculous germs follows by the lymphatic channels, and not by the blood-vessels. 4. The eye is well protected against tuberculosis by propagation or generalization; ocular tuberculosis of internal origin is certainly very rare. 5. It is therefore probable that ocular tuberculosis of the uveal tract is of external origin.

**Superficial Ciliary Nerves in Man.**—Boucheron (*Arch. d'ophthal.*, xi, 4) considers that our modern methods of microscopical examination have proved that it is possible to divide and resect the deep ciliary nerves without destroying the cornea, because the superficial ciliary nerves suffice to preserve its normal sensibility. After division of the deep ciliary nerves the corneal sensibility, preserved at the margin, is merely the normal condition of function of the superficial ciliary nerves. The observations of Magendie and Bernard have also demonstrated that the sensibility of the center of the cornea is of different origin from the sensibility of the periphery of the cornea and conjunctiva.

**Recent Researches into the Physiology of the Movements of the Eyes.**—Landolt (*Arch. d'ophthal.*, xi, 5) draws the following conclusions from his researches: It is proved that the act of reading is the more fatiguing the smaller the jerks or excursions of the eyes are which it demands. Experiments as to the smallest angle of excursion rapidly cause such fatigue that they can not be pursued for any length of time without a rest. The nearer the eye approaches the type, the greater become the necessary excursions of the eyes, and this imposes a great demand on the muscles of convergence and accommodation. The particular kind of motility of the eyes, and the limitation of their excursions, probably contain the solution of many of the problems of ocular pathology.

**Persistence of the Canal of Cloquet; Remains of the Fœtal Hyaloid System; Coloboma of the Optic Nerve.**—Van Duyse (*Arch. d'ophthal.*, xi, 5) gives the following results of his examination of an interesting case: 1. The canal of Cloquet with the remains of the hyaloid artery become impermeable to the passage of the blood. 2. A long, white band of tendinous aspect covers the optic disc with its superior end, and masks the origin of the retinal vessels. It runs downward and outward toward the periphery of the fundus, and ends here by a bilobed border with pigmented edge. The lower end resembles strongly a coloboma of the fundus. 3. There was a coloboma of the sheath of the optic nerve, which surrounded like a large conus the upper end of the tendinous band. There were also signs of disseminate chorioretinitis in the atrophic stage.

**The Shape of the Human Cornea, and its Influence on the Vision.**—Sulzer (*Arch. d'ophthal.*, xi, 5) gives the following results of his investigations:

1. The central parts of the cornea vary very little from the shape of a spherical cap or coil.

2. At a certain distance from the point of intersection of the visual line with the cornea, averaging an angular distance of  $15^\circ$ , the radius of curvature of the cornea suddenly begins to increase. From this point the corneal surface presents curvatures resembling those of an ellipsoid, the eccentricities of which increase as the corneal limbus is approached.

3. If we pass from the point of intersection of the visual line with the cornea, or from the point of greatest curvature, toward the corneal elements situated at equal distances from the point of departure, the curvature does not diminish equally along the two principal meridians nor along the two halves of the same principal meridian.

**Subconjunctival Injections of Corrosive Sublimate in Ocular Therapeutics.**—Darier (*Arch. d'ophthal.*, xi, 5) considers this method of treatment a valuable acquisition of ocular therapeutics. In all cases

where mercurial medication is indicated, and where it is necessary to put an immediate stop to the progress of the disease, he thinks no other method is so easily managed or so satisfactory in its results.

**Notes on Glioma Retinæ, with a Report of Sixty Cases.**—Lawford and Collius (*Roy. Lond. Ophthal. Hosp. Rep.*, xiii, 1) give some interesting notes on this subject. Of the sixty cases, thirty were in males, twenty-seven were in females, and in three the sex was not given. Of the sixty cases, the growth occurred simultaneously, or with short intervals, in both eyes in twelve; in four others there was decided probability that the disease attacked both eyes; and in one case the affection of the second eye may have been glioma. Of those in which the disease was unilateral, the right eye was affected in sixteen cases, the left in twenty-seven cases, and in one case it was not stated. The disease was first noticed by the parents within three months of birth in nine cases; of these it was noticed at birth in five cases, and during the first five weeks of life in two cases; between three and six months in four cases; between six and twelve months in nine cases; during the second year in thirteen cases; during the third year in seven cases; during the fourth year in three cases; during the fifth year in four cases; during the sixth year in four cases; during the seventh year in one case; age uncertain in six cases. From these figures it appears that the growth becomes evident with greatest frequency during the first year. The authors have regarded as permanent recoveries only those cases in which reliable information was obtained that the patient was alive and well, and that no return of the disease had occurred three years after the removal of the eye or eyes. Of the sixty cases reported, eight may be regarded as permanent recoveries. In these cases the average time which elapsed between the discovery of the growth and the removal of the eyeball was four months. In sixteen fatal cases the average interval was fourteen months. Of twenty-two cases, the tumor recurred in the orbit in seventeen. In the remaining five, secondary growths were met with in the cranial bones, throat, palate, and in one case in the brain and spinal cord.

**An Ophthalmoscopy with Micrometer.**—Leroy (*Rev. gén. d'ophthal.*, October 31, 1891) has devised an instrument which contains within the dimensions of an ordinary ophthalmoscope the properties of a refraction ophthalmoscope and of an objective and subjective optometer, and which, in addition, enables the observer to measure objectively the elements of the fundus of the eye which are visible with the ophthalmoscope. It is composed essentially of two parts. 1. A refraction ophthalmoscope with three interchangeable mirrors, an ordinary concave mirror, a concave mirror of short focus inclined at an angle of  $45^\circ$ , and a plain mirror. 2. A positive eye-piece or ocular, at the principal focus of which is placed a micrometer, divided into tenths of a millimetre, photographed on glass. This eye-piece is furnished with a prism of total reflection of  $45^\circ$ , so placed as to reflect the image of the micrometer in the direction of the optical axis of the ophthalmoscope or visual line of the observer. A screw with a large button regulates the displacement of the tube containing the micrometer and prism, so as to bring the edge of the latter toward the center of the pupillary field. Then the eye of the observer receives simultaneously the rays from the micrometer and from the fundus of the patient's eye. The properties of the instrument are as follows: 1. If the eye-piece is removed, we have a refraction ophthalmoscope. 2. The eye-piece and prism being in place, if the observer, fixing his attention on the micrometer, approaches the glass which enables him to see at the same time a well-defined image of the fundus, this glass represents the patient's ametropia. If, during this examination, the observer accommodates, he is immediately warned of it by an indistinctness in the image of the micrometer, and he must then fix attentively the latter in order to bring his accommodation to a state of rest. 3. If the prism is turned  $180^\circ$  so that the rays of the micrometer are turned toward the patient, the glass which enables the latter to see the micrometer distinctly under the known existing conditions will be the glass which corrects his ametropia. 4. The most interesting property is that of enabling the observer to measure the visible elements of the fundus. After having arranged the micrometer in the suitable manner by turning it in its frame, the desired measure is obtained by reading the number of divisions which cover the dimension sought for. Thus can be measured the caliber of the vessels, the

papillary diameter, the dimensions of a staphyloma, of a hæmorrhage, of an exudation, or of a chorioidal lesion.

**Affections of the Vision in Parkinson's Disease.**—Galezowski (*Rec. d'ophthal.*, February, 1891) draws the following conclusions from his observations: 1. In Parkinson's disease vision is usually intact, and when it is affected the symptoms are slight and never progressive. 2. Generally the eyes are fixed, and the excursive movements are but slight. 3. The upper lids of both eyes are generally lowered, and only cover about half of the eyeballs. 4. The lids, in spite of their immobility, show a slight trembling which is difficult to recognize, and this same tremor is at times to be seen in the eyeballs also. 5. Vision is usually intact, but in rare cases there is a unilateral amblyopia without ophthalmoscopic lesion, with a narrowing of the visual field throughout about three quarters of its extent. 6. The immobility of the head and eyes renders all work difficult.

**The Simplification of the Operation for Extraction of Cataract.**—Dimissas (*Rec. d'ophthal.*, March, 1891) recommends the following rules: 1. The easy and more extensive laceration of the capsule with the knife should replace the employment of the capsulotome, (1) because the operation is thus shortened; (2) because the source of possible infection is suppressed, as the capsulotome is a difficult instrument to clean. 2. The extrusion of the lens, following so soon after the completion of the incision, is easily managed, and the removal of the cortex is soon accomplished. Hence secondary cataracts are rare. 3. The procedure thus preventing especially all late inflammatory accidents, the first dressing may be left on the eye for a longer period.

**Herpes Corneæ in Influenza and its Treatment by Pyocetanin.**—Galezowski (*Rec. d'ophthal.*, April, 1891) thinks that the healing of this form of keratitis may be facilitated by the following means: Irrigation of the cornea with a solution of yellow apyoin, and the administration of large doses of the sulphate or hydrobromide of quinine. He uses a solution of apyoin or pyocetanin in the strength of one centigramme to the gramme of distilled water, and bathes the cornea with it five or six times a day. He states that this treatment gives excellent and very rapid results.

**Iritic Uveitis.**—Grandclément (*Rec. d'ophthal.*, May, 1891) thinks that this form of inflammation of the uveal tract resembles pulmonary pleurisy, and deserves a special name. He thinks it is caused by a special micro-organism, and that it is best treated by excision of a portion of the iris.

**The Indications for Suture of the Cornea and Sclerotic.**—Galezowski (*Rec. d'ophthal.*, April, 1891) thinks that suture of the cornea or sclera, or both, should be employed (1) in certain grave accidents following the operation for cataract; (2) in all lacerations and perforating wounds of the cornea; (3) in all wounds of the sclerotic. He has devised special forceps and special needles for performing the operation, which have no advantage over similar instruments long since devised and used for the same purpose.

**A New Operation for Congenital Ptosis.**—Gillet de Grandmont (*Rec. d'ophthal.*, April, 1891) describes his operation as follows: 1. After having seized the upper lid with a Snellen's forceps, the skin is cut through parallel to the free border of the lid, the incision being three or four millimetres from the border and about two centimetres and a half long. 2. Raise up the two cutaneous flaps and detach and excise the corresponding portion of the orbicular muscle, so as to expose the entire tarsus from the ciliary border to and including Sappey's orbito-palpebral muscle or tendon of the levator palpebræ. 3. Cut through the entire thickness of the tarsus, for an extent of two centimetres, parallel to the free border of the lid, and from two to four millimetres from it. 4. Describe a curvilinear incision, with concavity downward, extending from one end of the first incision of the tarsus to the other. This incision should extend through all the tissues of the lid, including the conjunctiva. 5. The upper or orbito-palpebral flap should then be stitched to the lower or tarsal flap by three sutures without touching the skin.

**The Curetting of the Lacrymal Sac.**—Despagnet (*Rec. d'ophthal.*, April, 1891) draws the following conclusions: 1. Whenever in a given case epiphora is caused by catarrh of the lacrymal sac, the alteration of the mucous membrane is the principal factor in the disease, and it should be modified by probing and astringent injections. 2. If this

treatment fails to produce favorable results, curetting the mucous lining of the sac is indicated, rather than any other operative procedure. 3. If the lacrymation coexists with an exaggerated dilatation of the sac, or mucocele, excision of a portion of the anterior wall should precede the curetting. 4. Curetting is also indicated in phlegmonous inflammation of the sac.

**Dermoid Cyst of the Internal Wall of the Orbit.**—Vignes (*Rec. d'ophthal.*, July, 1891) gives the following results of a macroscopical and microscopical examination of a case of this nature: 1. The seat of the pedicle of the cyst was the plano-frontal suture. 2. The presence of the cyst could only be explained by the foetal inclusion of the ectoderm within the fronto-maxillary fissure by the welding or union of the external nasal bud and the maxillary bud behind the lacrymal hiatus. 3. Neither fibrous nor any other band connected the cyst with the skin. 4. The diagnosis of similar cysts might be difficult, as they might be confounded with a lipoma, a fibroma, and even an osteoma. 5. Cysts develop more frequently on the external side of the orbit than on the internal.

**Tincture of Iodine in Infectious Ulcers of the Cornea.**—Chibret (*Rec. d'ophthal.*, September, 1891) thinks he has found in tincture of iodine the following necessary properties: 1. A powerful and general antiseptic action. 2. Energetic dialytic power. 3. Absence of formation of insoluble salts causing indelible opacities of the cornea. 4. Non-destructive effect on the cornea. He thinks his belief in the value of this drug has been fully justified by the results, and he even recommends its use in corneal scars and opacities.

**The Visual Field in Epileptics and Mentally Deficient Patients.**—Lombroso (*Rec. d'ophthal.*, August, 1891) draws the following conclusions from his observations: 1. The visual field is remarkably limited in epileptics and idiots. 2. There is a constant irregularity at the periphery of the field, and the line of demarkation appears irregular and sinuous, sometimes forming actual peripheral scotomata of very inconstant location. 3. The field is more limited on the right side in the lower hemisphere, and on the left side in the upper hemisphere, thus forming a partial hemianopsia to the right below and to the left above. This he calls a partial heteronymous vertical hemianopsia. 4. In some cases there was an extreme limitation of the field due to neuro-retinitis. 5. In all, the field for color was limited, its form following constantly that for white, but more or less regularly. 6. The field for blue and that for red cross at different peripheral points. 7. In almost all cases the ophthalmoscopic examination was negative. 8. The visual acuity was entirely independent of peripheral vision.

**Congenital Amblyopia.**—Martin (*Ann. d'oc.*, January-February, 1891) thinks that instead of placing the cause of congenital amblyopia in an anatomical malformation or in the neutralization of a diffuse image by the sensorium, we should regard it as the consequence of a special anæsthesia of the retina. The rays which are not focused are incapable of developing in this membrane the degree of sensibility necessary for the occasion. In astigmatic amblyopia the visual trouble is dependent on a partial anæsthesia of the retina. In a large number of cases of congenital amblyopia the retinal anæsthesia is not the only existing factor, for the visual defect is often increased by lack of use (unilateral amblyopia) or by a retinal congestion (bilateral amblyopia). The amelioration arising from the use of an eye which has been long inactive is the greater the less pronounced is the visual defect due to retinal anæsthesia.

**The Indications for Simple Resection of the Optic Nerve.**—De Wecker (*Ann. d'oc.*, March-April, 1891) considers that the most important point is the removal, not only of the eye, but of as much as possible of the optic nerve also, with prolonged and repeated disinfection of the remains of the nerve and contents of the orbit. The next most important indication is simple enucleation, without resection or disinfection. The third indication, if enucleation is declined by the patient, is the resection of a large piece of the intra-orbital portion of the nerve, followed by a disinfecting irrigation prolonged for some minutes. Finally he considers the subject of simple local disinfection by introducing a few drops of sublimate solution within the shell of the eye. He, however, regards the simple resection of the optic nerve as a certain means of prevention of the occurrence of migratory ophthalmia.

**The Question of Sympathetic Ophthalmia.**—Abadie (*Ann. d'oc.*,

March-April, 1891) thinks that when an eye has been injured it may, according to the nature of the infectious agent, become the seat of phlegmonous inflammation, or it may be destroyed by infectious irido-chorioiditis ending in atrophy; or there may result a sympathetic ophthalmia. In the first case the cauterization of the wound with the galvano-cautery is the only method of preventing suppuration. In traumatic ophthalmia (infectious irido-chorioiditis) the cauterization of the wound and intra-ocular injections may save the injured eye and prevent sympathetic ophthalmia. Finally, even when a sympathetic ophthalmia has recently occurred, if the injured eye is not entirely lost, cauterizations and intra-ocular injections should be tried. If, in spite of this treatment, repeated if indicated, the sympathetic ophthalmia does not recede, enucleation must be done.

**The Pathological Anatomy of Buphthalmia.**—Kalt (*Ann. d'oc.*, May-June, 1891) draws the following conclusions from his investigations: 1. Buphthalmia is the result of a very chronic irido-chorioiditis, which causes a progressive obliteration of the vessels of the uveal tract. 2. There results an intra-ocular supersecretion, the origin of which is probably not in the cells covering the ciliary processes, as most of these have been destroyed. 3. The existence of this supersecretion must be admitted, since the channels of excretion are found considerably enlarged. Hence we have to deal with glaucoma by resection. 4. Eserine lowers the increased tension to the normal state.

**General Considerations on Squint; the Innervation of Convergence.**—Parinaud (*Ann. d'oc.*, September, 1891) draws attention to the singular fact that tenotomy has served to establish a theory which is erroneous—namely, the muscular theory of the causation of squint. Most ophthalmologists regard the ocular affection as a physical phenomenon relating solely to the eye and its muscles, without considering the influence of the brain in the matter. But the influences which produce strabismus all rise in a disturbance of innervation. This, however, is a special innervation, that of convergence, and the solution of the question of strabismus can not be found until this innervation is recognized and demonstrated. He lays down four main propositions, viz.: 1. Concomitant squint should be regarded as a vicious development of the binocular visual apparatus. 2. Whatever impedes binocular vision may become a cause of strabismus, and the younger the subject is, the more likely is this cause to prevail. These causes are of two kinds, one set being located in the eye and the other in the brain. The ocular causes are errors of refraction, mechanical obstacles to motility, the prolonged exclusion of one eye, etc. The cerebral causes are those affections which impede the development of the brain in infancy. Heredity is also a factor in strabismus. This is not only shown by transmission of errors of refraction, but also by a defective cerebral disposition to binocular single vision. 3. All causes of strabismus, whether peripheral or central, act by modifying the innervation of convergence, which is essentially the innervation of binocular single vision. All that is attributed to weakness or congenital preponderance of certain muscles should be attributed to a hereditary defect of convergence. 4. The primary causes of strabismus should be distinguished from those modifications which arise later. Parinaud concludes by affirming that: 1. There is a special innervation of the ocular muscles for convergence. 2. The relations between convergence and accommodation are established by means of this innervation. 3. The change which should be established between these relations in ametropic subjects, so as to admit of binocular single vision without correction of the ametropia, is produced by the brain.

**The Mode of Development of Cyclopia.**—Darceste (*Ann. d'oc.*, September, 1891) concludes that in cyclopic monsters the production of a single eye, the changes in the structure of the mouth, the atrophy and abnormal situation of the olfactory apparatus, the arrest of development of the vesicle of the hemispheres, are all the result of arrest of development of the anterior cerebral vesicle. Cyclopia may be produced in two different ways: 1. By a simple arrest of development, which may affect the anterior cerebral vesicle as well as any other organ. 2. By the compression exerted by the amnion arrested in its own development.

**Bacteriological Researches in Cataract.**—Dubief (*Ann. d'oc.*, September, 1891) formulates the following conclusions from his investigations: All the surrounding conditions being rendered aseptic, if micro-

organisms exist in cataracts, they are few in number. The lavage or irrigation of the lens enables us to state that if the microbes exist, they occupy the surface of the organ, and this particular location enables us to assume an accidental contamination. Even the variety of the micro-organisms found enables us to affirm that their origin is outside of the lens, and that they have been gathered there by the lens itself or by the instruments used in the operation of extraction.

**The Anatomy of Chronic Inflammation of the Conjunctiva.**—Muter-milch (*Ann. d'oc.*, October, 1891) concludes from his investigations that the only constant anatomic-pathological phenomenon accompanying all cases of chronic inflammation of the conjunctiva, and which at the same time is the cause of the production of pannus, the only characteristic sign which should serve as datum for a rational classification, is the alteration of the epithelium. The pathological process attacks only the cells nearest the conjunctival surface, while the deeper cells remain normal throughout the whole duration of the disease. There are three stages of the process: 1. The stage of proliferation. 2. The stage of superficial destruction. 3. The stage of total destruction.

**The Anomalies of Convergence.**—Von Millingen (*Ann. d'oc.*, August, 1891) offers the following propositions for consideration: 1. Paresis of voluntary convergence is that form which is shown by the impossibility of converging on a very near point without the production of latent divergent squint. Binocular vision exists, though with somewhat difficult accommodation and accompanied by asthenopia. 2. Paresis of visual convergence includes those cases in which, in spite of excellent binocular vision, the power of voluntary convergence on a very near point being preserved, accommodative convergence as a regular act during ordinary vision is abolished, and gives rise to crossed diplopia with divergent squint. 3. Paralysis of visual and voluntary convergence is shown by the entire loss of the power of convergence, whether voluntary or with accommodation. If these propositions are true, we must conclude: 1. That the centers of convergence are connected with the optical as well as with the cortical region, and that the communication with one of these centers may be entirely intact, while that with the other is interrupted. 2. That we must distinguish between visual and voluntary convergence, and must be able to tell in a given case which of the two is paralyzed.

**Lymphatism and Trachoma.**—Truc (*Ann. d'oc.*, August, 1891) draws the following conclusions from his investigations: 1. Lymphatism is the "clinical soil" of trachoma. 2. Lymphatism favors the development and modifies the general appearance of granular ophthalmia. 3. Lymphatism, in its different grades, constitutes the various granular formations which may be classified as lymphoid, fungoid, sclerosed, or fibroid. 4. Lymphatism is the principal factor of granular lesions of the cornea. 5. Lymphatism is also the "clinical soil" for phlyctenular or scrofulous ophthalmia. There are certain morbid combinations in which granular ophthalmia exists with phlyctenular, scrofulous, or lymphatic ophthalmia, and forms granulo-lymphatic ophthalmia. 6. Lymphatism is the "clinical soil" for certain cases of lacrymal keratitis. There are certain morbid conditions in which granular ophthalmia, together with lacrymal ophthalmia, unite to form a granulo-lacrymal ophthalmia. 7. Lymphatism favors the infection and contagion of trachoma in proportion to its degree.

**Two Cases of Total Achromatopsia.**—Querenghi (*Ann. d'oc.*, November, 1891) has revised the histories of three cases published by Landolt and two of his own, and draws the following conclusions: 1. In all the five cases of total achromatopsia there was considerable reduction of visual acuity, which did not exceed one tenth for distance. 2. In four cases nystagmus was present. 3. There was intense photophobia in three cases. 4. The red of the spectrum and deep red in all cases appeared as black. The other colors appeared as achromatic lights of different intensity, according to the tone and degree of saturation. 5. Next to white, yellow gave the most intense luminous sensation. 6. Those cases which recognized the entire spectrum as a source of light, all put the line of greatest brilliancy in the yellow.

**Eye Disease of Miasmatic Origin.**—Bagot (*Ann. d'oc.*, November, 1891) reports the three following cases: The first was that of a young man, aged fifteen, a mulatto, who had a severe attack of miasmatic fever of the congestive type with intestinal complications. Immediately after the height of this attack the vision became affected, and three

months later there was a soft cataract in each eye. These being removed, normal vision was restored. The *second* case was that of a mulatto woman, aged sixteen, who had a very severe attack of paludal fever, with cerebro-spinal symptoms, loss of consciousness, convulsions, and delirium. The vision became affected, grew steadily worse, and in nine months there was a fully developed soft cataract in each eye, which was removed by operation and normal vision was restored. The *third* case was that of a young white girl who had an attack of pernicious miasmatic fever, with delirium, convulsions, and loss of consciousness. On regaining consciousness, the child saw everything red for twenty-four hours, and then became rapidly blind from retinal hæmorrhages and atrophy of the optic nerves.

**The Introduction of an Artificial Vitreous Humor into the Scleral Cavity.**—Morgan (*Arch. of Ophthalm.*, xx, 1) reports six cases in which he has performed this operation. The opening in the eye was enlarged horizontally by removing two triangular pieces of the conjunctiva and sclerotic, thus changing a nearly circular opening into a lozenge. The hæmorrhage continued about an hour and a half, and the "artificial vitreous humor" was not introduced until it had ceased. A solution of corrosive sublimate (1 to 5,000) or a hot saturated solution of boric acid was used as an antiseptic. Some of the patients experienced no pain, while others had but little pain or discomfort. The wound was closed with six sutures of fine silk. Some of the patients have worn their artificial eyes for one or two weeks without removal, and the conditions in all six are satisfactory and appear to be permanent.

(To be concluded.)

## New Inventions, etc.

### A NEW ATTACHMENT FOR ASPIRATORS OR SYRINGES.

By H. D. TAGGART, M. D.,  
AKRON, OHIO.

THE attachment consists of rubber tubing fashioned as shown in the accompanying cut. It is operated by compressing with the fingers at 1 and 3 alternately. It will readily be seen that a cavity may be drained and flushed through these tubes rapidly and with less pain than if the ordinary stop-cock were used, as the needle or cannula may be perfectly steadied during the working of the syringe. The tubes are easily cleaned. They are made by George Tiemann & Co., New York.



These gentlemen also manufacture an improved syringe piston, which will be appreciated by all who desire a syringe ready for use at any moment. It is made of ebonite and kangaroo. Some of its good points are: Almost a negative degree of friction; no "jumping"; it does not dry, shrink, or become moldy, however long in disuse. It is very simple in construction, but works better than any of the expensive contrivances designed to accomplish the same thing.

## Miscellany.

**Laceration of the Cervix Uteri and Pelvic Inflammation.**—Emmet's operation for the repair of laceration of the cervix and his ideas of the

pathogenic features of that injury have been so much decried, especially in Great Britain, that it may be wholesome if attention is called to the following article, entitled *The Pathogenesis and Treatment of Oophoritis*, by Dr. Robert Bell, senior physician to the Glasgow Hospital for Diseases peculiar to Women, published in the February number of the *Edinburgh Medical Journal*:

If we carefully look into the history of oophoritis and subsequent hyperplasia of the ovary, we shall probably be led to the conclusion that these conditions, as a rule, are secondary to a morbid condition which has previously existed in the uterus; that the ovarian mischief, in the majority of instances, is dependent upon disease which has for some time before been, and is no coincident with that in the neighboring organ. What, however, is of much greater consequence for us to be assured of is that, if the morbid process has not proceeded too far in the ovary, the organ can in many instances be re-established in health *pari passu* with the recovery of the uterus. The question naturally arises in these circumstances, What is the *modus operandi* of the disease process? So far experience has distinctly taught me that when oophoritis exists it has very frequently, if not always, been preceded by endometritis. However, I do not pretend to be in the position to affirm that the disease may not sometimes arise *de novo*; but that the cases where this occurs are few and far between is a subject on which I can entertain no doubt, and it is because of this conviction that I have been encouraged to persevere with the treatment advocated in this paper in cases which, for a time, seemed to be quite intractable, but which, though trying one's patience to the utmost, eventually yielded and recovered. It might possibly be demonstrated that the ovaries are more frequently affected when the cervix is most seriously involved, but then we must bear in mind that this portion of the uterine canal is liable to suffer to a greater extent than the upper portion, as the whole of the acid discharges which are secreted there in endometritis must of necessity pass over the cervical mucous membrane, and aggravate the disease that already affects and has induced hypertrophy, and probably exoriation of it.

The fact, however, which compels me to suggest that endocervicitis has more influence as a factor in inducing ovarian irritation than disease of the corpus and fundus uteri is that, on passing the applicator through that portion of the canal, the pain consequent upon doing so is generally referred to the affected ovary, demonstrating, I hold, a direct nervous connection therewith. Then, again, we invariably find that when oophoritis supervenes upon a laceration of the cervix, that it is the ovary of the affected side which becomes involved, and the ovarian disease does not yield to treatment until the laceration is repaired, or the pendulous portions of the injured cervix removed. This coincidence, however, may be due to the fact that the pathological condition of the cervix has given rise to disease of the uterus as a whole, and that the health of this organ can not be restored until the integrity of the cervix has been re-established.

We are all aware of the intimate relationship of the uterine to the ovarian circulation, and it is only natural to conclude that if the circulation is interfered with in the uterus, which undoubtedly is the case when endometritis is present, it must react upon the ovaries, whose affluent and effluent vessels are continuations of those supplying the uterus.

There is, however, another factor which plays a most important part in the pathological process, that being the effect of the uterine irritation upon the sympathetic nervous apparatus, thus further influencing the circulation through the medium of the vaso-motor system. Any persistent morbid process, like that which is present in endometritis, must necessarily have a marked effect upon the sympathetic ganglia from whence the vaso-motor filaments supplying the uterus are derived, and as the ovaries and uterus are supplied from the same source, it stands to reason that the circulation in the ovaries by reflex influences must be materially affected. The result is that the hyperæmic condition of the uterus is reflected to the ovaries, producing a congested condition of these organs. Such being the case, it is only natural to conclude that, if the original morbid condition is removed, the secondary disease will also subside; and such in point of fact is really what takes place, provided the disease in the ovaries has not advanced too far. It is, of course, difficult to decide right off when a case has advanced be-

yond the reach of medical treatment and crossed the barrier beyond which resolution will not be assured.

I have, however, taken cases in hand when the ovary has been enlarged to the size of a tennis ball, and have obtained most satisfactory results after from three to six months' treatment. If cystic degeneration of the organ has commenced, I need hardly say no treatment short of operation will prove of any avail. The instances of ovarian disease, however, which we constantly meet with, are, as a rule, so amenable to the treatment I have adopted that it is hardly fair to the patient not to give her at least the chance of being relieved by this method, and thus avoid an operation which, even if it be successful, can not but be humiliating to her.

With the view of demonstrating that the conclusions I have arrived at are correctly based upon fact, let me devote a few moments to the consideration of a lacerated cervix (say on the left side) and its effects. Why is it, if this has occurred and the ovary becomes affected, that it is invariably on the side upon which the laceration exists? How is it that the right ovary remains intact? In the light of the present day, surely it is quite unnecessary for me to enter into any explanation on this point. I have seen a considerable number of instances of ovarian disease, a vestige of which did not exist prior to a confinement, develop rapidly after that event, and in each case a laceration of the cervix was discovered on the side of the affected organ.

Moreover, notwithstanding what some authorities may assert, the ovarian affection in every instance disappeared very rapidly after the rent in the cervix had been repaired, and not till then. There is not the slightest doubt that injury to the cervix is a fruitful source of disease, not only in the uterus itself, but also in the ovary of the affected side. Repair the cervix, therefore, and restore its health, when, in a short time, if the disease has not advanced too far, the ovarian mischief will subside and entirely disappear. If, on the other hand, the disease of the cervix is idiopathic, the development of symptoms and of sequelæ will not be so rapid, and possibly the ovaries may escape altogether. If, however, degeneration of the cervical tissue has supervened and erosion taken place, from which surface a purulent discharge is given off, then it is probable that the ovaries will become secondarily affected, and their health will only be restored if the primary disease is first removed. We should also bear in mind that, if cervical disease is permitted to exist, it is not likely to end there, but will spread by continuity of tissue to the whole extent of the endometrium, and possibly to the tubes also. The walls of the uterus in consequence will become hypertrophied and softened. Flexions will thus frequently be induced, and interference with the venous circulation will arise which will tend to aggravate the original mischief.

Now, to proceed to the treatment of such cases, it is hardly necessary for me to state that in the event of the endometrium having become affected, it will be essential, before the cervix can be permanently relieved, that the condition of the former be simultaneously attended to. Otherwise, as I have before remarked, the acrid discharges, which invariably have their source in endometritis, would continue to flow over the cervical mucous membrane and maintain the irritation which previously existed, and this in spite of all the treatment that might be applied to it *per se*.

To illustrate my method of treating such cases, I will detail two typical instances of oophoritis—one depending upon laceration of the cervix, the other upon idiopathic disease. I take these two cases because both occurred in young women; and there can be no doubt of their history, as I have known the patients for over fifteen years, and have attended them during a period which extends for a considerable time prior to and after their marriage, both before and after they were the subjects of ovarian disease, and also after this had been removed.

Mrs. S., after a somewhat tedious labor, was delivered of a boy considerably above the average size. She made a good recovery, but some six months afterward complained of a severe pain in the left side, which was aggravated on any exertion. There was a feeling of bearing down and a copious vaginal discharge of a muco-purulent character. Over the site of the left ovary there was considerable pain on pressure. On a vaginal examination being made, the cervix was discovered to be lacerated on the left side, the rent extending throughout the whole of

the vaginal portion. Endometritis also existed, and the uterus was retroflexed and hypertrophied. The course adopted was to treat the endometritis by the intra-uterine application of iodized phenol and vaginal tampons of the glycerin of alum and boracic acid. When the endometritis had subsided somewhat, trachelorrhaphy was done—with the result that in three months the uterus had regained its health, while the ovary returned to its normal size, and all pain and inconvenience had ceased.

The other case is that of a young married lady, Mrs. H., who had suffered intensely from dysmenorrhœa and copious leucorrhœa for a considerable period previous to her marriage. Though I did not make an examination then, I was convinced that endometritis was present, this having been induced by attending dancing parties night after night, quite irrespective of the fact that frequently she was menstruating at the time. Menorrhagia also existed, which was induced by the same reckless conduct. After marriage her symptoms became aggravated, and she came to me complaining of intense prostration, both mental and physical, while pain on the least exertion was very acute over both ovaries and in the back. Defecation was very painful, and there was a profuse muco-purulent discharge. On examination, both ovaries were found to be enlarged and hypersensitive to touch. The uterus was retroflexed, and there was metritis. Dyspareunia also existed to a prohibitive extent. She was put under treatment, which consisted of the weekly application of iodized phenol to the endometrium, and each time the uterus was restored to its normal position, and retained there by means of tampons soaked in glycerin of alum and boracic acid, which were renewed in three days and fresh ones inserted. In less than four months all trace of discomfort had disappeared; the uterus remained *in situ*, and the ovaries were reduced to their normal size, and within a year afterward she became pregnant.

There would be no difficulty in citing any number of additional cases to illustrate what I have endeavored to describe as one of the most potent factors of oophoritis, and to demonstrate what happy results can be attained by the employment of suitable measures for the restoration of the uterus when disease of this organ is concomitant with oophoritis.

I do not, however, wish it to be inferred that I hold oophorectomy can always be avoided; but at the same time I can not refrain from stating as my firm conviction that in many instances it may be avoided if the treatment I advocate receives an honest trial.

**Laboratories of Hygiene.**—On the occasion of the opening of the new laboratory of hygiene of the University of Pennsylvania, on Monday of this week, an address was delivered by Dr. John S. Billings, of the army. By the courtesy of the editor of the *Medical News*, in which the address is to be published in full, we are enabled to give the following extracts:

Laboratories planned and fitted for public use, offering to any one who is able and willing to pay a moderate fee and to submit to a few simple regulations, not only opportunities for learning the details of the processes carried on therein, but facilities and means for making special research as he could only obtain otherwise at great expense and loss of time—such laboratories, I say, are all of comparatively recent date.

It is not yet twenty years since the first separate institution of this kind was established for hygiene—and even now there are not more than a dozen such laboratories, specially built and fitted for their purpose, in existence throughout the world. Of these the best known is probably that of the University of Munich, under the direction of Professor Pettenkofer, while the largest is that of Berlin.

This laboratory is the first structure of its kind erected in the United States, and it therefore opens a comparatively new field of work in this country. What is the nature of this field and what are its boundaries?

The object of hygiene is to preserve and to improve health, and there are few matters affecting the physical, intellectual, emotional, and moral condition of man as an individual, or of men in communities, that may not come within the scope of its investigations. The destruction or avoidance of causes of disease is but a part of its objects—it is at least equally concerned with the means of making a man bet-

ter fitted to resist these causes. "That kind of health," says Montesquieu, "which can be preserved only by a careful and constant regulation of diet is but a tedious disease." Disease, like health, is a vague term, including widely different and often very complex conditions, processes, and results, which must be observed, classified, and described in such a way that different men, widely separated in space and time, may know that they are seeing the same things, and thus may have the benefit of each other's experience.

In its scientific aspects, then—those which relate to definite and precise knowledge—hygiene rests largely on physiology and pathology, the third leg of the tripod being formed by vital statistics; while in its practical aspects it must rest on chemistry, physics, and the data of sociology and politics.

At any given time, therefore, its scope and practical value must depend largely upon the breadth and solidity of the foundations which these various branches of science can provide for it. The opinions of the medical faculty of Paris as to the causes of the "black death," and the advice which they gave as to the means for lessening the "great mortality," absurd and preposterous as they now appear to us, were yet fully in accord with the knowledge and opinions of the time.

At the beginning of this century physicians did not distinguish with any certainty between typhoid, typhus, and malarial fevers, or between consumption and various other chronic diseases of the lungs, and until this was done investigations into the causes of these affections were necessarily almost fruitless.

When, however, a clew is once given to the student of causes, he may be able, by detecting differences in these causes, to call the attention of the pathologist to differences in the results, and thus the bacteriologist, by proving specific differences in micro-organisms, all of which produce fever, suppuration, etc., induces closer study of details of cases by physicians, and the recognition of new and more clearly defined groups of symptoms and results, or, in other words, of new diseases.

We live in an age of specialization. Progress in science, as a whole, depends upon special progress in each of its branches. Our present knowledge of physiology depends largely upon the perfection of electrical methods. Pathology and pathological bacteriology are now waiting for increase of knowledge in organic chemistry. The law of evolution applies to this as it does to modern industrial progress.

The physician deals with sick men, and his first question is, What is the matter with this person? That is, what group of symptoms does he present, and to what derangement of his mechanism are these due? The hygienist deals with two sets of problems—the first relating to men who are not sick, and how their health and vital resistance power are to be not only preserved, but improved and strengthened; the second relating to sick houses, feverish blocks or wards, infected localities—where the first questions to be solved are: What are the causes of this condition of things? How have they found entrance? Are they still acting?

In the investigation of causes he must consider not only the immediate or exciting, but also the remote or predisposing; not only those which are preventable, but those which, with our present knowledge, are unpreventable; and thus it is that heredity, race, local meteorology, occupation, and many other circumstances must be studied by him, as well as the effects of food, clothing, habitation, poisons, and viruses.

The recent advances in our knowledge as to the action of certain micro-organisms in the production of disease in animals and man have been largely made by laboratory methods, and indicate clearly that the study of bacteria and microzoa, and of their development, products, and effects, must be an essential part of the work of a hygienic laboratory, which should provide the peculiar arrangements and apparatus which are required for this sort of work. In fact, several so-called hygienic laboratories are simply bacteriological laboratories, the interest in this particular branch of investigation having, for the time being, overshadowed all others.

Our laboratory, however, must provide also the means for chemical investigations of air, water, food, sewage, secretions and excretions, and

the products of bacterial growth; for testing the effects of gases, alkaloids, and albumoses of various kinds upon the animal organism; for investigations in the domain of physics pertaining to heating, ventilation, house drainage, clothing, soils, drainage, etc.

Just at present research is being specially directed to certain minute animal organisms—the microzoa—such as are found in the blood in malaria and in the skin in certain diseases, and to immunity, especially to that immunity which may be artificially produced.

Experimental investigation is a slow process, and very uncertain in its results. An experiment may be conceived which seems as if it would give important results. The experiment itself would require only a few moments or a few hours if all the apparatus were ready to produce the required conditions, and to record in terms of weight and measure the results obtained. But to make this apparatus in the best form, and to provide the means of recording, may take a year or more, and in making this preparation a dozen problems will come up to be solved by other experiments.

You are pretty sure to discover something new, but by no means sure that it will be what you began to seek. Every discovery opens new questions and indicates new experiments, and the precise shape in which the work presents itself varies with place and season.

We can not foresee precisely the demands which will be made upon us, or which we shall make upon ourselves, but we do know that we shall want some large rooms in which a dozen or twenty men can be at one time taught how to investigate, working under the eye of an instructor; and also a number of small rooms, each fitted for the work of one or two men who have attained a certain amount of skill, and are engaged in original research. In all these rooms we shall at times need to use microscopes, gas-heating, and steam; there will be vapors and fumes produced; there will be delicate instruments scattered about, and the rooms must therefore be light, have abundance of gas, steam, and water, hoods and flues for conveying away fumes, and plenty of fresh air without dust.

Many of the things that will be seen through the microscopes will be rapidly changing form, and we shall need pictures as well as descriptions of their different shapes.

The most useful drawings for our purposes are those made by sunlight, and therefore we want photo-micrographic rooms.

We shall wish to test the merits of various articles of house-equipment, such as different patterns of steam radiators, traps, sinks, closets, etc., and for this purpose we must have places where they can be fitted and put into use.

We must know what other investigators in other laboratories, and many places besides laboratories, have done and discovered, that time and effort may not be wasted.

We must therefore have the books and journals in which these are recorded, which are already many, and coming rapidly. A small library and reading-room is therefore essential.

Much of the apparatus to be used must be either made or specially fitted and adjusted on the spot to meet special indications which it is impossible to foresee, and therefore we need a large workshop, with tools and appliances for working in wood, glass, and metal, and with power.

After describing the new laboratory, Dr. Billings continued as follows:

We hope that some increase of knowledge will be made here by the workers in the laboratory itself; but the main point to be kept in view is to provide well-trained, scientific, and practical men for other fields of labor. Dr. Mitchell has said that the true rate of advance in medicine is not to be tested by the work of single men, but by what the country doctor is. So, also—and even more so—advance in practical sanitation is not to be measured by laboratory records, but by what health officers and sanitary engineers are able to accomplish.

Even now we *know* much more than we *do*, and the skilled sanitarian too often finds himself in the position of the unhappy daughter of Priam and Ilecuba, who could foretell, but to no purpose.

This laboratory is fortunate in being closely connected with, and in the immediate vicinity of, a great medical school, and of great hospitals. As was said before, one of the essential foundations of sci-

tific knowledge of the causes of disease is minute and accurate diagnosis and pathology, and we are therefore in constant need of the best knowledge of leaders in these branches of medical science. The hospital is filled with specimens of the results of such causes, acting on the human body—from one point of view, Nature's experiments with poisons cunningly elaborated in the tissues of the body, or with viruses coming from without, upon blood and bone, muscle and brain. Much of the work of this new department will be connected with the results of these experiments.

The laboratory is also fortunate in being located in a great manufacturing city, where the effects of different occupations, of trades dangerous or offensive by reason of dusts, or of vapors, or of waste products, can be readily observed and the materials for study obtained. There is an immense field for a sanitary clinic here, and in the habitations, the streets, the water-supply, and the sewers of Philadelphia.

These clinics, however, can not, as a rule, be reported for the press, either lay or medical, since to do so would, to a great extent, defeat their object; the great majority of the sick in houses and manufactories must be considered as strictly private patients, and their affairs held as confidential. In the case of public institutions, or of public nuisances, a somewhat different rule may apply.

Practical hygiene is to play an important part in municipal government, to secure the best form of which is now one of the most urgent questions of the day. Many of the questions to be decided by city officials as to water-supplies, sewage disposal, etc., require expert knowledge to answer.

Of course, the subject of hygiene and the work of a university department devoted to the increase and diffusion of knowledge in sanitary science extends far beyond the experiments and demonstrations for which this laboratory is specifically fitted.

Bacteriology, chemistry, pathology, physics, and medical and vital statistics give us the foundations, but sociology and jurisprudence must also be studied in their relations to sanitation to obtain the best results.

It is in and to the home and the workshop that these results are to be applied, and he who aspires to be his brother's keeper must know how his brother lives.

Labor questions, education questions, maritime and inter-State commerce questions, and methods of municipal finance and government are all intimately connected with matters of personal and public hygiene, and economic consequences, as well as health, must be considered in the advice and regulations of the sanitarian.

I count it as fortunate, therefore, that there is a law school and a school of finance and political economy in this University to which the Department of Hygiene can look for advice and friendly criticism when these are needed, as they surely will be.

And now a very few words as to the needs of the laboratory. First of all, it needs men—men thirsting for knowledge, and fitted by previous training and education to come here and acquire that knowledge, not merely the knowledge that exists in books or that the teachers in this laboratory may possess, but that which is yet unknown, the weight of that which no one has yet put in the balance—the shape, and size, and powers for good or evil of things whose existence has not yet been demonstrated—men who will patiently and earnestly seek the answers to the questions, "What?" "When?" and "How?" in the hope that thus they may by and by obtain some light upon the more difficult problems of "whence?" and "whither?" even if they may never be able to answer "why?"

There are not many such young men whose tastes will be in the direction of these lines of research, and of these there will be very few who will have the means to support themselves while engaged in the work. We need, therefore, the means to help them in the shape of half a dozen fellowships, paying about five hundred dollars a year each, and granted only to those who give satisfactory evidence of capacity and zeal.

The second thing we want is a demand on the part of the public for really skilled, well-trained sanitary investigators and officials such as we hope to send out from here; we want a market for our product; we want the legislators of this and other States, and of our rapidly growing municipalities, to be educated to appreciate the importance and

practical value of such health officials, and to give the best of them employment.

Thirdly, the laboratory wants the co-operation and assistance of sanitary authorities and inspectors, and especially of those of this city and State.

It needs to know from time to time what they are interested in and are working at, to have the opportunity of showing to its students cases of special interest—sick houses, localized epidemics, special forms of uisance.

And, on the same principle and for the same reasons, it desires to have its attention called to special methods of heating, ventilating, and draining buildings, and especially public buildings, such as schools, hospitals, prisons, churches, and theatres, and to matters connected with the hygiene of manufacturing establishments and special occupations, methods of disposal of offensive or dangerous waste products, of protecting workmen against dusts, gases, etc.

In short, we want to know how these things are managed by the men who have a practical interest in them; and if, in our turn, we can suggest improvements, we shall be glad to do so.

Fourth, the laboratory wants a reference library as complete as it can be made, and always up to date. Many of the books and journals required must be purchased, and for this purpose a special fund is needed, but many of the works required can only be obtained by gift.

Thus we want all the reports of boards of health—State and municipal—of municipal engineers, water-works and water commissioners, park commissioners, etc.

We want the catalogues and circulars of all manufacturers of heating and ventilating apparatus, of plumbers' supplies and house fixtures, of electric and gas fixtures, of machinery and apparatus connected with water-supply and sewage disposal.

We want copies of plans and specifications of large buildings of all kinds.

And these things can only be obtained through the aid and goodwill of manufacturers, engineers, architects, and sanitarians all over the country; and this aid I venture to ask, feeling sure it will be granted by those who know what is wanted.

I will mention but one more special want to-day, and that is of means for the proper publication of illustrated reports and accounts of the work done in the laboratory.

In the mean time we must be patient, and not too eager to touch the fruit of the blossom that is not yet blown.

**The Anatomical Lesions of Amœbic Dysentery.**—At a meeting of the Johns Hopkins Hospital Medical Society, held on October 19, 1891, the proceedings of which are published in the *Johns Hopkins Hospital Bulletin* for January and February, 1892, Dr. Councilman exhibited the colon from a case of amœbic dysentery. The patient, a man, aged twenty-five, was admitted to the hospital on September 11th. Four weeks before admission he was attacked with pain in the abdomen and diarrhœa. He had six or seven fluid stools daily without much pain. The diarrhœa continued up to death, which occurred on September 21st. Most of the time the stools were of a greenish-yellow color, but several times in the last days of his illness they were almost entirely pure blood.

The body was that of a slightly built, tolerably well nourished man. The mucous membranes were very anæmic, the muscles pale and soft. On opening the peritoneal cavity there was no escape of gas. The parietal peritonæum was cloudy and covered with a very slight fibrinous exudation; there were a few ecchymoses scattered over it. The intestines were covered with the adherent omentum. On lifting this there was a free escape of gas from a cavity between the colon, the adherent omentum, and the coils of small intestine. The walls of the cavity were covered with a dirty yellowish membrane. It contained a quantity of putrid pus mixed with faecal matter. Outside of this cavity the coils of intestine were lightly adherent and there was some exudation, which was best marked at the line of adhesion. The exudation was fibrinous, rather gelatinous, and transparent. The mesenteric glands were slightly enlarged. The liver was firmly adherent to the diaphragm by fresh adhesions. The diaphragm on the right side extended to the fourth intercostal space; on the left to the lower border of the fifth rib.

In both lungs there were small foci of catarrhal pneumonia. The heart was normal.

The liver was large,  $24 \times 19 \times 8$  ctm., and weighed 1,892 grammes. The capsule was smooth. The color was a pale brown and the lobules were only visible in places. Scattered over the surface there were numerous small, white, opaque areas which were not surrounded by a zone of hyperæmia and not elevated above the surface. On section, small areas similar to those on the surface were found scattered through the organ. They varied in diameter from 1 to 5 mm. A dry caseous-like material could be squeezed from them, leaving a ragged wall.

The spleen, kidneys, pancreas, and adrenal glands were normal.

The large intestine was generally adherent by fresh adhesions. The cavity mentioned between it and the adherent loops of small intestine communicated with the lumen by a ragged opening 1 ctm. in diameter. The entire intestine was soft and tore easily on attempting to remove it. Its walls were thickened and it was greatly dilated, the average circumference being 14 ctm. It contained numerous ulcers and extensive sloughs from the cæcum to the anus. In the cæcum there were numerous round elevations with a small opening on the surface. There were also large irregular ulcers filled with a grayish, transparent material, on removal of which the muscular coat was seen. In the transverse and descending colon and in the rectum there were large irregular ulcers covered with dark sloughs. On removal of the sloughs the transverse muscular coat was laid bare, and in places the ulceration had extended through this to the longitudinal muscular coat or to the peritonæum. All the ulcers were greatly undermined. The coats of the intestine were thickened and œdematous. There were elevated ridges which often passed from one ulcer to the other, and they contained the same whitish transparent material as the ulcers. Numerous actively moving amœbæ were found in the intestinal ulcers, in the peritoneal exudation, and in the liver abscesses.

This case, the speaker said, was of interest from a number of points of view. The history showed a much more acute illness than in the other cases seen in the hospital, and there was not the intermittence which was so marked a feature in some cases. The abscesses of the liver differed from those in other cases in their great number, their small size, and their general distribution. Were it not for their size they might be taken for tubercles, the dry contents being more similar to the caseous material of a tubercle than to the contents of an abscess. In this case there could be little doubt that the amœbæ must have reached the liver by the blood-vessels and not by the peritonæum. In most cases the situation of the abscesses seemed more easily explained by supposing that the amœbæ had passed into the liver from the peritoneal cavity.

On examination of the tissues after hardening in alcohol, the liver abscess contained cell detritus, and at the edges there was a considerable degree of purulent infiltration. There were numerous foci of necrosis extending from the abscess and scattered through the liver. There were numerous amœbæ in the abscess contents.

In the ulcers in the intestine there were numerous amœbæ, both in the material in the ulcer and in the surrounding tissues. The character of the ulcers was typical of this form of dysentery.

Particular attention was paid to the lymph-glands. Numbers of those in the mesocolon were examined. Some of these were adherent to the intestines, and the ulceration had almost extended to them. In none of them were any amœbæ found. The only alteration consisted in a slight hyperplasia and a marked increase in the large cells of the sinuses.

In the study of the tissues there had been in general the best results after hardening in alcohol and staining the sections with an aqueous solution of safranin, although other methods would give some results not attainable by this. The amœbæ were better preserved by hardening in Müller's fluid, but this did not give such good results for the tissue of the intestine. The safranin stained the nuclei of the amœbæ and made their recognition easier. Under any circumstances the amœbæ might easily be overlooked, or the large swollen cells in the submucosa and in the sides of the ulcers might be mistaken for them. They could best be recognized after this staining by the marked vesicular type of the nucleus. It appeared generally as a bright stained ring with small knob-like projections on the inside. The nucleus did not

stain in hæmatoxylin or carmin or in any of the aniline fluids generally used. In specimens stained by the Weigert method, here and there a faintly stained nucleus could be found, but they were nearly all decolorized.

**The Rush Medical College, Chicago.**—The registrar, Dr. E. Fletcher Ingals, announces that a *concours* will be held at the college, beginning on Tuesday evening, March 1st, for the purpose of filling the positions of lecturer on anatomy and on materia medica and therapeutics in the spring faculty. The spring course begins on March 31st, directly after the close of the regular term, and continues for two months with a class of from 250 to 300 students, thus affording an excellent opportunity to exercise their skill as teachers.

It is the policy of the college, so far as practicable, says Dr. Ingals, to fill vacancies in the regular faculty from the corps of spring instructors. Nine of the present members of the regular faculty have been selected in this way.

The *concours* will consist of twenty-minute lectures by each of the applicants before the faculty, students, and local profession upon subjects pertaining to their branches, which will be furnished by the professors of anatomy and of materia medica and therapeutics a week before the contest.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

## Original Communications.

RESECTION OF THE POSTERIOR BRANCHES  
OF THE FIRST THREE CERVICAL NERVES FOR  
SPASMODIC WRYNECK;

WITH REPORT OF A CASE.\*

BY CHARLES A. POWERS, M. D.,

SURGEON TO THE OUT-PATIENT DEPARTMENT, NEW YORK HOSPITAL.

IN February, 1891, Mr. R. was sent to me by Dr. R. W. Amidon, to whom he had been referred a few weeks previously by Dr. F. Huber, for an opinion regarding a spasmodic affection of muscles of the neck. The patient was a heavily built, muscular man, of thirty-seven years. He had never suffered with syphilis, rheumatism, or other constitutional disease. He had been, from boyhood, excessively "nervous and restless," starting violently when suddenly surprised, and trembling at the slightest injury or fear of danger. His father had always manifested the same nervous conditions, and in a marked degree. Two years and a half previously he had first noticed a slight twitching of the muscles of the right side of the neck. This at that time was confined to a very moderate spasm, which carried the head to the right side. It was manifested only when he was suddenly startled or when he was much fatigued. These spasms gradually increased, however, both in frequency and in degree, and when he came under observation they were very marked. He had been given various drugs, electricity, and the like, by several different physicians, no measures being attended by permanent improvement. He was subjected to medical treatment by Dr. Amidon, and, this being without effect, he was referred to me, as said, for operative procedure.

The patient presented a rather senile look, stooping, and throwing the head well forward. When left to itself the head was spasmodically rotated to the right to its fullest extent. The patient could carry it back by pressing the chin over with the hand, but when the restraining force was removed it was immediately jerked back to its rotated condition. These spasms were constant during the day, but were worse when the patient was fatigued, irritated, surprised, or among strangers. The right hand was constantly upon the chin, and the patient was unable to use it in work or even at table. The right shoulder was not elevated, there was no spasm of the muscles of the left side, and the right trapezius, sterno-mastoid, and scalenus anticus seemed free from implication. The patient's neck was large, thick, and short; it seemed somewhat fuller on the right side, posteriorly, than on the left.

The spasmodic movement seemed to be a rotation of the atlas upon the axis. When it took place an increased fullness could be felt in the region just below the occiput and covered by the trapezius, although no contraction could be perceived in that muscle. The patient himself said that he "felt jerks in the deep muscles at the back of the neck." After very careful examination Dr. Amidon considered the affection to be confined to the posterior rotators, and recommended division or resection of the nerves supplying them.

I had but very recently read an article † by Dr. W. W. Keen, of Philadelphia, in which he described in detail the steps of an

operation formulated by him for the division of the posterior branches of the first three cervical nerves.

After familiarizing myself with the anatomy of the part by dissection on the cadaver,\* I proceeded upon the patient as follows: The occipital region was shaved and the parts were prepared in the usual way. The man was anæsthetized and placed flat upon his abdomen, the head projecting over the end of the table, and so held that the external occipital protuberance was in a straight line with the vertebral spinous processes. A three-inch transverse incision was made at the back of the neck, beginning at the median line an inch and a quarter below the external occipital protuberance and running forward. This was subsequently enlarged until it measured four inches and a quarter in length. The parts were divided through the trapezius and the posterior border of the splenius, until the complexus was reached and recognized, the trapezius being dissected up from it. After some difficulty the occipitalis major nerve was found at the upper part of the complexus and outside of the intramuscular aponeurosis of this muscle. Preserving the nerve, the complexus was divided transversely, after which the nerve was followed back to the posterior branch of the second cervical before that nerve gave off the filament to the obliquus inferior.

The inferior oblique muscle was then found, passing from the tip of the transverse process of the atlas to the spinous process of the axis; also the superior oblique and the rectus capitis posticus major, the three bounding the suboccipital triangle, in which was discovered the suboccipital nerve lying in close relation with the vertebral artery. The nerve was followed back to its exit from the spinal canal, between the occipital bone and the posterior arch of the atlas.

Following down beneath the complexus, the external branch of the posterior division of the third cervical was found. This was followed back to the bifurcation of the main trunk. One had at command, then, the nerve supply to the inferior oblique, the rectus capitis posticus major, and the splenius, the three posterior rotators, the first being supplied by the first and second cervical, the rectus by the suboccipital from the first cervical, and the splenius by the second and third cervical.

Each nerve was followed well back to the spine and a half to three quarters of an inch excised from each of the three. Buried muscular sutures were inserted, a drainage-tube laid to the bottom of the wound, and the skin sewed up. A large anti-septic dressing was applied and the head fixed in moderate extension by plaster. The operation consumed nearly two hours, the dissection being necessarily carried on slowly and carefully. I have already said that the patient's neck was very short and thick. The deeper muscles seemed enlarged and dense. The wound was deep, yet the length of the incision gave access to its bottom, and the light from a window was amply sufficient to enable one to see clearly. The recognition of the occipitalis major, running as it does in the direction of the fibers of the complexus aponeurosis, was not easy. It was only after following out several strands of fascia that I found the nerve. The suboccipital lay deep, yet was found far more easily than the third nerve, which was beneath the lower part of the complexus. The hæmorrhage was slight, yet oozing was at times troublesome. The abdominal position of the patient made the administration of the anæsthetic difficult, yet his condition remained at all times good.

On coming out of the anæsthetic the patient had no spasms of the neck; the head was in the median line, and remained

\* Read by invitation before the New York Neurological Society, December 1, 1891.

† *Annals of Surgery*, January, 1891. The procedure followed by me is, in the main, that advised by Keen.

\* For this opportunity I am indebted to Dr. L. W. Hotchkiss, Assistant Demonstrator of Anatomy at the College of Physicians and Surgeons, who kindly assisted at the operation.

there until the final removal of the dressings. The wound healed *per primam* throughout, the tube was removed on the fifth day, and all dressings were taken off at the end of ten days. At this time there were a few slight spasms, but they did not persist. Directions were given regarding massage and the like, but they were disregarded, and the head gradually assumed a position of contraction, with the face drawn to the right.

The patient escaped from observation and was not seen until during the past month, when he was examined by Dr. Amidon and myself, and, at our request, by Dr. C. L. Dana. The present condition is as follows: When the patient stands erect, the right acromion is on a plane an inch and a half to two inches above the left. The head is carried in a position of rotation to the right, and lateral inclination a little downward to the same side. Voluntary rotation to the right is normal, and when the head is in this position it can, with effort, be returned to the median line by the right sterno-mastoid; but effort to carry it beyond this and to the left is attended with difficulty, and seems antagonized by deeper muscles of the right side. Extension of the head is very nearly normal, and, when it is thus extended, rotation to either side is free and unrestrained. Flexion of the head on the chest is nearly normal, but when in position of flexion, rotation to the left is most difficult. The head can be drawn toward the shoulders more freely on the right side than on the left. There seems to be a tonic spasm of the anterior fibers of the right trapezius, and a hard, tense cord can be felt between the trapezius and sterno-mastoid; this is apparently the levator anguli scapulae. There is a scoliosis of the cervical vertebrae, the convexity of this being to the left, above. There is a skin "fold" where it laps over on the right side of the neck, and beneath this fold lies the cicatrix, the line of which is hardly noticeable. There is a fairly marked depression at the site of the outer third of the cicatrix.

From the fact that rotation is free when the head is extended, it seems probable that there is a tonic spasm or permanent shortening in the splenius. The patient has no pain or spasmodic movements, and, in spite of his present contracted wryneck, he expresses himself as feeling that his condition is vastly better than it was before the operation.\*

As stated in the foregoing, the operation for systematic division of the nerves supplying the posterior rotators was first formulated by Keen, who, in addition to his painstaking work upon the cadaver, has had a single opportunity to carry out the procedure upon a living subject.

His patient was a woman, fifty-four years of age, who first came under the observation of Dr. Francis X. Dercum,† March 27, 1886. She then stated that for two years past she had suffered from involuntary rotation of the head toward the left shoulder. The movement frequently recurred during conversation. The chin turned toward the left, and was slightly elevated. She had distinct hypertrophy of the sterno-cleido-mastoid muscle upon the right side. There was some diffuse pain at the back of the neck, though it could not be determined that this was related to the spasm. She was operated upon, June 27, 1888, by Dr. Ashhurst, who removed four inches of the spinal accessory nerve, both branches being embraced in the operation and extreme traction being made upon the trunk. Following the operation the spasms disappeared for a week, but then returned and were apparently unchanged, the frequency being about the same as

\* The condition now, February 24, 1892, is vastly improved; the deformity is but slight, all movements of the head are quite free, there has been no return of the spasms, and he is able to attend to his daily work, which was impossible before the operation.

† *Journal of Nervous and Mental Disease*, 1890, p. 830.

before. Some time afterward she was subjected to operation by Dr. Keen, practically in the manner indicated in the case which I have narrated.

The spasms ceased immediately after the operation, but returned at the end of a week, less violently, however, than before. The rotation was not so marked, and the patient could steady the head with the hand, this being impossible before the operation.

Dr. Keen saw the patient a year later, and thought the posterior muscles free from implication, with the exception of the splenius, some nerves of which had perhaps escaped division. The patient's condition was, however, markedly improved.

I am able to find but one other reported case in which the posterior cervical nerves have been excised. This is reported by Mr. Noble Smith (*British Medical Journal*, 1891, i, p. 752).\* His patient was a lady of forty-one years, who had suffered for sixteen years with severe spasmodic wryneck, which commenced a few weeks after a severe strain.

When the patient was first seen (October 30, 1889) the head was bent laterally toward the right, so that the cervical part of the spine was curved very severely to the left. There was constant and very violent spasmodic action of the left sterno-mastoid and upper part of the left trapezius muscles, drawing the face toward the right shoulder. There was also spasmodic action in the splenius capitis and other muscles on the right side of the neck, these producing the same inclination of the head as the muscles of the opposite side already named. For four months fixation and medicinal remedies were tried. The effect of a supporting instrument was decidedly beneficial, but it only partly controlled the spasmodic action. It was then proposed to stretch the spinal accessory nerve.

On March 6, 1890, this nerve was firmly stretched, the immediate result of which operation was decidedly favorable, but soon began to wear off, and it became evident in about a week that further measures were necessary. Excision of a part of the nerve was then determined upon.

On April 22d a piece of the spinal accessory nerve, a third of an inch long, was excised. The result of this operation was complete paralysis of the sterno-mastoid and trapezius, and a feeling of immense relief to the patient, as the spasms were very greatly lessened. She was up and about in a week after the operation, and could turn the head easily to the left side and control it in that position; she could hold it for a short time in any position she liked, but the spasms on the right side continued, the splenius capitis being the greatest offender. After waiting a few weeks and finding that there was no further improvement, it was determined to operate upon the posterior branches of the cervical nerves upon the right side. On May 28, 1890, an incision was made from the occiput downward for about three inches, parallel to and about an inch to the right of the spinous processes, through the trapezius down to the edge of the splenius, some of the fibers of which muscle were subsequently divided to enlarge the wound; then through the complexus, eventually exposing the posterior branches of the cervical nerves.† The great occipital nerve then came into view. This was separated from its attachments, drawn aside, and a piece of its external branch, as well as of the third and fourth posterior branches, were excised. The splenius was separated from the parts beneath it, and nerve filaments passing

\* Smith seems to have made his observations without knowledge of the previous work done by Keen.

† The author does not enumerate the individual nerves.

into it were carefully excised. The same procedure was adopted with the complexus. The suboccipital nerve was left intact, as the dissection was a rather deep one and veins interfered. Recovery from the operation was complete, the spasms ceased, and at the time of report, eleven months after operation, had not returned. The loss of power was very slight, and the patient expressed freedom from discomfort or disability.

We have, then, three cases in which these posterior cervical nerves have been resected. In Keen's case there was amelioration, though not complete cessation, of the spasms. In my own the spasmodic action was stopped, yet the patient now presents a moderate degree of tonic wryneck, while in Noble Smith's the cure seems to have been a complete one. I can but think that Smith was cautious in resecting the fourth nerve and in cutting out all filaments to the splenius and complexus, and in another case I should be inclined to follow this procedure. I am hardly prepared to express a positive opinion as to just what muscles are now affected in the patient whom you have seen to-night. There seems no reason for believing that those of the left side are in any way involved. The muscles which rotate the head to the side on which they themselves are situated are the inferior oblique, rectus capitis lateralis, rectus capitis posterior major and minor, trachelo-mastoid, and splenius. It seems quite probable that more than one of these are affected. There is no tonic extension of the head, yet when the head is in extension, rotation is free.

If flexion with rotation to the left were difficult, we could feel assured that the muscles which both extend and rotate to the right were at fault, and that superextension, relaxing those muscles, would allow the other rotators to effect the turn to the opposite side. Again, if only the simple rotators were implicated, there seems no reason why rotation should be freer with the head in full extension. The patient carries the head somewhat inclined to the right side. This inclination, with rotation to the same side, could be effected by the trachelo-mastoid and splenius, especially the anterior fibers of the latter muscle, and I think that we may assume that extension of the head would tend to relax the splenius and thus permit of more easy rotation. These muscles are supplied by the external branch of the second cervical, which nerve was resected at its exit from the intervertebral foramen, yet it is quite possible that they receive additional fibers from lower nerves. It is also possible that filaments were given off from the nerves before their section. As I have said, however, I can only conjecture as to which of the deeper muscles are now affected.

With a view to comparing the relative advantages of the transverse and longitudinal incisions, I have very recently made further dissection of the parts on the cadaver. Each procedure—the transverse cut of Keen, and the longitudinal one of Smith—seems to possess advantages. In each the incision must be a liberal one. Keen's transverse division of the trapezius and complexus gives better command of the suboccipital triangle. It is not as easy in this, however, to gain access to the third and fourth nerves as when the cut is longitudinal. Keen did not divide the fourth nerve, yet, as I have said, I think that I should do this in an-

other case. When the patient is fat, either incision must be a deep one. In one subject which I dissected, the first, third, and fourth nerves were exceedingly small, and only found with much difficulty after long and careful dissection.

I am at present inclined to think that if the patient presented a long, thin neck, I should make the longitudinal incision, and that I should employ the transverse cut of Keen in those people whose necks are short and thick.

It is needless to say that good light and ample retraction are indispensable. The less of fat the region presents, the easier will it be to recognize the parts, yet I should feel that it would always be best to advise the patient, before operation, of the possibilities of failure. Certainly it is an operation which I should hesitate to undertake without having first become familiar with the region by dissection of the dead subject.

In my own case the divided muscles were sutured and seem to have suffered nothing as a consequence of their mutilation.

Hæmorrhage is not an important factor in the operation. Oozing of blood from the divided muscles bothers one by obscuring the field of work and delays one in point of time, yet there is little danger of wounding large vessels. The vertebral artery and vein may come into view in the suboccipital triangle, and it is needless to say that they are to be carefully avoided, for they lie very deep and it might be most difficult to ligate them.

Appropriate after-treatment by confinement of the head, massage, and the like should receive careful attention.

Regarding the indications for operation in spasmodic wryneck, I need not speak before this society. It is to be resorted to when other measures fail. Drugs, gelsemium, hyoscyamine, and other antispasmodics, atropine injections, massage, position, electricity, and other means will cure a certain number of cases, but will leave a certain number uncured, and these last must be subjected to surgical procedure. We have seen that in operations upon these posterior nerves we have few data to guide us. In affections of the anterior muscles, however, those supplied by the spinal accessory nerve, we have the experience of many observers. Here various procedures have been adopted—myotomy, nerve ligature, elongation of the nerve, division, and resection. Of these, the last—the resection of a considerable portion of the nerve, possibly combined with firm stretching of the proximal fragment—enjoys the best repute; and while consideration of the operations upon this accessory nerve is without the scope of this paper, it may not be out of place to briefly refer to the investigations of a recent French surgeon, Petit, who, in July of this year, published (*Traitement du torticollis spasmodique par la résection du nerf spinal*, *L'Union médicale*, July 9, 1891) the results in twenty-six cases in which the spinal accessory nerve had been resected for spasmodic torticollis. Of these twenty-six cases, thirteen were cured, in seven the amelioration was marked, in two the improvement was less marked, in three it was temporary, and in one case death resulted from phlegmonous erysipelas.\*

\* It is needless to say that under present operative methods septic processes play a very small rôle.

Petit says: "Thus, of twenty-six patients, twenty have been either completely cured, or so ameliorated that they have been able to resume their occupations. This certainly justifies those surgeons who have practiced resection of nerves in the treatment of spasmodic wryneck."

It is to be regretted that the author does not state the length of time after operation which had elapsed when the term "cure" was applied.

I have purposely refrained from speaking of the occurrence of spasmodic wryneck, of its causes, pathology, or medical or mechanical treatment, and in conclusion beg to lay before you this proposition: That in spasmodic affection of muscles supplied by the posterior branches of the upper cervical nerves resection of those nerves is a procedure, practically devoid of danger, which offers many chances for marked anchioration and a fair prospect of permanent cure.

35 WEST THIRTY-FIFTH STREET.

NOTES ON  
TUBERCULOSIS OF THE URINARY BLADDER,  
AND THE VALUE OF SUPRAPUBIC CYSTOTOMY  
IN ITS TREATMENT.\*

BY LEWIS S. PILCHER, M. D.,  
BROOKLYN.

OBSERVATIONS bearing upon tuberculosis of the urinary bladder have not yet attained so great a number as to make the report of individual cases unimportant, unimportant, or uninteresting. The suffering which the disease entails, its intractable nature, and the difficulties which sometimes attend the diagnosis, constitute conditions that will always command the earnest attention of surgeons.

It is possible that hereafter tubercular infection may be demonstrated to be a more frequent cause of intractable cystitis than has up to the present time been recognized. Certainly the results of the bacteriological studies of Rovsing are very suggestive in this direction. This observer is reported (*Ann. of the Univ. Med. Sci.*, 1891, vol. i, L, p. 40) to have detected tubercle bacilli in the bladder discharges in three out of thirty cases of cystitis subjected to examination by him.

Cases of cystitis which develop in the course of the progress of recognized tubercular disease of other portions of the genito-urinary tract are not likely to fail of immediate classification as being manifestations of an extending tuberculosis, without special stress having been laid upon the identification in the bladder discharges of the specific micro-organism. But in the more obscure cases, where the primary lesion is in the bladder wall itself, or, if this is consecutive, the primary deposit elsewhere in the genito-urinary tract has eluded identification, the importance of bacteriological methods for establishing a diagnosis, and with the diagnosis a prognosis and therapy, is beyond question. In the investigation of a tuberculous bladder the sound can convey but little positive information; the cystoscopy—if, by rare chance, when it is introduced, the fluid

contents of the bladder are clear enough to enable its mirrors to reflect any portion of the bladder wall—can reveal but imperfectly and uncertainly the degenerative and inflammatory changes that may be present, while direct ocular inspection and palpation with the finger-tip through a dilated suprapubic opening still need the confirmation of the bacteriological test in order to establish beyond question the opinions which they may have suggested.

The application of this test, however, in the early stage of a primary bladder tuberculosis may be so impracticable as to make it unavailable in establishing the diagnosis; a certain amount of breaking down of tissue and of discharge of infected *débris* into the interior of the bladder is necessary before the bladder discharges can possibly respond to the tests that may be applied, so that, for a time at least, all precise diagnostic measures may remain at fault.

In illustration of this possible difficulty of making a positive diagnosis in the early history of a case, I cite the following case, although it is still incomplete, but does not on that account any the less illustrate the point in question:

CASE I.—Alexander M., an active young man of twenty-two years. In good health until development of present trouble. One sister died of carcinoma of the breast at thirty-four years of age; a second sister died at thirty years, of some bladder disease, after an illness of four years; a third sister, younger than himself, is the subject of tuberculosis of the cervical glands. His parents are healthy, except a tendency to rheumatism on the part of the father. Six months before coming under observation the patient was troubled for a period of two weeks by frequency of micturition. No pain and no change in quality of urine noticed. This subsided spontaneously and did not recur for a period of four months, when it again developed, and the occasional escape of fibrinous, shreddy material in the urine was noticed. This again subsided for a brief period, until, after a prolonged ride upon his bicycle, he was attacked with hæmaturia, with acute cystic irritation, which had persisted with steady aggravation, despite intelligent treatment, for two weeks or more, when I first saw him. At that time he was urinating every hour, or at less intervals, with pain and tenesmus; the urine constantly contained much blood and abundant bladder epithelium and leucocytes. Some flakes of somewhat consistent material, apparently of organized tissue, were also present in the urine. Examination of the bladder with a sound gave negative results; the use of the cystoscope was impracticable, owing to the constant hæmorrhage; the rectal touch was negative. The shreddy material, having been submitted to a pathologist for examination, was reported to be fibrillated connective tissue inclosing cell elements, and to be suggestive of the existence of papilloma of the bladder. The indications for suprapubic cystotomy being thus well established, the patient was removed to the Methodist Hospital, where the operation was duly performed. The opening of the bladder and inspection of its interior did not reveal the hoped-for limited papilloma, but instead thereof, on the right lateral wall of the bladder, extending upward from the base, an area of the mucous membrane as large as a silver dollar, intensely congested, velvety in appearance, raised somewhat above the surface of the surrounding normal mucous membrane, as if by infiltration of the submucous tissue, and bleeding freely when touched. In view of the age and history of the patient, the most probable opinion that these conditions suggested was that the lesion was of a tuberculous nature. This diagnosis, however, needs confirmation. Repeated examinations of the urinary

\* Read before the New York Surgical Society, December 9, 1891.

sediment made since the operation have thus far failed to detect the presence of the bacilli of tuberculosis in it. Inoculation experiments are under way, but it is still too early to obtain any report therefrom.

Meanwhile the treatment pursued was moderate curetting of the diseased surface; immediate tamponade of the bladder with iodoform gauze for twenty-four hours; subsequent daily irrigations through the suprapubic wound, first with boro-salicylic solutions, and later with solutions of nitrate of silver (two grains to one fluidounce). A steady improvement in both the local and general condition of the patient has resulted; pain has vanished, blood has nearly disappeared from the urine, he sleeps well, eats with appetite, and has gained in weight.\*

Another case (also now under observation in my service in the same hospital as a patient of my assistant, Dr. Bogart) will bear citation here in further illustration of the same point.

CASE II.—John W. F., an athletic young man, twenty-eight years of age, is admitted for relief of fistulæ in ano with the following history: Several of his father's brothers had died of pulmonary tuberculosis. He himself had never had any venereal disease. Eight years previously to admission, when in otherwise perfect physical health, he began to experience frequent and straining micturition. Never any blood. After eighteen months the symptoms became more aggravated, the pain keener, and a slight urethral discharge was noted. The external meatus was slit up without relief. Every few months an acute attack, apparently due to increased prostatic congestion, with increase of pain and of discharge, would occur. Violent exercise and constipation were the exciting causes of these attacks. By watchfulness in these respects he finally learned to prevent these recurrent acute attacks, but the urethral discharge persisted. The testicles are free from disease. Two years ago an eminent genito-urinary surgeon of Boston, under whose care he was at that time, detected enlargement and induration of one of the seminal vesicles. Bacteriological examination of the semen and of the urine failed to show any bacilli of tuberculosis. The cystoscope was used without any definite findings. Meanwhile, about a year before coming under my own observation, the presence of pus in the ischio-rectal space was detected, which after some months was evacuated, leaving two persistent fistulous tracts, one of which communicates with the bowel.

With the evacuation of this abscess the bladder symptoms have become less urgent, but a sense of discomfort in that viscus, and the need of care to prevent its becoming aggravated, is rarely absent.

The case well illustrates the difficulties which attend the coming to a positive diagnosis in a case of primary tuberculosis of the bladder. Even at this late date, though there is but little room for doubt as to the tubercular nature of the prostatic and cystic symptoms that have so many years tortured this patient, it can not be said to be settled beyond possible dispute.

Thus much with reference to this point of diagnosis. The special object of this communication was, however, to report the effects which had resulted from the performance of suprapubic cystotomy in a limited number of cases of tubercular disease of the bladder that have been recently under my care. My attention was called to the possible benefits of this procedure by the paper which Guyon, of

\* The patient has now, three months since this was written, apparently become perfectly well.

Paris, read before the French Surgical Congress in 1889, in which he reported three cases of the kind; two of them were followed by marked relief to the bladder symptoms, death occurring one and two years, respectively, later from renal degeneration. The third patient, a male of twenty-four years of age, who had been suffering for two years with symptoms, made an apparently complete recovery, remaining well four years after the operation, having gained in flesh and strength. Other cases nearly as favorable have also been reported by other surgeons, but I have made no effort to collect them.

My first case is as follows:

CASE III.—Frank B., an active young man, eighteen years of age, was admitted to the Methodist Episcopal Hospital in September, 1889, for relief of hæmaturia and irritable bladder. The symptoms dated back for two years, during which he had suffered from unduly frequent micturition, with occasional hæmaturia. The hæmaturia had been constant for the three weeks previous to admission. Micturition is painful, especially when much blood is to be voided. Has frequent temporary retention of urine by blocking up of urethra by clots. Has enlargement of both epididymides, with consolidation at apex of left lung. Explorations of bladder by sounds and cystoscope, negative. Irrigations of bladder with boric acid and hydrastis canadensis for two weeks without advantage to patient. Patient suffers much from occasional blocking of urethra by masses composed of fibrin and phosphatic concretions. Suprapubic cystotomy. After the bladder had been opened and its base fully exposed, there came into view an eroded ulcer, about an inch in diameter, with overhanging edges. Considerable sabulous matter and mucopus was removed from the bladder, the ulcer curetted, and the cavity of the bladder filled with iodoform gauze. Median perineal section with introduction of hard-rubber drainage-tube to base of bladder. This tube, after a few days, was found to be a source of irritation and was removed, the suprapubic opening alone being depended upon for drainage. Systematic antiseptic irrigations of bladder. Gradual improvement in condition of patient. Steady contraction of suprapubic wound. At the end of a month suprapubic wound nearly closed. Begins to urinate *per urethram*. During succeeding months gradual increase in proportion of urine passed *per urethram*. At the end of the third month only a very small amount of urine escapes through the suprapubic opening when bladder becomes overdistended from failure to empty the bladder during sleep. Patient retains his urine from one to two hours during the day, and twice that time at night, urinating easier and without pain. General health greatly improved. Discharged. After leaving hospital, a steady improvement. This continued, and, at the end of a year from his entrance to hospital, patient returned to college, his general health being excellent. Between 6 A. M. and 10 P. M. he urinates about ten times without pain, but during the night only twice. There is at irregular intervals an occasional escape of urine through the suprapubic fistula.

Upon recent examination of this patient, two years after the operation, I find him in apparent robust health. He is pursuing his college studies, and is especially interested in college athletics. Has gained much in weight; the epididymal deposits remain *in statu quo*; the suprapubic opening is firmly closed, no urine having escaped through it for more than a year. He rises twice during the night to relieve his bladder, and during the day time urinates at intervals of about two hours.

CASE IV.—Nellie J., aged nineteen years, was admitted into the Methodist Episcopal Hospital in August, 1890, for the

relief of chronic cystitis. For two years she had been troubled by frequent and painful micturition, with occasional appearance of blood-clots in the urine. When admitted she was compelled to urinate every hour, the act being attended with a varying amount of pain. The urine contained abundant pus. The general health was fairly good.

Bacteriological examination of the urinary deposits revealed the presence in them of the bacilli of tuberculosis. After a four weeks' trial of the common remedies for cystitis, without improvement, September 5, 1890, she was subjected to suprapubic cystotomy by my assistant, Dr. Bogart. This revealed the presence at the base of the bladder, extending upon its left lateral wall, of a large ulcerated surface, with very friable and easily bleeding granulations. The bladder was cleansed by irrigation and filled with iodoform gauze. At the end of a week, for the iodoform gauze dressings daily irrigations with solution of carbolic acid were substituted. At the end of four weeks the urine, as it escapes from the suprapubic opening, is quite clear. Her general condition, however, is not so good, and physical examination of the chest reveals some deposit in both apices.

A week later considerable pus is again found mixed with the urine, and irrigations are painful. Irrigations are suspended, and balsam of Peru and cocaine are instilled into the bladder daily for a time. Finally, however, all intravesical applications are suspended. For some weeks her condition varied, but a gradual improvement in strength and appetite finally became established, and at the end of five months and a half after the operation, having regained ability to resume dress and to walk about, she was discharged from the hospital February 20, 1891. She still had at times much pain in the bladder, her urine still contained pus, and escaped entirely through the suprapubic sinus. During the year following her return home her bladder condition remained unchanged. She was able to be about and do some housework. The pulmonary tuberculosis, however, continued to develop, and finally determined her death in the fifteenth month after the cystotomy had been done.

CASE V.—In June, 1890, Joseph S., some fifty years of age, was brought to me by his physician, Dr. W. E. Beardsley, for examination. The case was simple and clear in its character. Beginning five years before with fistula in ano, he had successively developed tuberculosis of the larynx, of the lungs, of both epididymides, of the prostate, seminal vesicles, and base of the bladder. Micturition was frequent and painful, but the suffering was not so pronounced as to make a cystotomy seem advisable at the time, especially in view of his generalized tuberculosis. During the ensuing summer, however, the bladder symptoms increased in severity to such a degree that cystotomy became more urgently indicated. The suprapubic section was accordingly done in New York city in October, Dr. E. L. Keyes being the operator. Examination of the interior of the bladder failed to reveal any ulcer or special characteristic appearance of tuberculosis other than a diffuse, intense congestion of the mucosa at the base of the bladder, with many minute granular elevations dotting the surface. Intravesical iodoformized applications were made and suprapubic drainage provided for. After about three weeks, having been brought back to his home in Brooklyn, he again came under my care. But little relief had been secured by the suprapubic section; much constant pain in the bladder demanded frequent administration of morphine for its control; a total lack of reparative power manifested itself in the operative wound; and every effort to promote repair—involving general hygiene, supporting and stimulating treatment, and local stimulants—was fruitless to provoke any tendency to cicatrization or to prevent undermining of the adjacent connective-tissue planes. He gradually sank,

and died by exhaustion ten weeks after the cystotomy was done.

*Remarks.*—Of the four cases now detailed in which suprapubic cystotomy was resorted to, in two of them very marked benefit has resulted from the procedure. In the other two no benefit, but, on the whole, decided disadvantage, I think, was the result.

In the case of the girl the opening of the bladder above the pubes was a very satisfactory proceeding, as an aid to the exploration of the bladder and in the help which it gave us in ascertaining its precise condition, but its after-care required prolonged confinement to the bed; and the discomforts attending the constant outflow of the urine above the pubes could only partially be overcome by the use of voluminous absorbent pads. I doubt whether any benefit was derived from the efforts at topical medication that were made; indeed, I question whether in any of these cases any substantial advantage is to be hoped for by attempts at special topical antitubercular treatment. The tubercular infiltration is not a superficial infection, to be arrested or diminished by the powderings, instillations, or irrigations that are available for use in the interior of the bladder. The curette and the cautery can not be resorted to with any such degree of thoroughness as to encourage a hope that even a considerable portion of presumably infected tissue has been removed by them. The most that can be hoped for from treatment is to prevent the collection of urine in the bladder, to keep the bladder at rest, and to mollify the effects of the existing infection by relieving pain, removing *débris* and irritating secretions, preventing muscular spasm, and restraining inflammation. If this can be accomplished, it may possibly be that in certain very favorable cases an indefinite arrest, even the entire recession, of the tuberculosis may take place.

The value of the suprapubic incision, therefore, does not consist so much in any opportunity which it may afford to give access to the disease itself, but rather in the superior degree in which it facilitates the accomplishment of these apparently secondary indications named.

In the male I think there can be no question as to the superiority of a suprapubic opening to a perineal one in carrying on the treatment of this special class of cases. In the female, however, the relations of the base of the bladder to the vagina are such as to suggest that by the formation of a generous vesico-vaginal opening an equally efficient and much more convenient outlet to the bladder would be furnished than could be had above the pubes. My experience in the case of the girl in question would suggest to me that in a similar case again it would be better, after having made the exploration of the bladder by the suprapubic opening, to establish a free opening through its base into the vagina and then suture the suprapubic wound, relying on the vaginal outlet for the after-treatment of the case.

Perineal drainage was tried by me as an accessory in one man (Case III), but the pain and irritation caused by the presence of the tube in that location, its vesical end necessarily resting upon the ulcerated surface, made its withdrawal necessary after a very short time. Further experience and observation have satisfied me that it can rarely be of any

added advantage to have a perineal opening as long as the suprapubic opening remains patent and the contractility of the bladder walls has not been destroyed.

A device to facilitate drainage and intravesical irrigations which I have employed in my latest case has worked so well and given so much comfort that I will mention it. It consists simply of the use of two soft-rubber tubes—large caliber drainage-tubes, 5 to 7 mm. interior diameter—introduced side by side through the suprapubic opening, projecting unequally into the bladder, one being carried into the bladder a sufficient distance to nearly reach its base, the other being only long enough to fairly reach the cavity of the bladder. Neither of these should have any lateral openings. Ready drainage is thus secured both from the bottom and the top of the bladder, and by alternately sending an irrigating current, first through one and then through the other of the tubes, very thorough and painless washing out of the organ can be readily done. Both of these tubes I cut off flush with the surface of the skin. By covering their orifices with a somewhat voluminous absorbent dressing—bags of sawdust are used by myself—which is replaced as often as it becomes saturated with urine, the patient is kept dry and comparatively comfortable.

Two practical questions suggest themselves in connection with this subject to which, in conclusion, some consideration may be given—viz.:

1. How early in a case of possible bladder tuberculosis is a suprapubic section desirable?
2. How long is it desirable to maintain the suprapubic opening patent?

The answer to the first of these questions, I take it, is to be found in a consideration of the indications which the operation may be accepted as subserving. I have already expressed my conviction that it is by securing bladder rest and drainage that the operation is especially useful. The symptoms that demand attention are those usually of cystitis; if these symptoms—it is unnecessary to recount them or analyze them here—if, I say, these symptoms do not readily yield to the well-known accepted constitutional and local measures of treatment, recourse to cystotomy is indicated and should not be unduly deferred while the general strength is being sapped by the local suffering, the extension of disease, and the absorption of deleterious substances into the circulation.

The second question must also receive an indefinite answer. Case III of the series reported this evening shows that in the most favorably affected cases a gradual subsidence of the symptoms which had called for operation may take place; the ulcers cicatrize, the inflamed mucosa resumes its normal state, the urine becomes bland and healthy, or at least comparatively unirritating, and the bladder becomes again capable of acting as a reservoir for urine, and of painlessly expelling it at suitable intervals.

When this condition has been secured, the suprapubic opening may be allowed to close, but a prolonged period of time, possibly many months, must be expected to be required to bring about this end.

In other cases it is to be expected that comparative comfort only will be enjoyed as long as the bladder is not called

upon to retain the urine for any time, which will necessitate the indefinite retention of the suprapubic opening and a suitable permanent drainage apparatus.

In much the larger proportion of cases, however, and especially those in which the bladder disease is secondary to or associated with progressive renal or pulmonary tuberculosis, it must be that the fatal termination of the case will early dispose of any question that might have arisen as to the permanency of the suprapubic opening, which may have been made for the purpose of temporarily alleviating the suffering caused by the condition of the bladder.

## ESSENTIALS IN OPHTHALMOLOGY FOR THE GENERAL PRACTITIONER.\*

BY L. A. W. ALLEMAN, M. A., M. D.,

BROOKLYN, N. Y.

It is with the greatest possible satisfaction that the physician of to-day recognizes that medicine has at length become a science—not, it is true, an exact science, but a pre-eminently progressive one. The few fundamental branches which once constituted the requirements of a medical education have now put forth many vigorous offshoots. It is no longer possible for the conscientious medical student to master in the time usually devoted to preparatory study all that is to-day known of medicine, and then to hold fast to that which is good, but in the very outset of his education he must exercise his selective faculty, and too often, later on, he regrets that he was not better advised as to the most profitable use he could make of his time.

We are all of us frequently called upon to give such advice to medical students and to those recent graduates to whom an unappreciative public allows abundant leisure, which they wish to devote to rounding out their medical education. Since this question arises nowhere more frequently than in connection with the study of diseases of the eye, I have thought it of interest to ask you to discuss with me what knowledge of this special branch is essential to a general medical education.

To the medical student the study of ophthalmology centers in the ophthalmoscope. It is the "outward and visible sign," the pre-eminent weapon of the oculist. The first flickering flame of enthusiasm for eye work in the breast of the student provokes the inquiries, "Shall I get an ophthalmoscope?" "How much does the instrument cost?" "Which one is best adapted for student's work?" and so on. I always advise against its purchase, unless the man intends to follow eye work after graduation, and no doubt often seem most inconsistent. After pointing out the advantage in many medical cases of an examination of the eye ground, it is a natural inference that the well-equipped general practitioner should be able to avail himself of its aid, but I am more and more convinced that the advice is sound, and I doubt not that I could put in evi-

\* Read before the Kings County Medical Association, November 10, 1891.

dence the experience of many of the gentlemen present, who, in moments of enthusiasm, have invested in such instruments.

That the ophthalmoscope is not a valuable aid to diagnosis in the hands of the average medical man is not because the data which it gives are valueless, but because the instrument is only of value to the man who has sufficient opportunity for its employment to keep himself expert in its use.

In the first place, it requires some practice to see the fundus oculi at all; having mastered this, one must get a standard of normal. Then there are in health wide variations in the appearance of the fundus, and some of these so closely simulate diseased conditions that unless the points of differential diagnosis between pathological conditions and physiological variations are most thoroughly impressed by long practice, they are a very annoying stumbling-block.

Having once gained sufficient experience in the use of the instrument to profit by its showings, its use can not be long neglected without serious loss of expertness, and just here is where our general men find the difficulty. In the busy rounds of professional work cases requiring its use are not very frequent, and time does not permit recourse to the clinic to keep in practice. The cases in which an ophthalmoscopic examination is valuable as an aid to diagnosis are among the most difficult we encounter, and the physician with a fair working knowledge of the instrument finds that he falls just short of that absolute confidence in his findings which is essential to his purpose.

A much less ambitious instrument than the ophthalmoscope, and one with the use of which every student should familiarize himself, is a simple mirror. It is, in fact, an ophthalmoscope, save that it lacks the lenses, which are usually placed behind the mirror. This instrument takes the place of the more elaborate one for nearly every purpose save the estimation of refraction. With a very little practice one can learn to illuminate the interior of the eye and obtain a red reflex through the pupil. This will give much valuable information. For example, opacities in the lens can be seen, and a diagnosis of beginning cataract made, its progress can be watched, and by this simple procedure many a patient in some remote district would be saved a disheartening journey to the city for the purpose of undergoing an operation for a cataract which either does not exist or is not sufficiently mature for operation. By its employment irregularities of the pupil found in iritis can be seen, floating vitreous opacities recognized, and, in the hands of one sufficiently skilled, a fair idea of the condition of the fundus gained.

As to the diseases of the eye recognizable by the ophthalmoscope and due to some constitutional disorder, such as Bright's disease, diabetes, and the like, it suffices to point out that such diseases exist, and that, in these cases, an examination of the fundus oculi is sometimes invaluable as an aid to diagnosis.

The inspection of the eye to determine the presence of a foreign body is an important matter—a task frequently imposed on the general practitioner. A man suffering from a cinder, for example, which is rasping up the delicate mem-

brane, is not always and altogether reasonable. At any other time he might admit that his case was one which should properly be sent to a specialist, but if compelled to wait over night to see one, the patient may not be altogether charitable in his opinion of the doctor who declines to relieve him of his suffering. It is therefore well for every one to cultivate what knowledge he can of the removal of foreign bodies, when they are simply lodged in the conjunctival sac or cornea, and have not penetrated the eye. Here no amount of telling will do for the student what a little showing will, nor can it give him manual dexterity, but he should be advised that if he begins his examination of an eye irritated by the presence of a foreign body by the instillation of a drop of a four per-cent. solution of hydrochloride of cocaine the matter will be much simplified; also warn him in endeavoring to open the lids to examine the eye, not to dig the fingers into the eye, making pressure upon the sensitive globe, thus exciting spasm of the lids and increasing the difficulty of examination; but, resting one thumb against the margin of the orbital cavity and the other upon the malar bone, to make firm traction. In this way the eye is much more easily opened. A condensing lens of some sort can usually be obtained, and by it a ray of artificial light focused upon the eye. A very little practice enables one to evert the lid, and in ordinary cases no difficulty is experienced in removing the foreign body. When it is deeply imbedded in the cornea, much caution is required to avoid adding to the mischief already done by rough manipulation in its removal. These points are so self-evident as to scarcely require comment.

As to the diseases of the eye against which the student should be repeatedly warned, I think the one of chiefest importance is ophthalmia neonatorum. So terrible are the effects of this disease and so simple a matter is its prevention, and in the beginning its cure when properly managed, that I feel that we should preach upon its dangers in season and out of season. When we reflect that nearly a fourth part of the inmates of blind asylums are victims of this disease, when we consider the life-long misery which blindness entails, we must feel that a heavy weight of responsibility rests upon the man who fails to impress upon those he presumes to instruct the dangers of this terrible disease and the precautions necessary for its prevention. Not only does the prevention of blindness demand our consideration from sympathy for these unfortunate victims, which, in all conscience, is imperative enough, but it is our duty as citizens to try and relieve the State of a burden which I regret to say is an increasing one. Most of the blind are not only a loss to society by being withdrawn from the body of wealth-makers, but are a direct tax upon the industry of others; in this State alone the loss to the community from the blind population was estimated by Dr. Lucien Howe, who deserves great credit for arousing interest in this subject, at twenty-five million dollars in 1887, and would no doubt be found still greater at the present time. It is not possible here to enter further into the discussion of the prevention of this disease, but suffice it to say that every student, every midwife, every nurse, any one, in fact, who may at any time come into contact with new-born children, should

be taught that the dropping into the eye of the child, immediately after birth, of a drop of a two-per-cent. solution of nitrate of silver gives practical immunity from the disease, and that finding a case already developed, the law requires the notification of some responsible officer. The law reads:

CHAP. XLI.—*An Act for the Prevention of Blindness.*

SECTION 1. Should any midwife or nurse having charge of an infant in this State, notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such midwife or nurse so having charge of such infant, to report the fact in writing, within six hours, to the health officer or some legally qualified practitioner of medicine, of the city, town, or district in which the parents of the infant reside.

SEC. 2. Any failure to comply with the provisions of this act shall be punishable by a fine not to exceed one hundred dollars, or imprisonment not to exceed six months, or both.

SEC. 3. This act shall take effect on the first of September, eighteen hundred and ninety.

When it is impossible to place the case in other hands, one can easily refer to the text-books for treatment, which consists of antiseptic washes, iced compresses, nitrate of silver, and the like, which I can not here describe in detail. A disease of similar nature and one which no physician can ever afford to disregard, alike for his own safety and that of his patient, is gonorrhœal ophthalmia.

When an eye is inoculated with gonorrhœal pus, an inflammation of frightful intensity follows. In some instances an eye may be lost in twenty-four hours, and, even with the most careful treatment, there is always grave danger to vision. This should never be forgotten when a case of gonorrhœa is treated, and the physician should take the utmost care to protect himself and should warn his patients. Cases are not infrequent where innocent persons are infected with this disease from public towels and the like, and it is our duty to instruct our clients to avoid such criminal carelessness as will endanger others, and to deprecate the inexcusable practice of using such dangerous articles in the toilet as those found in any public place.

Glaucoma, too, is a disease which the student should be taught to be on the lookout for and against which he should be warned. Many an attack of acute glaucoma has been allowed to go on to hopeless blindness without an effort being made for its relief, because it was believed to be a bilious attack. It is not always easy to test the tension of an inflamed eye, but when a patient, who seems to be suffering from what would ordinarily pass for a bilious attack, is found to have an inflamed and painful eye, the possibility of glaucoma should be always kept in mind. It may be added in this connection that it is, as a rule, dangerous to use atropine in patients over forty, as it is believed to sometimes precipitate an attack of glaucoma.

We should likewise emphasize the fact that there is such a disease as sympathetic ophthalmia. We can not hope to enable every student to recognize the disease, but we can teach him that when one eye is injured, especially should that injury affect the ciliary body, or should a foreign body be located in the globe, there is always danger that the fellow-eye will be affected, and that it will often

become the more hopelessly blind of the two. Again, when the patient has an eye which has been lost through some previous injury, should this eye, even though reduced to a mere stump, be tender on pressure, it is a menace to the sound eye, and it is a safe supposition that any irritation arising in the sound eye under such conditions is the beginning of sympathetic ophthalmia.

In strumous children eye diseases are of frequent occurrence. In these cases it should be remembered that attention to the general nutrition is of the highest importance. A strict regulation of diet is imperative. We usually find that these little sufferers are given pie, cake, candies, tea, and coffee, to the exclusion of more wholesome food. The effects of such a diet are obvious. They are allowed to spend most of their time indoors, where, as a rule, the surroundings are most unhygienic, and, if left to themselves, they will select the darkest and most unsavory corner of this retreat, where they will spend the entire day with the head buried in the pillow. When it is necessary to take them out, as for their visit to the doctor, the eyes are tightly bandaged, and in the class of patients which I have in mind—namely, those seen at the public clinic—the preference is usually given by the parents to the thickest, wooliest, and dirtiest material at hand for a bandage. The bandages should be removed and the patient be sent into the fresh air; this, with a rational diet and the administration of some tonics—as, for example, the iodide of iron—will do as much as local treatment, often more, to relieve the patient.

One of the most important points relative to diseases of the eye which the general practitioner is frequently called upon to decide is whether, in any given case, some error of refraction or anomaly of the ocular muscles is the exciting cause of headache or some reflex nervous symptom. That such eye defects are a frequent cause of headache and reflex nervous disturbances no careful observer can deny. We must not allow our enthusiasm to carry us to the point of believing that all headaches, all nervous symptoms, and the majority of other physical disorders, have their origin in some eye defect; but it is a safe proposition, and one easily verified in practice, that, in a very large proportion of headaches and in a certain lesser proportion of nervous disturbances, eye defects are at least a contributing, if not an exciting, cause.

My experience has been that, almost without exception, in patients suffering with these symptoms, arising from whatever cause, when an error of refraction or lack of muscular equilibrium was found to be present, the correction of such defects benefited, if it did not cure, the headache.

I think in some of these cases treatment directed to the stomach, pelvic organs, nose, or other source of irritation would likewise have relieved the patient. The nervous system might be able to struggle along comfortably with an irritation arising from one of these causes, but with the two it could not successfully cope. In many cases none will deny that the eye defects give origin to most distressing headaches, and to nervous reflex symptoms, some of which seem so remote that, unless the case is actually before one, it is sometimes impossible to believe that any connection exists; yet the explanation is simple enough. Let any one

of us place before one eye a prism just strong enough to give the slightest possible separation of images in the vertical, in a few moments the presence of such a glass becomes simply intolerable and enables one to more easily understand how such a source of irritation, when present for a long time, can give rise to a condition of nervous hyperæsthesia, which may manifest itself in any of those myriad ways in which a disordered nervous symptom finds expression.

Such being the importance of eye defects in the causation of those diseases with which the general practitioner has every day to cope, it follows that no careful practitioner can afford to overlook them.

The question then naturally arises, How far and in what manner shall we proceed in an examination to determine the presence of such ocular defects? The ophthalmoscope, which is highly recommended by some ophthalmologists as an easy and reliable method of determining the refraction, we must exclude on the grounds already given, and even when used by one perfectly familiar with its employ, I believe its findings to be only approximate. A test which any one can make is that of visual acuity. A card of test letters, such as can be obtained at any optician's, can be hung on the wall of the office, and the patient, standing at a distance of twenty feet from the card, be allowed, with each eye separately, to read the lowest line that he can discern. Should he be unable to read the line marked XX or better in a moderate light, it is evident that he has some visual defect.

Astigmatism may sometimes be detected by the very simple expedient of allowing the patient to look at a chart composed of radiating lines, such as are sold for this purpose. Should the lines not appear of uniform distinctness, but those running in one direction—say horizontally—are clearer and brighter, as if printed in better ink than those on the rest of the chart, and if these lines rotate as the position of the head is changed, the patient undoubtedly has some astigmatism.

These simple tests are valuable if they serve to discover some eye defect, which may offer an explanation of the symptoms. But even should a patient pass both of these examinations successfully, we can not exclude eye defects. It is in cases of hypermetropia and hypermetropic astigmatism that headaches and reflex disturbances are most frequently found, and these defects are often concealed by the action of the ciliary muscle. In young subjects it is rather the rule that they are so masked. The patient sees well, both at the far and near point, and possibly nothing save a slight feeling of fatigue after using the eyes, sometimes not even this, points to the eyes as a source of headache. I know of no easy test by which these cases can be detected. If the patient's time is of no consequence, a solution of four grains of atropine sulphate to the ounce may be instilled into the eyes for two days, and then another test of vision made. If the visual acuity has markedly declined, it is then evident that some refractive error was covered by the ciliary muscle.

When it is impossible to obtain an examination under atropine, I know of no means by which the physician can

exclude eye strain as a possible cause of these symptoms. He must then inquire very carefully into the habits of the patient and the nature of the headaches—whether they are apt to occur with greater severity after the eyes have been put to some unusual strain; whether the patient is usually better after a holiday or a Sunday; if the patient is a child in school, whether the suffering is aggravated by a return to work after the vacation; and from such data must make up his mind as best he can whether an examination of the eyes is indicated or not.

These suggestions will apply equally well to muscle cases.

This subject is one which I always approach with many misgivings, not because I do not believe that abnormal relations of the ocular muscles are a frequent cause of the symptoms which we have just been considering, but because I am so thoroughly impressed with the great difficulty so frequently found at arriving at a correct diagnosis of these cases. They are by all odds the most difficult and troublesome cases with which we have to deal; there are no simple and ready tests for the detection of muscular defects; each case requires a careful and personal study; a defect which in one person gives rise to no inconvenience whatever will in another totally incapacitate the patient from eye work. You may examine a patient again and again with a perfectly negative result, and finally, when utterly discouraged, find some muscular anomaly, or again the findings of different examinations may be entirely contradictory.

Having determined what the muscular defect is, one is then by no means relieved of embarrassment; patients will often experience the greatest difficulty in wearing prisms, and it is a frequent experience to find the glass which corrects the muscular defect, and which, persevered in, cures the patient, will at first increase his sufferings tenfold. The operation of tenotomy is highly lauded for the relief of these troubles, but I believe it should be undertaken with extreme caution. A very little experience suffices to convince one that the muscular relations are by no means constant; it is a very simple matter to change a pair of glasses when they no longer meet the requirements of a case, but it is not so easy to undo the results of an operation, and I am unwilling to operate until the patient has been under observation for a sufficiently long time to convince me that the muscular condition is a constant one.

Of the simpler tests for the detection of muscular defects, perhaps the best is made by placing before one eye of the patient a prism of say  $7^\circ$ , with the base up or down, and directing him to look at the flame of a candle twenty feet distant; if the two images which he now sees are not directly one above the other, there is lack of equilibrium between the internal and external muscles; again, to test the superior and inferior, place a prism— $10^\circ$  will usually suffice—with the base toward the nose; the images will now stand side by side, and should one be higher than the other, a defect is evident. This test is, as I have said, by no means final, but it is sometimes sufficient to discover a defect.

The foregoing suggestions do not by any means com-

prise all that a man can with advantage learn of disease of the eye. Could every student before graduation receive a course of instruction equivalent to what is now given in a post-graduate course on diseases of the eye, the advantage to the public would be incalculably great, but until this is possible, let us endeavor, so far as we can, to impress upon our students a few of these facts, ignorance of which will seriously endanger their patients.

64 MONTAGUE STREET.

### OPHTHALMOLOGICAL PAP.\*

By H. H. SEABROOK, M. D.,  
SURGEON TO THE NEW YORK EYE AND EAR INFIRMARY.

MY dear friend and brother, the general practitioner, frequently asks why eye specialists do not try to teach him how to know what eye diseases to treat without danger to himself, and he says he wants this given in a simple manner in a treatise that he can understand, not for fine diagnosis of eye disease, but merely—

“Distinguishing those that have feathers and bite  
From those that have whiskers and scratch.”

“For,” says he, “I send several patients in succession to some eye specialist, who return and upbraid me when they are told that their trouble is an extremely simple one, which any medical man ought to recognize. Tired of this, I treat an apparently simple case myself, and the next thing I hear is that my patient has gone to a specialist and been told that the man who has used atropine on that eye with glaucoma ought to be put on ice if he ever has a chill.”

During the next twenty minutes I shall not endeavor to raise you from your present condition of dense ignorance to a perfect knowledge of the differential diagnosis of eye diseases. For any such consummation the general practitioner is referred to some school for post-graduate instruction. The task I have set myself is, perhaps, more difficult—viz., to write a paper containing a few general points about eye diseases in such a manner that the members of this society can understand it. Consider the price of success, gentlemen, and pity me. What manner of treatise must it be?

Many patients complain of water running from the eyes. This may be due to slight conjunctivitis or congestion of the lids; sometimes from improper correction or lack of correction with glasses. Overflow of tears, due to trouble with the lacrymal canals, may be diagnosed by pressure upon the lacrymal sac, when mucus or pus will flow back at the inner angle of the eyelids. This latter condition is usually consequent upon disease of the nose and stricture of the nasal duct. If the stricture is above the lacrymal sac, the contents of the sac will empty downward upon pressure. Many of these cases require operation. There is one class of cases, however, requiring special mention. There is chronic irritation of the lids, even inflammation, with a granular condition in certain

cases. The correction of the eyes with glasses has been attended to. The condition of the lids is relieved by local treatment, but relapses occur. The eye symptoms being severe, the patient refers the trouble entirely to the eyes, rebels against treatment of the nose, and is surprised at the relief to the eyes afforded by such treatment. The trouble starts in the nose primarily and extends up the lacrymal canals. This is the way in which the nose affects the eyes, and it requires a robust imagination at present to conceive diseases of the nose as causative in any eye diseases except, quite frequently, in conjunctival inflammations and occasionally in corneal troubles. When the lids are stuck together upon the patient awakening from sleep, there is conjunctivitis. You may consider this a diagnostic sign of acute conjunctival inflammation. In my experience the general practitioner is, in one way at least, extremely modest. He confesses that he knows little about eye diseases, but often coyly admits that he knows conjunctivitis. Since, however, he is apt to call it by another name and use atropine locally in its treatment, it may be well to hint that while his standpoint may be entirely correct, it differs slightly from the conventional one which obtains among ophthalmologists, that in conjunctivitis the lining of the lids is inflamed and that the quality of the congestion upon the eyeball is of more diagnostic importance than the quantity: long, tortuous vessels appearing over the white of the eye in conjunctivitis, short, straight, numerous vessels being seen at the corneal margin in central inflammation (of the cornea or iris). Mucopurulent or purulent secretion occurs only in conjunctival inflammations, and it is the presence of this in front of the pupil, with consequent haziness of vision and distortion of objects, that causes the complaint of “poor sight” and “seeing double.” This condition is momentarily relieved after the lids have been gently rubbed while closed, as there is no real trouble with the sight. Patients frequently complain of pain instead of a smarting or gritty sensation when the conjunctiva is inflamed. In the male German who weighs over two hundred pounds, conjunctivitis appears to cause at times the most acute suffering, much aggravated when the lids are slightly touched. However, it is customary to consider a genuine all-wool pain in the eyeball or forehead as symptomatic of neuralgia, iritis, or inflammatory glaucoma. In supra-orbital neuralgia there is tenderness over the affected nerve, and the sight of the eye is not affected. In iritis the pupil is contracted, the iris is sluggish or immovable and discolored, the pupil has a more or less hazy look, and there is the characteristic injection about the cornea. The sight is affected more or less. In inflammatory glaucoma the pupil is *dilated*, the iris is discolored and immovable, the structures in front of the pupil are hazy, with a greenish-yellow reflex from the pupil, and there is the circumcorneal injection with injection of the veins just over the sclera as well, the iris is pushed forward toward the cornea, and the sight is very much impaired. In addition, there is corneal anesthesia, and upon pressure over the center of the eyeball through the upper lid while the patient looks down, the affected eye will be found to be harder than the sound one.

Now, glaucoma should be treated by means of eserine or

\* Read before the Lenox Medical and Surgical Society, December 14, 1891.

an iridectomy. You all remember Artemus Ward's Chinaman sailing down the flood in a wash-tub when asked by the drowning man to throw him a rope. His reply—"No have got, how can do?"—has always been considered a valid excuse for non-performance of duty even in California. When a medical man meets with a case of acute glaucoma late at night about five miles out from New Egypt, he knows that the nearest druggist would not know what eserine was if he should send for it, he has no instruments for an iridectomy, and does not know how to do one any way. It is best in such a case for him to give a hypodermic of morphine, apply heat in the form of frequent douching to the eye, and hope for the best.

The many forms of corneal disease have several signs in common. Photophobia is the characteristic subjective symptom. Objectively there are one or more opaque spots upon the cornea and the pericorneal injection. Cocaine should not be used indiscriminately in these cases. Eserine (not stronger than half a grain to an ounce in a fresh solution) should be used in glaucoma and deep marginal ulcer of the cornea. It is dangerous in iritis. Atropine may be used in the other diseases of the eyeball. It is a cause of irritation in conjunctivitis, it is "rank pizen" in glaucoma, and it can not be used in all eyes without external inflammation, especially in persons past middle life, without decided injury to some of them. Heat should be used in diseases of the eyeball, except just after a burn or other injury and where there is hæmorrhage. Cold is better for conjunctival inflammations, injuries, and hæmorrhages. The subject of injuries of the eyeball is an extremely complicated one, but in treatment cold and atropine, with antiseptics when the tissues are lacerated, are indicated at first. Subconjunctival ecchymosis in young subjects from injury, coughing, or straining, has usually no unpleasant significance. Cold to check it, with heat later to promote absorption, may be used. The practice of attempting to wipe off the spot with the corner of a handkerchief is, so far as I know, indulged in by no one except an occasional medical student. In subjects no longer youthful, subconjunctival hæmorrhage may be significant of some general circulatory or local ocular disturbance. Excepting tumors, there are but three other appearances upon the white of the eyeball needing consideration here: a livid swelling signifying episcleritis; a vesicle with more or less swelling at the base (phlyctenule); lastly, a horizontal more or less triangular thickening of the conjunctiva, usually on the nasal side of the eyeball, yellowish, and somewhat vascular, having an apex upon the cornea from which it spreads peripherally (pterygium).

When the eyeball is inflamed, especially in iritis and injuries, it sometimes develops extreme tenderness upon the lightest pressure just back of the corneal margin. This is the diagnostic sign of an inflammation of the ciliary body (ciliary processes and ciliary muscle), and *that* inflammation means business.

Many general practitioners possess two cards for testing. One is placed at a given distance and the patient asked to read the letters marked as being appropriate to that distance. The other presents in small type a statement to the

effect that if it can not be read at twelve inches glasses are needed. The further statement that floating spots before the eyes indicate nervousness is probably put in to fill space, being both irrelevant and misleading. You all remember how Captain Cuttle acted when Florence Dombey fainted. Having a notion that a watch and a physician were in some way connected, he hung his famous repeater on the hook that was attached to the stump of his arm and then waited to see if the watch would not do something. The faith displayed by many men in the test cards above mentioned is as entirely misplaced as Captain Cuttle's in the efficacy of the watch. Failure of central vision, if recent, is an indication of ocular disease, but disease may exist in eyes that see the proper conventional letters at twenty feet. As regards the diagnostic and prognostic significance of the condition of the eye in certain general diseases little need be said here. Much is written already upon this subject, and with the increase in the crop of young specialists and consequent struggle for ophthalmological existence more and more will be heard regarding it. Poor sight for distance may also mean that glasses are needed, but certain symptoms indicate the necessity for ocular treatment just as definitely. These are a feeling of fatigue or pain in the eyes, congestion of the lids, especially redness at the edges, dull ache in the forehead, temporal headache on one or both sides, pain in the muscles at the nape of the neck extending sometimes downward along the spine, perhaps combined with nausea and dizziness.

Double vision—*i. e.*, seeing two distinct images of an object either temporarily or permanently—may indicate grave ocular or cerebral difficulty. Lack of parallelism of the axis of the eyes in any position, decided inequality of the pupils, and the drooping of a lid coming on suddenly, are signs usually of grave import.

Of late years there has been an unusual waste of medical energy in discussing the influence of the eye upon the general system. Without entering into the discussion regarding eye-strain as a cause of hæmorrhoids, or whether the colic of infants is due to the irregular action of their ocular muscles, it is absolutely necessary for an ophthalmologist to give consideration to the abnormal eye as a source of irritation to the nervous system. Man is comparatively easy of medical comprehension. We know he is a liar on the authority of David, probably a fool according to Carlyle, and by the indisputable dictum of Moses and Sayre that he ought to be circumcised. The cause is somewhere near the effect as regards his symptoms, and when his brain or spine is affected it is considered good judgment to start off with full doses of iodide of potassium. With the modern American woman, however, it is somewhat different. Almost any nervous manifestation on her part may be due to some irritation in any situation in the body or out of it. Just at present the dress reformers have had to take a back seat. Who could consider the vulgar corset as a cause of woe when once hypophoria had been mentioned in opposition? So the eyes have the call at present, and the general practitioner is invited, by means of various more or less scientific articles in the medical journals, to bathe his patients with various nervous symptoms in

the ophthalmological font. There is an accepted standard as to what an eye ought to be, but some people with eminently proper eyes suffer from eye-strain, and other reprobrates with eyes that ought to give a horse the blind staggers are exasperatingly comfortable. As a rule, of course, defective eyes cause definite trouble when much used, which can be more or less relieved by local eye treatment. When an eye is corrected as nearly as possible up to the scientific standard, this may or may not be the proper standard for the individual case, and the correction must accordingly frequently be more or less modified. As if this were not troublesome enough, the ocular muscles must be considered, as so much trouble may arise from their defects. No two men have as yet agreed as to what the standard muscular arrangement should be for the standard eye. As to the modifications suitable for the different variations in refraction and the different kinds of people, no one has the slightest idea.

There are many cases with conditions of the ocular muscles well recognized as abnormal, and definite symptoms which can be referred to the eyes with certainty. Usually improvement of the muscular condition causes improvement of the symptoms, sometimes the eyes get better and the symptoms get worse, and occasionally the symptoms disappear while the ocular condition gets worse.

The arrangements of modern civilized life are seen to be entirely inadequate to the situation when we reflect that the ocular muscles seem to be becoming more and more peculiar and troublesome, while profanity has made no advance since Washington fought the battle of Monmouth.

118 EAST SEVENTY-SECOND STREET.

NOTE.—Reading the foregoing has shown the inadequacy of the remarks about the local use of cocaine and atropine. Cocaine sometimes causes superficial ulceration of the cornea. The danger of this may be avoided to a certain extent if the surface of the globe is kept moist or covered from the air. Its effect upon the ocular circulation is not always a desirable one. The danger from the use of atropine in the eyes in old people is in the production of glaucoma in hyperopic eyes with shallow anterior chamber, or in the bad effect upon such eyes when an insidious chronic glaucoma may have already begun to develop.

## REPORT ON CAPITAL PUNISHMENT,

BY A COMMITTEE APPOINTED BY  
THE MEDICAL SOCIETY OF THE STATE OF NEW YORK  
IN ITS SESSION OF 1891.\*

BY A. JACOBI, M. D., NEW YORK, CHAIRMAN;  
W. C. WEY, M. D., ELMIRA;  
B. F. SHERMAN, M. D., OGDENSBURGH.

CAPITAL punishment has engaged the attention of all classes of men, in and out of office—citizens, lawyers, clergymen, legislators, and philanthropists. It has gradually, under ordinary circumstances, been restricted to such persons as have taken the life of a fellow-being. Those in its favor allege the propriety of retaliation, which, among so-called civilized men, becomes the exclusive privilege of the communities, and justify their position by referring to the Bible and the dictates of religion.

Those opposed proclaim their respect for the sacredness of human life under all circumstances, deny the right of the state to destroy it, and protest against the community's imitating in cold blood the example of the very murderer whom it execrates for his brutality and cruel cowardice; they point to the degrading influence of executions, and also refer, as their justification, to both the Bible and religion. Thus capital punishment is both condemned and authorized by religionists, for the same reason that slavery, but thirty years ago, was both justified and censured.

The questions engaging the attention of this Medical Society of the State of New York are always scientific; they are practical only so far as they are dependent on and based upon science. No matter what any of our members believes or acts upon as a private citizen outside this hall, and outside the legitimate labors of his professional life; no matter what his political party allegiance is, or his creed and religious belief, here we are neither lawyers, nor legislators, nor retaliationists, nor religionists. Thus your committee does not propose to ventilate the question of capital punishment, or its perpetuation or abolition, and the subjects connected therewith—viz., the nature of crime, of responsibility or irresponsibility, of the cerebral functions called judgment and will, the existence or non-existence of a free will and its limitations—from any other but an anatomical and physiological, that is, scientific, point of view. Your committee holds that no questions but those strictly scientific and conducive to the hygiene of mankind have any right before your forum. What we must principally avoid is the reference to metaphysical speculations such as that of one of the greatest minds in history, Spinoza. He maintains that "in the mind there is no such thing as absolute or free will, but the mind is determined to will this or that by a cause which is determined by another cause, this by yet another, and so on to infinity." Nor must we allow ourselves to be swayed by an opposite consideration of Huxley's, who contests that "theft and murder would be none the less objectionable were it possible to prove that they were the result of activity of special theft and murder cells in the gray pulp." Objectionable? That they certainly are, for they are anomalies in themselves and disturbers of the equilibrium of social and moral economy. Objectionable they were, both the theft of a sixpenny worth when it was punished on the gallows as late as this very century and that which is forgiven or mildly reprimanded by a humane judge of our time. More than merely objectionable is the murder of a fellow-being, whether it is executed on the gallows, or buried in an insane asylum, or condoned by wire-pulling powers, or justified on the plea of self-defense.

Crime is the result of an evil impulse which ought to have been controlled. The controlling powers are the cerebral functions of judgment and will. Whoever is held responsible for their aberrations and his wrongdoings is termed, and punished as, a criminal. Whoever is considered irresponsible is no longer a criminal to be punished, but a lunatic against whose vagaries society takes pains to protect itself. Indeed, among civilized people, both the punishment of the criminal and the incarceration of the hopelessly

\* Read before the Medical Society of the State of New York, February 3, 1892.

insane are, or ought to be, but different modes of self-preservation. By them the theory of revenge and retaliation has been given up long ago. Their minds are more bent upon the preservation of the physical and moral health of the community than on the spiteful annihilation of the rebel against the common welfare.

The question of responsibility or irresponsibility is a very grave one, both theoretically and practically. The assumption of the adage "no free will exists" would explain and excuse and defend everything either friendly or inimical to the interests of society and the rights of the individual. Still, many high in science and literature and philosophy defend it.

Benedict, one of the best known and deservedly famous physiologists and pathologists of the brain, comes (*On the Brains of Criminals*, Vienna, 1879) to the following conclusions:

"The brains of criminals exhibit a deviation from the normal type, and criminals are to be viewed as an anthropological variety of their species, at least among cultured races.

"The constitutional criminal is a burdened individual, and has the same relation to crime as his next-of-blood kin, the epileptic, and his cousin, the idiot, have to their encephalopathic conditions.

"The essential ground of abnormal action of the brain is abnormal brain structure.

"The appreciation of these facts is likely to create a veritable revelation in ethics, psychology, and jurisprudence."

So it will; though not every crime be dictated by disease, and because the interests of the commonwealth require protecting and saving.

Responsibility and irresponsibility have but uncertain boundary lines. These can not always be determined. They depend on a great many factors which may be fixed or changeable, stationary or transitory. The education of the young, no matter what his cerebral substance or general physical constitution, works only by influencing and changing his brain structure. Disturbances of the health of the body, and particularly of the brain, may either terminate in restitution to the normal state quickly and easily, or with difficulty and late, or no recovery takes place at all. This difference in the result may depend on the severity of the attack, on a congenital disposition which need not assume the significance of a malformation, but shows itself only in differences in the power of resistance on the part of the cells or organs in the individual bodies; in the same way in which an infectious fever destroys the one, injures the other, and leaves the third intact and immune.

These varieties of structure, dispositions, and of powers of endurance and resistance are very interesting. There are many anomalies in the nervous system which tend, according to circumstances, either to recovery or to faulty development. Such are the predispositions, recognizable in infancy and childhood, to neuralgia, nervousness, melancholia, misanthropy, eccentricity, dudism, hysteria, hypochondria, inebriety, convulsions; the tendency to cardiac, vascular, and vaso-motor irregularities, such as palpitations, fainting spells, vertigo, sudden congestions to brain and

face. They are neither diseases nor crimes, but they may lead to both. Favorable or untoward influences determine the development of a hypochondriac into either a famous humorist, who makes tens of thousands of sturdy men smile through tears, or a homicide, who sends a shudder through men and women; or a boy suffering from congestive headaches may develop either into a heart-moving and soul-stirring poet or a raving maniac. For normal growth and exaggerated overgrowth are but two different results of the same vascular action.

The adult man or woman is the result of hereditary and congenital structure and disposition and a thousand influences of mental or physical nature. The former are but nominally different from the latter. Education is but the shaping of the brain by impressions, the consequences of which are physical, no matter whether they are permanent or transitory. When the former, they impress even the features of the face; deep must be the delineations in the nervous center which are permanently photographed outside. Thus there are educational crimes like social crimes. The formation of the earliest habits is the determination of the character of the man. The dime novel, which spoils the taste and fires the imagination, is as certainly a source of infection as the exhalation of a sewer. Paul Aubry wrote in 1888 on the contagiousness of murder. With him the great factors in inducing it are heredity and degeneration. The latter, according to him, depends largely on education—in its widest sense. He charges the public press with producing crimes by its constant sensational reports which excite the imagination and lead to imitation by the persistent parading of an example. Thus are brought about the acts of cruelty during political upheavals, such as remind one more of insanity than of mere barbarism. His prophylaxis is based upon the same opinions. The prevention of the contagiousness of murder consists in a sound moral, individual hygiene, in the moralization of habits and customs, in proper regulations of the press reports, and in a more logical severity of the courts of justice.

Many of the physical changes which lead, or can lead, to criminality are preventable. The servant girl who lets a baby fall may maim it for life, or may so affect the brain as to change the current of thoughts and feelings into criminality. The development of a syphilitic infant into either a healthy man or an invalid, or the luckless possessor of a cerebral endarteritis or gumma, with their physical or moral consequences, depends on the diagnostic knowledge and the therapeutic agents of the practitioner. It is he who may be the intellectual father of the criminal. The obstetrician's clumsy forceps, or improper use of forceps, has frequently injured both head and brain. The prolongation of asphyxia in the newly born gives rise to thrombosis, hæmorrhages, and secondary encephalitis, to paralysis, idiocy, epilepsy, or insanity. Thus a few seconds more or less, thus obstetrical knowledge and dexterity more or less, may decide the fate of the newly born, his physical, intellectual, and moral health or invalidism, and his whole future forever. Or contemplate a few large rachitical heads a few years old after the disease has run its full course. Their circumference

and shape are probably the same; ossification has been completed for some time, and no great alterations will ever take place. In all of them rhachitis was mostly cranial and cerebral. One has attained a normal development, one has developed an unusual amount of brain in the vacant space, and the vascular irritation has added to its vitality and evolution into the growing genius; the last is a confirmed hydrocephalus with its future semiparalysis and idiocy. Why these differences? Why—in one case the condition was recognized in time and treated judiciously; in the other some domestic absurdity of diagnosis—difficult teething—was furnished by the ignorant mother and meekly accepted by the medical man. Thus the same big head may mean either perfection or incompetence, and it takes more than a jury of fellow-citizens to decide what is going on inside.

Psychical diseases or anomalies, both acute and chronic, are frequent under toxic influences. Infectious diseases in their acute stages give rise to acute attacks quite often. Scarlatina, typhoid and puerperal fevers, poison the blood and impair cerebral action by the mere circulation of the ptomaine, though there be no complication with meningitis at all. Even in children, insanity, both maniacal and melancholic, has often been met with in and after infectious fever. Many of the child murders during the puerperal stage were the results of puerperal infection. Opium and the other narcotics—belladonna, hyoscyamus, stramonium—have similar results of the depraving both judgment and will-power. The chairman knew a woman who took at once a number of doses of cannabis which were given for medicinal purposes, and in her jocose aberration of mind was found dancing and singing round the stove on which she was roasting her baby. Next day the medicinal mania wore off. It took hard work to save her from the gallows. Ergot sometimes, more frequently iodoform, oxide of carbon, and the sulphide of carbon of the India-rubber works act in the same way. And alcohol? The delirium tremens and its many criminal acts fill the records of both the hospitals and the courts of justice. Still more dangerous, because more numerous, are its chronic effects. Its ethical depravation equals its æsthetical ugliness; mendacity, feebleness of will-power as bad as physical tremor, idiotic torpor, and the delirium of jealousy and violence, the habit of idleness and tramping, thieving, and outrages of all kinds—are the mottoes inscribed on its flag. Acute lead poisoning leads often to the same symptoms as that of alcohol—sleeplessness, hallucinations, and violence like those of delirium tremens; and its chronic influence leads to results resembling those of progressive paralysis. Your committee merely mentions cocaine, chloroform, chloral, bromides, to remind you of the many external influences which may slowly, silently, and surely so alter the cerebral substance as to result in functional anomalies which, if understood, if recognized through that mute and hard cranial shell, as what they are, would be called diseases; when they are not they are called crimes.

The anatomy and physiology of the brain are greatly under the influence of the heart. Many chronic and some acute cases of dementia can be explained in this way. It is always the chronic class which is more dangerous because

it is more difficult to notice and guard against. In many of them atrophy, hypertrophy, or congenital smallness; in others, adiposity or fatty degeneration, or stenosis of the aorta, with its consecutive cerebral auæmia and ill nutrition, or the obliteration of the pericardium; in very many the incompetent mitral valve, with its retarding influence on the intracranial circulation—is a cause of insanity or insane actions. The latter precede the recognition of the former a long time. A man whose name was prominently mentioned in connection with the New York dynamite affair was repeatedly before the courts for assault and battery and attempts at murder before his condition, appreciated and predicted by a member of your committee, was finally acknowledged.

The diseases of the brain whose influence on and connection with mental and moral diseases is undoubted are either local or general. In many no other symptoms could be discovered, in others the intellectual and moral anomalies were complicated with other symptoms. To that class belong tubercles, which are quite common in demented persons, syphilitic changes, abscesses, either from emboli or atheromatous degeneration, neoplasms of different nature, and multiple sclerosis. Very frequent is apoplexy either from vascular incompetency or traumatic. A boy of eleven years, under the observation of the chairman of your committee, fell from a tree and had convulsions which lasted for hours until hemiplegia set in. While his paralysis was slowly improving, he exhibited furious attacks of violence with attempts at murder, and finally epilepsy, all of which improved after several years, leaving a moderate degree of paralysis.

Of the diffuse affections of the brain we shall only mention inanition from physical causes and from overwork and anxiety, and exhaustion from excesses, insolation, trauma, and other causes of hyperæmia and meningitis. Here belongs periencephalitis, which may begin slowly with physical symptoms, or with mania and hypochondriasis. Senility is a frequent cause of mental disturbance. Unfortunately, the symptoms of most of these conditions may resemble each other very much; delirium, mania of all kinds, mainly persecution mania, puerility, irascibility, diffidence, misanthropy, are just so many symptoms of both acute, subacute, and chronic forms. Epilepsy is a frequent cause of outbreaks of unexpected violence. This peculiarity gave it the name of propulsive epilepsy. Many criminal acts are the positive results of epilepsy, and many epileptics were cured on the gallows. At this moment a negro is under trial for a murder. He is known to have severe attacks of epilepsy. Experts have sworn he is a criminal. Experts have sworn he is diseased and not responsible. What does it teach? It teaches that there is surely reason for a doubt as to the causation of the criminal act. It would also teach that society as represented by the jury, and that society, representing the humane spirit of the times, ought to keep a sharp lookout to its own dignity. Man may blunder, but society can not afford to be brutally mistaken where it is at the same time accuser, judge, jury, and executioner.

The malformations of the male sexual organs, mainly anorchis and diminutive development of the penis and testi-

cles, predispose to mental degeneration, with its consequences. One of your committee knows a man of thirty-six with infantile organs and no trace of hair on the pubes. In spite of repeated warnings not to expose himself to utter failure, he attempted cohabitation. When alone with his partner he grew moody and desperate, becoming more than ever aware of his incompetency. In his rage at rendering himself ridiculous he attempted to strangle the woman; she finally succeeded in saving herself and delivering him to the police, which landed him in a penitentiary. Masturbation and emissions produce melancholia and mania; in milder forms depression, despondency, and moral obliquity. If you wish an example of monomania resulting from masturbation and excessive venery, take that of a man otherwise gifted and in high esteem for many personal qualities—Tolstoi. His *Kreuzer Sonata*, the hero of which is evidently an autophotograph, is the nastiest and most vulgar glorification of male impotence and consequent moral depravity possible. It is again the class of masturbators which furnishes part of the disgusting tribe addicted to sexual perversion, such as pæderasty, sodomy, and homicidal mania. Nymphomania I have not mentioned, because its complication with homicidal mania is but rare. But the influence of the great developmental periods—puberty and the climacteric age—in the production of moral morbidity is well appreciated.

Great difficulty in deciding the nature of a criminal insult is experienced in cases of periodic insanity. It is these cases which are received in lunatic asylums, retained for a short time, and then discharged cured to exhibit favorable statistics, or are freed by the philanthropic cranks, who mistake a hospital for a dungeon. The dangers of such premature or unauthorized discharges are great indeed; the daily press reports from time to time homicides and murders committed by men who ought to be protected against themselves and prevented from doing harm to others by being locked up for life. Intervals between acute attacks of mania or melancholia may last years; particularly, cases connected with epilepsy come suddenly like a flash. Moon and sun, terrestrial magnetism, and the electrical condition of the atmosphere, climate, telluric exhalations, intervening diseases, be it only influenza, wounds, or other debilitating influences of short duration—are apt to give rise to violent outbreaks. In such cases the decision as to whether the accused was a criminal or a sick man when the murder was committed is very difficult or even impossible. Years after the occurrence the diagnosis of the case must be attempted. The history of previous cerebral disease, of *petit mal* or full-grown epilepsy, neuroses and fainting spells, eccentricities, hallucinations, possible heredity will be told with more or less significance. These are the very cases which prove unmistakably that insanity is not always typical and constant in its nature. Doubtful conditions are very frequent. And in the face of these facts a jury is expected, under the spur of one attorney and the derision of the other, to find a verdict of responsibility or irresponsibility. These are also the facts which have induced the Germans to establish the principle of a partial responsibility.

When a crime is made the subject of investigation the

perpetrator ought to be subjected to the closest study. The action of an engine is not estimated or calculated without considering the shafts and wheels and boiler; but the changes of judgment and will are weighed too often by the so-called common sense of the illiterate or semi-educated. No matter whether Benedict and Lombroso are right or wrong, these facts are incontrovertible. You meet too large heads, too small heads, asymmetrical heads—such as you find so very often in epilepsy and idiocy—asymmetrical faces, disproportion between skull and face and their single parts; also disproportion between other parts of the body, excessive length of extremities, big mouth, overgrown tongue, the roof of the mouth too much arched or too flat, and the teeth irregular; the top of the head or the occiput flattened, hare-lip and cleft palate, heavy lower lip, deformed ears, and different colors of iris. There may be the retracted nasal insertion and the shortened base of the skull of the cretin or semi-cretin, or early neurotic symptoms—such as hysteria, chorea, epilepsy, night-terrors, and tachycardia.

Suicidal tendency with the result of repeated attempts at self-destruction is but rarely the result of instantaneous despair or despondency. In many cases the actors in that drama had an organic disease—among them leptomenigitis in all its forms, sclerosis, syphilis, embolism, gray degeneration, adhesions, and cysts. Acute and isolated attacks are often the results of fever, in pneumonia, pleurisy, meningitis, typhoid fever, or influenza. And these are, in part, the cases which are thought worthy not of the hospital, but of the penitentiary.

*Conclusions.*—There are many causes of the perversion of judgment and will.

These causes which are physical are either congenital or acquired. When acquired, they are so either by the progressive development of hereditary or congenital disposition, or by intervening diseases, or by the impairment of cerebral evolution through bad training, example, and social influences.

The variety of causes, both anatomical and functional, is such as to render an exact diagnosis extremely difficult. The sworn opinions of experts are quite often contradictory. Cerebral anomalies and lesions are very often not accessible to our methods of investigation.

When there is any doubt in an individual case of crime in regard to either responsibility or irresponsibility, it is safer to take the alleged criminal to be diseased and morbid than to declare the sick to be a criminal.

In many cases the innocent and the anatomically sick have been subjected to capital punishment. On the other hand, dubious cases developed full-grown dementia soon after the criminal proceedings.

The knowledge of such occurrences is part of the reasons why juries are averse to rendering the verdict leading to a death penalty, and why but a small percentage of murderers are ever sentenced among us, and why so many are set free to become permanent dangers to the safety of the public.

Human society and the state, while they owe protection and safety to all, must make no mistake unless it be in the direction of leniency and humanity.

The medical profession must not allow mistakes to be made which can be prevented. This Medical Society of the State of New York—having the advantages of physiological knowledge and being aware of the difficulties of being always correct, and of the absolute impossibility of making a positively safe diagnosis in every case of alleged crime or presumable cerebral disease or anomaly—expresses its opposition to the perpetuation of capital punishment and its hope that means will be found to protect the community by less uncertain and less inhumane methods.

## TÆNIA

AS A CAUSE OF PERSISTENT INTERCOSTAL NEURALGIA,  
ALSO OF THE ERUPTIVE FORM—*I. E.*, HERPES ZOSTER.

By CHARLES C. DURYEE, M. D.,  
SCHENECTADY, N. Y.

A LITTLE over a year ago the writer was called to attend A. W., aged twenty-eight years, for severe pain over the left side of the thorax. The pain had appeared about a week previous to my first visit, and had been growing severer and confined him to his bed. Tenderness along the seventh and eighth intercostal nerves was made evident by pressure. The diagnosis was intercostal neuralgia, which, perhaps, might be the precursor of herpes zoster. Various remedies were tried with little or no result. Morphine was administered in sufficient quantity to render his distress at all bearable. Matters continued thus for about two weeks, when my patient called my attention to some segments of tape-worm which he had that morning passed, the first he had ever observed. Treatment for tape-worm was promptly given, with the result of dislodging a worm of about the usual length. The pain in the side rapidly began to subside, and Mr. W. was soon at his business.

A short time after, a gentleman sent for me who had a severe and typical herpes zoster. At my suggestion he examined his stools for a day or two and discovered that he was infested with tænia. Treatment resulted in a worm being removed about twenty-eight feet in length, probably a beef-worm.

Since my attention was drawn to the first case related I have seen eight cases of tape-worm, in which four of the persons had either severe intercostal neuralgia or undoubted shingles.

Herpes zoster is an expression of more or less acute neuritis of the intercostal nerves, as are also many cases of intercostal neuralgia.

The causes of these severe and oftentimes persistent diseases are obscure and are given as compression, nerve injuries, operations, atmospheric changes, etc.

I have never seen the presence of tænia given as a causative influence in these troubles, but I am of the opinion that it is of more or less frequent occurrence, and that those affections are probably reflex symptoms of the digestive disturbances occasioned by that parasite. Be that, however, as it may, the foregoing suggestion may be of practical utility in some obscure and annoying cases.

**Constipation.**—"Dr. Platan, of Berlin," says the *British and Colonial Druggist*, "suggests a remedy for inveterate constipation. It consists in the introduction of a pinch of finely powdered boric acid into the bowel. The results are declared to be most satisfactory, even in severe cases, in which mechanical measures had failed to afford relief."

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### THE LEGAL LIABILITY OF HOSPITALS IN CASES OF ALLEGED MALPRACTICE.

FOLLOWING close upon the recent dismissal of a suit against Dr. William T. Bull, of New York, for alleged malpractice, comes another important decision in which Judge Giegerich, of the Court of Common Pleas, dismisses a suit brought against the Society of the New York Hospital. A young boy sustained a simple fracture of the femur and was taken by his father to the New York Hospital, where splints were applied in the usual way. Three or four days afterward it was noticed that the foot had become numb and cold, and this condition went on to the development of gangrene, which made it necessary to perform amputation through the thigh. The boy's father put in a claim for damages in fifty thousand dollars, alleging that the gangrene was due to gross carelessness on the part of the hospital surgeons in that they had bandaged the limb too tightly. It was proved by the Society of the New York Hospital that the hospital was a public charity, that it had used all due care in the selection of its medical officers, and, consequently, that it could not be held responsible in the case. The court held that this proof released the institution from all liability for injury sustained by the plaintiff.

Although in this case it was shown by indisputable evidence that the gangrene was the result of arterial lesions sustained at the time of the fracture, and that the dressings had been eminently proper, the decision releasing the hospital from liability on account of its character as a charitable institution is of interest in the way of a precedent. It accords with recent decisions made in Massachusetts and Pennsylvania, as well as in this State, but it is at variance with a decision made in a suit brought against the Rhode Island Hospital. So far as we know, the Rhode Island decision is the only American one of importance that does not agree with Judge Giegerich's. The subject is an important one, and it is to be hoped that a definite principle in law will be established in regard to it.

In the first number of the new *International Medical Magazine* the department of Forensic Medicine consists of an article on this question by Mr. Lorenzo D. Bulette, of the Philadelphia bar, who alleges that the American decisions that accord with Judge Giegerich's are based on the precedent of an English decision rendered in 1861, and that that decision is no longer regarded in English courts as of any weight. He cites certain decisions in England practically overruling that of 1861, and quotes from the decision of the Supreme Court of Rhode Island, after which he concludes his article as follows:

"The question, therefore, is, in a certain sense, still an open

one, there being a decision each way. But, in view of the fact that the single case on which the hospitals rely to exempt them from liability has been emphatically overruled in England, and that the later disposition of the courts in this country also is to impose the liability in similar cases, it is easy to predict the result should the matter again come into litigation.

“Following this tendency, the Supreme Court of Rhode Island, after mature deliberation, had no hesitancy in saying that for the neglect of the *interne* to send for the visiting surgeon, as the urgency of the case and the regulations of the hospital required, the latter was answerable. And the same court, guided by the later doctrine laid down in *Mersey Docks vs. Gibbs*, said with equal decision that the income of the charity fund was the source whence to extract the golden balm for the healing of this neglect.

“From all of which we may safely conclude that the relation which exists between a public charitable hospital and its visiting surgeons, physicians, and nurses is that of master and servant; and for the failure of such hospital either to exercise reasonable care in the selection of its servants, or for the negligence and unskillfulness of the latter within the scope of their employment, the hospital must respond in damages to the injured patient.”

#### THE HEALTH OF NEW YORK STATE IN 1891.

THE Summary of Mortality of the State Board of Health for the past year has been received. It shows that there were 123,878 reported deaths, a total requiring a small correction on account of late returns and non-reported deaths from out-of-the-way districts, so that the estimated number was 128,578 deaths. The mortality rate for the year was 21.4 per mille, as compared with 19.6 in the year 1890. The zymotic causes of death were more active than in 1890, but less so than during the last quinquennial averaged period. Aside from epidemic influenza, which disease is not reported in a form susceptible of tabulation, the deaths from zymotic disease numbered 22,000, or 2,300 in excess of the total in 1890 and about the same as in the year 1889. Scarlet fever caused 2,254 deaths, against 913 in 1890. Diphtheria also showed an increase of mortality and was exceptionally active during the summer months, over three hundred deaths from that disease having been registered in the month of July. The midsummer mortality by scarlet fever was high also, July showing 180 deaths. Measles and whooping-cough were most lethal during the first half-year. The deaths from influenza are estimated as having been 10,000, a loss which is double that estimated to have afflicted the State in 1890. The registrar's remarks indicate that the disease was uniformly distributed through the State. Small-pox caused five deaths, or one more than in 1890; this, if true, means less than one death in a million of population, or one death out of 26,000 deaths from all causes. This is tantamount, almost, to an eradication of that disease, a state of things which can not endure many years more in this State, in view of the incoming masses of ignorant, incorrigible immigrants: the outlook is not

favorable to the publication of so good a statistical showing for 1892 as that which has just been presented for 1891. The deaths by typhoid fever and by diarrhœal diseases were more numerous than in the year previous, but were not excessive in number when compared with those of former averaged periods. The deaths by consumption were 13,445, as compared with 13,831 in 1890. This is equivalent to 109 deaths in 1,000 deaths from all causes, a ratio decidedly lower than was observed during the last quinquennium. The ratio has been known, as for example in 1886, to rise to 137 in a thousand deaths. From respiratory diseases, not tubercular, there was the enormous loss of 20,697 lives, which was 2,600 above the loss from that class of causes in the year 1890: and the mortality of each of these latter years has been in excess of that of previous years—a fact that is chargeable in large measure to the influenzal mortality being credited among the various “local” classes. Old age was recorded as the cause of 6,500 deaths. There were 5,028 fatal accidents, or deaths from violent causes. The number of deaths “not classified” was only 15,300, which is less by 3,000 than in 1890, and indicates an improved manner of dealing with the vital statistics of the State.

#### MINOR PARAGRAPHS.

##### INTUBATION.

THERE seems to be little doubt that intubation is growing steadily in favor abroad. In this country, where correct instruments have been used and where instruction has been given so largely by Dr. O'Dwyer and his pupils, the operation has obtained a firm foothold and is far beyond the stage of probation. In England and on the continent of Europe its progress has, naturally, been slower. Reports that have been made, especially from France and Germany, seem to show that ill-constructed instruments have been used. Failures have been repeatedly reported of a character that could not have occurred with proper tubes. Ranke has recently reported, in the *Revue des maladies de l'enfance* for December, 1891, a second series of cases with much more favorable results than had been shown in his first series. In the first he reported 413 cases of intubation, with 34 per cent. of recoveries, and 866 cases of tracheotomy, with 38 per cent. of recoveries. In the series last reported there were 348 cases of intubation, with 41 per cent. of recoveries, and 237 cases of tracheotomy, with 34 per cent. of recoveries. Bokai, after treating 109 patients by intubation, believes that tracheotomy should be abandoned except in a small number of selected cases.

##### A COLLECTIVE INVESTIGATION REGARDING ANÆSTHETICS.

AN exceptionally important inquiry, on a large scale, according to the *British Medical Journal*, is to be made throughout the hospitals of Great Britain, in the year 1892, regarding anæsthetics. Eminent surgeons, anæsthetists, and general practitioners will contribute their clinical experiences, as supplemental to the conflicting results obtained by the experimental workers. The research will be made under the auspices of the British Medical Association. An influential and fairly constituted committee has charge of the plan of the inquiry, and record books have been prepared for the use of those who are willing to co-operate. These books have been carefully drawn

up so as to secure uniformity on the part of the reporters, and they contain full instructions. Mr. Jonathan Hutchinson heads the committee, and Dr. Childs, of Weymouth, is its secretary. Among the other names of committeemen are those of Lister, Annandale, Buchanan, Chiene, Buxton, Duncan, Hewitt, Macewen, Croly, Butlin, and Macleod. The subcommittee for England and Wales is headed by Mr. Pridgin Teale. Similar subcommittees will pre-ide over the work in Scotland and Ireland.

THE AMBULANCE SERVICE OF THE NATIONAL GUARD OF THE STATE OF NEW YORK.

SURGEON-GENERAL BRYANT has issued orders putting the ambulance corps on a somewhat different footing. This corps will eventually be a body of trained nurses. The men formerly employed will, so far as possible, be reappointed, with the expectation that at the end of the present year an advanced examination will be required. The original object was to have ready at hand a certain number of men who could in emergency cases of various kinds, upon the march or in active service, render temporary relief to the sick or injured until such time as the surgical staff could be called upon. This system developed rapidly, and it was found that the members of the corps, not content with the comparatively simple duties assigned to them, pressed onward until they became almost as profieient as trained nurses would be. Some of the Red Cross men joined the classes for nurse-training at the hospitals, and some even took up nursing as a vocation. A very praiseworthy enthusiasm actuates the members of the corps.

TRANSPLANTATION OF THE CORNEA.

A CASE of corneal graft has been reported in the *Berlin klinische Wochenschrift* by Dr. Hippel, of Königsberg. The patient had a dark-brown central discoloration of the cornea three millimetres in diameter and reaching downward to the membrane of Descemet, which had been the result of the action of nitrate of silver. Cocaine was used. The discolored cornea was trephined, down to the membrane of Descemet, with a trephine the crown of which was four millimetres in diameter, and the included disc was carefully removed. The surgeon then excised from the eye of a young rabbit a disc of cornea of the same size and implanted it in the patient's corneal wound. The coaptation was accurately done and the new cornea was at a level with the adjacent corneal tissues. Iodoform was used in the dressing of the eye and both eyes were closed with a bandage. A good recovery was made, and six weeks after the operation the patient was dismissed with a completely transparent cornea.

THE INTERNATIONAL MEDICAL MAGAZINE.

THIS is a new monthly journal of general medicine and surgery, edited by Dr. Judson Daland, and published in Philadelphia, by the J. B. Lippincott Company. The contents for the first number, for February, are of a very valuable character, and the journal makes a good appearance, but the proof-reading ought to be improved.

NEUROTIC INFLUENZA.

DR. C. H. HUGHES, in a recent paper in the *Journal of the American Medical Association*, concludes that the present epidemic of influenza is, in its incipency as well as in its sequelæ, a toxic neurosis, more largely adneurcal than intraneural; that the central or peripheral neuropathic lesions are more prone to recovery than other similar, and apparently as grave, nervous

lesions occurring before the epidemic appeared; that the neuropathic sequelæ resemble post-diphtheritic nervous diseases in their susceptibility to therapeutic measures; and that it brings into activity latent neuropathic and other organic morbid tendencies.

ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 1, 1892:

DISEASES.	Week ending Feb. 23.		Week ending Mar. 1.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	16	4	32	4
Typhoid fever.....	13	5	12	13
Scarlet fever.....	209	31	241	35
Cerebro-spinal meningitis.....	0	1	1	2
Measles.....	224	17	339	18
Diphtheria.....	134	35	132	48
Small-pox.....	7	3	4	3
Erysipelas.....	2	0	1	0
Varicella.....	16	0	17	0
Pertussis.....	2	0	1	0
Mumps.....	4	0	0	0

**New Buildings for the Jefferson Medical College of Philadelphia.**

—The board of trustees and the faculty of the Jefferson Medical College have just completed the purchase of two large lots on Broad Street, giving them a frontage of about 300 feet and a depth of 150 feet, upon which they will proceed to erect at once a handsome hospital, lecture-hall, and laboratory building. The estimated cost of the buildings is \$500,000. The hospital will not only be built as a suitable building in which to care for the sick and injured, but also will be provided with a large amphitheatre for clinical lectures. The basement of the hospital building will be given over to the various dispensaries, each of which will be provided with large waiting and physicians' rooms, as well as rooms for the direct teaching of students. The buildings will be absolutely fire-proof, and provided with patent sprinklers in case their contents catch fire. By the erection of three commodious buildings, the laboratories where delicate work with the microscope or apparatus is carried on will be separated from the college hall where didactic lectures are given, and so will be free from any jarring produced by the movement of large classes. With the hospital on one side affording clinical facilities and the laboratory on the other side of the college hall for scientific research and training, the college will be most favorably situated for giving thorough instruction in medicine. Further than this, immediately across the street is the Howard Hospital, and on the adjoining corner is the Ridgway branch of the Philadelphia Free Library, which contains all the scientific works belonging to this wealthy corporation. The new site is even more favorably situated in regard to the center of the city than the old one at Tenth and Sansom Streets. The move has been made necessary by the large number of students who are now being instructed in this institution, and because the faculty desire to keep the school and hospital in the foremost rank of medical education in this country. The buildings will be ready for occupancy in the session of 1893-'94.

**The French Congress of Surgery.**—The *Union médicale* announces that the sixth session will open in Paris on April 18th. The chief subjects of discussion will be: The Pathogeny and Treatment of Surgical Gangrene, The Pathogeny of Infectious Accidents Subjects of Urinary Disease, and Operations on the Biliary Passages.

**Professor Virchow in Defense of his Name.**—The *Deutsche Medizinical-Zeitung* quotes as follows from a letter written by Professor Virchow to the *Vossische Zeitung*: Newspapers from Cincinnati contain advertisements that the "great German Physician," Dr. Karl Virchow Schick, has arrived from Berlin and is prepared for consultations. It is alleged that he has made important discoveries in the "germ treatment of chronic diseases," and that his prescription is being used by 806 physicians in Europe. Allow me to say that, according to the

official registers, there is not and has not been a physician of this name in Berlin or in Prussia, and none such is known in any of the other states of Germany. It is hoped that this notice will induce the American journals to oppose the gentleman's course.

**An Alumni Association of the Ex-internes of the Presbyterian Hospital of New York** was organized on February 19th. Dr. W. K. Simpson was elected president, and Dr. R. R. Ross secretary and treasurer.

**The Chattanooga Medical College** will hold its annual commencement exercises on the 15th inst. Addresses will be delivered by Dr. Robert Battey, of Rome, Georgia, and by Dr. N. C. Steele, of the faculty.

**The Brooklyn Surgical Society.**—The special order for the meeting of Thursday evening, the 3d inst., was a paper on Myoma Uteri complicating Pregnancy, by Dr. Pilcher.

**The Harvard Medical Society of New York.**—At the meeting of March 5th Dr. Coe is to read a paper on The Difficulties in the Diagnosis of Pregnancy.

**Influenza and Life Insurance.**—It is stated in the *Mercredi médical* that from 1890 to 1891 an English insurance company had to pay over a quarter of a million dollars on deaths caused by influenza. This is two and a half times as much as cholera had cost that company in forty-five years.

**Starch in a Fungus.**—"It is a well-known fact that, generally speaking, starch is not found in fungi and those plants which are without chlorophyll; one or two instances have been noted of its occurrence, however, in special cases, and lately M. E. Bourquelot has demonstrated its presence in *Boletus pachypus*. Immediately on touching a section of the boletus with an aqueous solution of iodine and potassium iodide it gives a fine blue tint. The reaction takes place throughout the whole pseudo-parenchyme, but does not occur in the cells of the hymenium or in the sub-hymenial tissues."—*British and Colonial Druggist*.

**The Death of Dr. Charles R. Vanderberg, of Columbus, Ohio,** occurred on February 22d. He was a graduate of the Starling Medical College, of the class of 1885, and lecturer on pathology in that institution for several years before his death, which took place in his thirty-fourth year.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending February 27, 1892:*

MEANS, V. C. B., Passed Assistant Surgeon. Detached from the Naval Hospital, New York, and ordered to the Navy Yard, New York.  
 LANE, GEORGE A., Assistant Surgeon. Detached from the Navy Yard, New York, and ordered to the Naval Hospital, New York.  
 MARSTELLER, E. H., Passed Assistant Surgeon. Detached from the Marine Rendezvous, Baltimore, and to wait orders.  
 CORDEIRO, F. J. B., Passed Assistant Surgeon. Detached from the Marine Rendezvous, Boston, and ordered to the U. S. Steamer Adams.

**Marine-Hospital Service.**—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the three weeks ending February 27, 1892:*

PURVIANCE, GEORGE, Surgeon. Detailed as chairman of the Board of Examiners. February 20, 1892.  
 HAMILTON, J. B., Surgeon. Detailed for special duty. February 18, 1892.  
 STONER, G. W., Surgeon. Detailed as member of the Board of Examiners. February 20, 1892.  
 IRWIN, FAIRFAX, Surgeon. Ordered to Norfolk, Va., for temporary duty. February 16, 1892. Granted leave of absence for seven days. February 24, 1892.  
 CARTER, H. R., Surgeon. Detailed as recorder of the Board of Examiners. February 20, 1892.  
 WHEELER, W. A., Passed Assistant Surgeon. Ordered to examination for promotion. February 16, 1892.

VAUGHAN, G. T., Passed Assistant Surgeon. Detailed as executive officer, Supervising Surgeon-General's Office. February 27, 1892.

#### Society Meetings for the Coming Week:

**MONDAY, March 7th:** New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; Corning, N. Y., Academy of Medicine; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association (annual); Hartford, Conn., Medical Society; Chicago Medical Society.

**TUESDAY, March 8th:** New York Medical Union (private); Medical Societies of the Counties of Chemung (quarterly Elmira), Rensselaer, and Ulster (quarterly), N. Y.; Kings Count Medical Association; Newark, N. J., and Trenton (private), N. J.; Medical Associations; Baltimore Gynæcological and Obstetrical Society.

**WEDNESDAY, March 9th:** New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Medical Societies of the Counties of Albany and Montgomery (quarterly), N. Y.; Pittsfield, Mass., Medical Association (private); Worcester, Mass., District Medical Society (Worcester); Philadelphia County Medical Society.

**THURSDAY, March 10th:** New York Academy of Medicine (Section in Pædiatrics); New York Academy of Medicine (Section in Genito-urinary Surgery); Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

**FRIDAY, March 11th:** Yorkville Medical Association (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties.

**SATURDAY, March 12th:** Obstetrical Society of Boston (private).

## Obituaries.

### BUCKMINSTER BROWN, M.D., OF BOSTON.

IN the death of Dr. Buckminster Brown the profession loses the man who developed and first practiced the specialty of orthopædic surgery in this country.

He was the grandson of Dr. John Warren, the patriot, orator, and Revolutionary surgeon, and the son of Dr. John Ball Brown; he thus had special advantages of both birth and training. When fourteen years old he suffered a fall upon the ice and for eight years was an invalid. This it was that appears to have shaped the course of his work. The lack of any surgeon possessing an orthopædic training led his father to study the subject thoroughly and to become recognized as an authority; and the son, during the long years in bed, studied his profession, and because of his infirmity had his thoughts and studies constantly turned to orthopædics. Receiving his degree in 1844, he went abroad and followed the practice of the masters, Little, Stromeyer, and Guérin, for two years. On his return he naturally inherited the orthopædic part of his father's practice. This was nearly fifteen years before Davis, Sayre, and Taylor came prominently to the front in New York. In 1861 Dr. Brown was appointed to the charge of a ward in the Home of the Good Samaritan, devoted to the treatment of deformities. This was two years before the New York Hospital for the Ruptured and Crippled was opened, and five years before the founding of the New York Orthopædic Dispensary.

Two examples may be cited which well illustrate Dr. Brown in his relations to the profession and to his patients: During the

quarter of a century which followed the first writings of Davis, Sayre, and Taylor upon the treatment of chronic joint disease, he who questioned the value of the "motion-without-friction" treatment, or ventured to neglect the use of apparatus for portative traction, risked his professional reputation, his honorable appointments, and even his good name. Yet during all this time Dr. Brown continued to treat joint disease by prolonged rest; unmoved and apparently unconscious of the epidemic delirium, he did not feel it necessary either to write in defense of his own position or to point out the absurdities and inconsistencies of those who felt the sting of his neglect. One can understand that a man the courage of whose convictions was so well founded could undertake and pursue for two years the treatment by traction and recumbency of a case of congenital dislocation at both hip joints, but to gain and hold the perfect confidence and co-operation of both mother and child so that the traction was not once relaxed and the position of the patient not once changed, evidences a man having as marvelous an influence over others as he had control over himself. Men are few who can pursue a new line of treatment in an individual case for two years without once relaxing their self confidence, but they are fewer still who, without either precedent to cite or objective progress to show, can retain the confidence of the patient and the support of the family for so long a period. Such a man was Buckminster Brown, typical of all that is best in the orthopædic surgeon: positive conviction, untiring patience, unflagging interest, fertile in expedients, careful in the details of his work, and possessed of that inestimable birthright—that *something* which makes the man loved and trusted by children.

JOHN RIDLON.

## Letters to the Editor.

### ASHEVILLE AS A WINTER RESORT.

ALEXANDRIA, EGYPT, December 18, 1891.

To the Editor of the *New York Medical Journal*:

SIR: I learn from your issue of November 21st that Dr. Karl von Ruck, proprietor of the Winyah Sanitarium for Consumptives, at Asheville, N. C., is also the observer of the United States Signal-Service Station in that city. His letter on the subject of the Asheville climate, while written in his capacity as a Government officer, seems to me to be sadly tinctured with the knowledge of the presence of another sanatorium than his own in Asheville. I hope that physicians who do not reside in Asheville, who may have spent in past years or may spend in coming years the months of January, February, and March in that resort, will come forward with their testimony as to the value of Asheville as a winter resort during those three months.

FREDERICK PETERSON, M. D.

## Reports on the Progress of Medicine.

### REPORT ON OPHTHALMOLOGY.

BY CHARLES STEDMAN BULL, M. D.

(Concluded from page 248.)

**A Case of Intracranial Neoplasm with Localizing Eye Symptoms.**  
—Oliver (*Arch. of Ophthalmol.*, xx, 1) reports the following case: A

man, aged thirty-nine years, had for two years suffered from vertigo, headaches, and momentary blindness. There was no history of traumatism, or abuse of tobacco or alcohol, or syphilis. In April, 1889, his right foot became stiff, numb, and weak. In August, 1889, some curious motor symptoms developed themselves. The right arm was adducted to the trunk, the forearm was flexed on the arm and the hand on the forearm, while the fingers remained extended. The seizures lasted from one to several minutes. These attacks became increasingly frequent, and during the attack the right leg was extended. The right grip was weak, and the right patellar tendon reflex exaggerated. Right ankle clonus was always present, and the knee clonus at times. No evidence of any mental impairment. Temperature, pressure, and muscular sense all markedly diminished on right side. Right lateral hemianopsia. On February 26, 1890, some headache and marked diminution of sight in remaining half-fields of vision. The vision was reduced to  $\frac{5}{40}$ . Direct vision for color lowered. Wernicke's hemiopic pupillary reaction sign plainly manifest on both sides. All the symptoms pointed to some disturbance in the sensory motor arc of the ocular apparatus at the base of the brain in the left optic tract, anterior to the corpora quadrigemina and posterior to the optic commissure. Retinal arteries and veins engorged on the right side. Large hæmorrhage on right optic disc. The patient died comatose on March 21st. At the autopsy the left hemisphere bulged. On horizontal section, the left lateral ventricle was shallower than the right. The left optic thalamus was indurated and swollen. Perpendicular section of the hardened mass revealed a neoplasm, involving the external portion of the left optic thalamus and corpus striatum, pinkish in color and resisting. The capsule was not invaded. The left optic tract as far as the chiasm was markedly flattened and pressed. The tumor was a glioma, with beginning sarcomatous degeneration.

**Bilateral Hemianopsia.**—Schweigger (*Arch. of Ophthalmol.*, xx, 1) reports a case of this rare affection. A man, aged seventy-five years, was suddenly attacked in September, 1888, with a hemiopic defect in both left halves of the visual fields, without the occurrence of any other symptom. The central vision was unchanged, and the ophthalmoscopic appearances were normal. In August, 1889, the right halves of the visual fields failed suddenly, as the left had done, but a small central field of vision was preserved, of twenty-two minutes in diameter. In the region of the hemiopic defects the movements of the hand were perceived eccentrically.

**The Pathological Anatomy of Panophthalmitis.**—Schöbl (*Arch. of Ophthalmol.*, xx, 1) reports a large number of cases, and summarizes as follows: A general oversight of the entire process of panophthalmitis justifies the assertion that, whether the disease be of traumatic, secondary, or metastatic origin, it commences constantly with a fulminating purulent retinitis or chorioiditis, or both together. To this is soon added a scleritis and inflammation of the capsule of Tenon, and, if the cornea has not been previously destroyed, a keratitis inducta interstitialis follows, which later assumes a suppurative character. Following this come the carnifying and hyperplastic inflammations of the various parts of the eye. The original purulent masses are gradually replaced by granulation tissue, from which later young connective tissue develops. Finally, the new-formed connective-tissue masses may undergo a cicatricial shrinking, and retrograde metamorphoses take place.

**Insufficiency of the Oblique Muscles.**—Savage (*Arch. of Ophthalmol.*, xx, 1) calls attention to the well-known function of the oblique muscles to keep the naturally vertical meridians of the two corneæ parallel even when not vertical. If there is perfect equilibrium of the obliques, this parallelism of the vertical meridians is preserved without trouble; but, if the superior oblique of either eye be too strong for its inferior, or *vice versa*, the parallelism of the vertical meridians is preserved and double vision prevented only by excessive work on the part of the weaker muscle. This brings on, at longer or shorter intervals, a train of nervous symptoms, for which at present there seems to be no hope of prevention or cure.

**The Development and Course of the Medullated Fibers in the Chiasm of the Optic Nerves.**—Bernheimer (*Arch. of Ophthalmol.*, xx, 2) has been impressed by the fact that in the optic nerve, some millimetres distant from the lamina cribrosa, the fibers appear as simple axis cylin

ders without a medullary sheath. This led him to study the development of the medullary sheath of the nerve fibers in the chiasm by means of Weigert's method of staining. The chiasm of the new-born infant is to be considered a nervous organ incompletely provided with medullated fibers; and the formation of medullary substance does not extend to the lamina cribrosa. No trace of medullary substance can be found in the chiasm, or in its roots and processes, before the twenty-ninth week of embryonic life. In the chiasm of the infant of the second or third week all the axis cylinders possess a medullary sheath in their whole extent. Careful examination of serial sections of the chiasm at this early stage will show that there are fibers in the upper half of the chiasm which pass directly from one tract to the nerve of the same side. The fact that the lower half of the chiasm contains only fibers which cross, and that the upper half contains both sorts mixed together, warrants us in assuming that the number of crossed fibers is considerably greater than the number of direct ones. The question as to whether the fibers run in a compact bundle must be answered in the negative.

**Circumvasculitis Retinæ.**—Sheffels (*Arch. of Ophthalmol.*, xx, 2) reports the case of a young blacksmith, aged eighteen, in whom congenital syphilis first manifested itself in the form of circumvasculitis of the retina of both eyes, attacking only the veins with the exception of the left v. tempor. super., leading to partial occlusion of the caliber of the vessels, enormous dilatation and very peculiar tortuosity of the terminal veins, and extensive hemorrhages. Under the inunction treatment the hemorrhages and perivascular patches are rapidly absorbed, leaving only the curious tortuosity of the veins.

**The Action of Prismospheres and Decentred Lenses.**—Percival (*Arch. of Ophthalmol.*, xx, 2) takes up the subject of the unsatisfactory action of prisms in the relief of muscular defects of the eye, and thinks this is due partly to the difficulty found in determining exactly the relative strength of the ocular muscles, and partly to a want of recognition of the precise action of prisms. In all cases in which errors of refraction exist these must first be corrected by proper lenses. Then the absolute minimum of convergence is determined by providing the patient with glasses which enable him to define some distant object without exerting his accommodation. While his attention is now concentrated on it, adducting prisms are placed before the glasses, and the strongest prism compatible with single vision enables one to discover the minimum of convergence. The exact determination of the absolute maximum of convergence is more difficult. After the examination of the refraction and the accommodation of the eyes, glasses should be given such that the near point of accommodation becomes one third of a metre. The strongest adducting prism compatible with single vision must now be found. The position of the near point of convergence can then be determined, either by the help of the tables or by means of a simple calculation. Prisms are sometimes chosen at random and ordered to be worn in the hope that they will relieve certain symptoms. Failure very often attends such unscientific treatment. There should in every case be granted a fair trial of prismospheres.

**A Prism-measure or Lens-centering Instrument.**—Smith (*Arch. of Ophthalmol.*, xx, 2) describes a new instrument devised for the purpose of centering lenses, and also for measuring the degree of a prism or prisms in lenses combined with spherical or cylindrical surfaces. The instrument consists of a bed plate, upon the front of which is fixed a degree circle, and hinged to the bed plate is an upper plate thrown up by a spring. An upright face plate stands at right angles to the upper plate. On the top of the upright face plate is a degree circle. The index finger is made of steel, and pivoted at a point to swing easily over any portion of the dial plate. In using, the lens is placed on the lower points of the surface of the bed plate. The upper plate is pressed down until its two points touch the lens, and if the lens is of the same thickness at the two points, the index finger will point to zero on the degree circle of the upright face plate. In measuring prisms, the position of the index finger will be governed by the difference of the thickness of the lens at the two points of the upper plate, and the degree of the prism will be indicated on the degree circle.

**The Proposed Methods for numbering Prisms.**—Duane (*Arch. of Ophthalmol.*, xx, 3) has calculated a table for the purpose of determining

whether the difference between the values of the deviation produced in the three different positions of the prism is sufficiently great to be of practical moment. He deduces the following facts from this table: 1. Prismatic numeration, according to the angle of minimum deviation, is sufficiently accurate when a single prism is used. 2. When, however, as in testing the adductive capacity, an aggregation of prisms whose collective refracting angle exceeds  $20^\circ$  is employed, the resulting deviation will be more than the sum of the original deviations produced by the component prisms, and must be computed by referring once more to the refracting angles of the latter. 3. When an object viewed through a converging prism, arranged in the postero-normal position, is approached to the eye, the incident ray is no longer normal to the posterior face, but becomes more nearly normal to the anterior face of the prism. Hence the deviation produced by the prism, although its position remains the same, is greater in proportion as the object approaches the eye, and when an aggregation of prisms of total refracting angle in excess of  $20^\circ$  is employed, and the object is brought very near the eye, the true convergence would be quite in excess of that calculated upon the assumption that the prism has remained in the postero-normal position, and still more in excess of the value deduced from the minimum deviating power of the prism.

**Disseminated Sclerosis, presenting the Clinical Aspect of Primary Spastic Paraplegia, with Atrophy of both Optic Nerves.**—Zimmermann (*Arch. of Ophthalmol.*, xx, 3), in reviewing the complications of the clinical features of primary spastic paraplegia exhibited by his case, calls attention to the inferior importance of all of them in comparison with the affection of the optic nerves. Atrophy of the optic nerve, when associated with the symptoms of primary spastic paraplegia, is the most valuable and reliable guide in the diagnosis of disseminated sclerosis. When observed early, before any striking appearance of other symptoms, its peculiarities will give us a hint to be on the lookout for other signs, thus enabling us to make an early and distinct diagnosis.

**Anomalies of the Ocular Muscles; an Examination of von Graefe's Doctrine of "Antipathy to Single Vision."**—Stevens (*Arch. of Ophthalmol.*, xx, 3) sets forth a view of the causation of this anomaly as follows: The condition of antipathy to single vision, as described by von Graefe and by subsequent authors, depends not upon lesion of the brain or faulty projection of the images of the retina, but upon unequal tension of corresponding ocular muscles under the influence of corresponding nerve impulses directed to them. The causation of this supposed antipathy exists mainly in two conditions. The first of these is acquired as the result of the squint operation, and consists in the fact that by unequal setting back of the insertion of the corresponding tendons, there are induced irregular responses to the impulses directed to these corresponding muscles. A second causative influence, and one which acts as an element in nearly all cases, is the difference in relative tension of muscles which act in the vertical direction.

**Report of Four Hundred and Fifty Simple Extractions of Senile Cataract.**—Greef (*Arch. of Ophthalmol.*, xx, 3) gives a résumé of the cases of cataract treated in Schweigger's clinic. One group of cases was operated upon with the Schweigger-Förster capsular forceps. Baer's broad knife, which at a distance of 30 mm. from the point is 4 mm. high, was soon supplanted with one 5 mm. high, and later still with one 7 mm. high. The section in the cornea was made upward in 117 cases. Twenty-five cases were operated on with the downward section. In the 142 cases there was perfect success in 104 cases, or 73.3 per cent., and 8 cases of loss, or 5.6 per cent. Two of these losses should be excluded, as the cases were complicated with irregular astigmatism from old corneal leucomata, and with chorioiditis at the macula. In the remaining six cases the loss was due as follows: In one case to hemorrhage into the anterior chamber immediately after the operation; in two cases to irido-chorioiditis, secondary cataract, posterior synecchia, and thickening of the iris; in one case to prolapse of iris, followed by irido-cyclitis; in three cases to infectious infiltration of the lips of the wound. Prolapse of the iris occurred in nine cases, and in eight of them the iris was cut off. Prolapse of vitreous is one of the chief anatomical conditions after which prolapse of iris may be expected; therefore, wherever this accident is probable, as in high degrees of myopia, fluidity of the vitreous, etc., it is best to perform the operation with iridectomy. From

his own records, neither Schweigger nor his assistant, Greef, can furnish any satisfactory statistics as to whether prolapse of the iris is oftener seen after the upward or downward section. As regards the technique of the simple operation, much more care is needed in the first few hours than after the old operation, and most operators are agreed in avoiding the least movement of the patient after the extraction of the lens. The patient must be comfortably put to bed, and remain there as quietly as possible for three full days. The bandage is renewed on the second day, but the eye is not to be inspected till the third or fourth day. Atropine may be dropped into the inner corner of the closed lids as long as may be necessary.

**Glaucoma and Affections of the Optic Nerve.**—Schweigger (*Arch. of Ophthalm.*, xx, 4) has here a general "critique" on the subject of glaucoma. He considers that it is now conceded by everyone that cases of excavation reaching to the margin of the disc are not uncommon where the skilled touch has been unable to detect any trace of increased tension. The candid observer must admit that increase of intra-ocular pressure must be carefully considered in the light of other diagnostic evidence. Augmented tension and glaucoma are by no means identical conditions. Increase of tension may be doubtful or altogether absent in cases where glaucoma was certainly present. There is no such thing as a standard of hardness by which the tension of all eyes can be determined. There are eyes that are physiologically hard and eyes that are physiologically soft. If we inquire into the conditions under which excavations occur in glaucoma, we must begin with a study of the physiological excavation. Our knowledge of the physiological leads us to an appreciation of the pathological. Schweigger defines the term "physiological excavation" to be one which includes more than one third of the disc surface, and whose floor is formed by the lamina cribrosa. There may be slight variations in breadth and depth. When there is joined to this pre-existing physiological excavation an optic-nerve atrophy, the difficulties of diagnosis are greatly increased. He feels convinced that all cases described as glaucoma simplex fulminans are really instances of atrophic degeneration of the optic nerve occurring with physiological cupping of the disc. If this is true, there is no such thing as a typical excavation due to intra-ocular pressure. Leaving the questions of tension and excavation of the disc and coming to a consideration of other symptoms, he considers the cloudy cornea as an inflammatory œdema, but without anything characteristic about it. As regards the condition of the pupil, he believes that glaucoma may progress to complete loss of sight, without any interference with the mobility of the iris. The dilatation of the iris in glaucoma with inflammatory symptoms he regards as of the greatest diagnostic value. It rarely happens that the pupil is enlarged and at the same time round and perfectly movable. In most cases this enlargement of the pupil may be regarded merely as a ciliary paralysis from pressure. The arterial pulsation so often met with is the result of a disproportion between the intravascular pressure in the arteria centralis and the vitreous pressure. Usually the cause of the phenomenon lies in increased intra-ocular tension, but this is not always the case. He considers arterial tension alone as insufficient evidence of glaucoma. In Schweigger's opinion, the diagnostic value of the halo glaucomatosus is very small. He considers that the course of the disease is marked by distinct attacks of increased tension that come on and again subside. A most important consideration is that the inflammatory symptoms of glaucoma are not the cause but the results of increased tension. The ciliary body is undoubtedly the locality in which the sympathetic secretion of glaucoma takes place. The only road to success in diagnosis lies in continued observation. As soon as the existence of glaucoma has been demonstrated, iridectomy should be performed at the earliest opportunity. When glaucoma malignum attacks one eye, it follows iridectomy on the other eye, even when the second eye is not affected for years after the first. In all cases of chronic glaucoma affecting both eyes it is advisable to operate first of all upon the worse eye, even if it be absolutely blind. Should this be followed by the normal healing process, the second eye may be operated without the least apprehension. As soon as an iridectomy has been performed on a genuine case of glaucoma, we may regard it as certain that the disease has been brought to a standstill. The instances in which this is not true are so extremely rare that they do not carry much weight.

**Papilloma of the Conjunctiva.**—S. Fuchs (*Arch. of Ophthalm.*, xx, 4) thinks that a better name for this disease would be "fibroma papillare," for in many cases the epidermoid or epithelial strata make up no small part of the tumor, particularly in those papillary fibromata which develop as a plate or skin-like mass of connective tissue. A study of the genesis of these tumors always shows that they really belong to the class of fibrous growths, and that the small amount of fibrous tissue present is due to the fact that there has been a retrograde metamorphosis or an atrophy, caused by the excessive development of the epithelial constituent. In the initial stage all these papillary growths appear as a small, round knot due to excessive development of the superficial tissue; vessels push into the connective-tissue center of the little bud, and at the same time the epithelial layer grows thicker. New sprouts appear on the bud and become vascular, forming finally a branched papilla. The papillomata which spring from the tarsal conjunctiva often assume a cauliflower appearance, with a wide base. Similar forms of less extent are seen on the plica semilunaris. Those developing on the ocular conjunctiva and in the fornix are, on the contrary, branched pedunculated vegetations with a papillary surface. Fibroma papillare of the sclero-corneal border, in its initial stage, can hardly be distinguished clinically from epithelioma; but, when it has reached a certain development and overlaps the cornea, the infiltration or non-infiltration of the substance of the cornea is a diagnostic sign of great value, for a papilloma which overlaps the cornea may be lifted up and pushed back to the conjunctiva, but an epithelioma will infiltrate the corneal substance and rest immovably on it. Another valuable point is the enlargement of the neighboring lymphatic glands, which never occurs in papilloma. The papillomata of the limbus are distinguished from so-called "spring catarrh" by their softness and their papillary surface. Papillomata are benign, although inclined to recur if not radically removed.

**Pulsating Exophthalmia.**—Wing (*Arch. of Ophthalm.*, xx, 4) reports the case of a man, aged twenty-two, who, in August, 1889, fell some distance, striking on his head, and was carried in an unconscious condition to a hospital. He remained unconscious for twenty-four hours, and was discharged in ten days apparently well. In December, 1889, the right eye began to protrude, and continued to do so till June, 1890. At that time the lids could scarcely be closed over it. Vision was  $\frac{2}{30}$ . There was a distinctly pulsating tumor at the upper and inner angle of the orbit. There had never been any pain. By pressure the eye could be made to partly recede. Pressure on the common carotid artery caused the pulsations to cease. There had probably been a fracture at the base, passing across the cavernous sinus and causing a communication between it and the internal carotid artery, thereby forcing arterial blood into the ophthalmic veins, causing the great distention and strong pulsation. The common carotid was ligated, and the pulsations ceased at once and have never returned. Fourteen months later there was scarcely a trace of the exophthalmia, and vision was  $\frac{2}{30}$  +.

**The Shapes and Development of the Pigment Cells of the Chorioid.** Rieke (*Archiv für Ophthalm.*, xxxvii, 1) draws the following conclusions from his investigations:

1. All the pigment is formed within the cells.
2. The shape of the pigment cells is manifold, ranging from almost round to those with many processes. The latter are the most frequent in the anterior parts of the chorioid.
3. The arrangement of the cells, as a rule, corresponds to the course of the blood-vessels.
4. The clumps of pigment are perhaps to be regarded partly as permanent processes, partly as the remains of disintegrated cells.
5. The diffused pigment granules seem to owe their minute subdivision to the disintegration of former pigment cells.
6. In many animals the newly born show a marked pigmentation of the stroma cells of the chorioid.
7. The earliest appearance of pigmentation in the human chorioid occurs in the seventh month of fetal life.
8. The pigment cells of the chorioid do not originate in the pigmented wandering cells, but rather in the fixed connective-tissue cells.

**Sarcoma of the Uveal Tract.**—Freudenthal (*Arch. für Ophthalm.*,

xxxvii, 1) lays down the following propositions in regard to the development and growth of sarcoma of the uveal tract: There are four stages, viz.: 1. The stage of amblyopia or of the non-irritating course of the disease, where there is more or less disturbance of vision and slight changes in the fundus, but no symptoms of inflammation. 2. The glaucomatous or inflammatory stage. Here the intra-ocular tension is increased, and there are symptoms of internal and external irritation. 3. The stage of formation of fungous or episcleral nodules. The tumor has here perforated the capsule of the eyeball, and developed externally to it. 4. The stage of so-called constitutional generalization, or appearance of metastatic growths in other organs of the body.

**Primary New Development of Hairs on the Intermarginal Edge of the Eyelids as the Usual Cause of Trichiasis.**—Raehlman (*Arch. für Ophthalm.*, xxxvii, 2) has concluded, from clinical observation and microscopical examination, that long-continued hyperæmia of the blood-vessels of the edge of the lid causes a proliferation of the epithelial stratum (*stratum Malpighii*), which, after it has reached a certain height, often causes the development or *new* formation of hairs and sebaceous glands on the edge of the eyelid.

**Septic Keratitis.**—Silvestri (*Arch. für Ophthalm.*, xxxvii, 2), in his investigations, has never been able to observe and demonstrate the entrance of cocci or of leucocytes containing cocci into the anterior chamber. In well-marked cases of induced panophthalmitis he has never been able to demonstrate the exit of any cocci beyond the immediate zone of inoculation. He has also satisfied himself that the cocci, even when inclosed within the white blood-corpuscles, are still living and capable of active proliferation.

**The Infection and Disinfection of Collyria.**—Franke (*Arch. für Ophthalm.*, xxxvii, 2) draws the following conclusions from his investigations: Chemical disinfection of collyria is generally a better means of sterilization than that by boiling. For this purpose he recommends sublimate solutions (1 to 5,000 and 1 to 10,000); cyanide of mercury (1 to 1,000 and 1 to 5,000); resorcin, 1 per cent.; carbolic acid, 0.5; boric acid, 4 per cent. in carbolic acid 1 per cent.; Panas's solution; and thymol. It is not possible to produce an antiseptic effect with the antiseptics under discussion in a solution of the strength which can be used in the eye. A solution of sublimate (1 to 10,000) will in half an hour, however, render a solution of atropine or cocaiue aseptic. For eserine, an addition of resorcin is preferable.

**The Channels of Exit of the Aqueous Humor.**—Staderini (*Arch. für Ophthalm.*, xxxvii, 3) formulates his conclusions as follows: 1. The aqueous humor comes from the posterior chamber, and enters the anterior chamber through the pupil. 2. The current of the aqueous humors extends slowly and homogeneously from the pupil toward the angle of the anterior chamber in a radiating manner. Rotary phenomena in this current never occur. 3. We find in the canal of Fontana the anatomical and physical conditions which facilitate the exit of the aqueous humor through filtration into the venous channels at the sclero-corneal region. An open communication between the anterior chamber and the vascular system does not exist. 4. From the canal of Fontana fine rifts or channels extend into the tissue of the sclera, which partly follow the course of the deeper veins at the sclero-corneal region, and partly lose themselves in the lymphatic system of the sclera. Similar rifts extend from the canal of Fontana into the connective tissue stroma of the ciliary body and root of the iris. 5. It can not be doubted that the iris participates in the absorption of corpuscular elements from the anterior chamber. The anatomical structure of the anterior layer of the iris tissue is fully capable of active absorption. 6. Physostigmine hastens and atropine retards in a very marked degree the absorption from the anterior chamber.

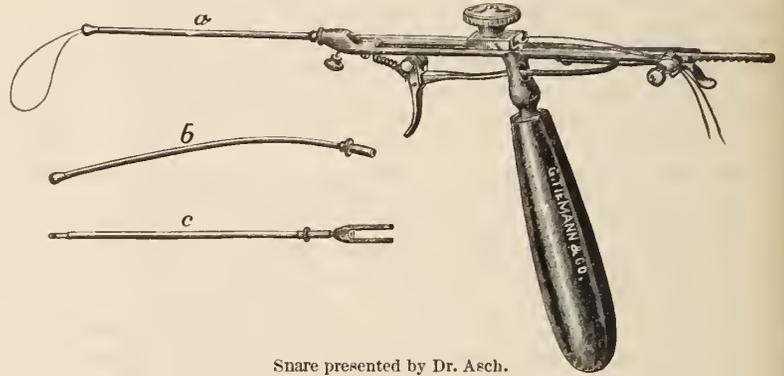
**The Anatomy of Pinguecula.**—Fuchs (*Arch. für Ophthalm.*, xxxvii, 3) gives the following results of his investigations: A pinguecula consists of a thickening of the conjunctiva, accompanied by a hyaline degeneration of the tissue elements, and the deposit of free hyaline. The cause of this degeneration is found in the senile changes of the tissue, to which must be added the influence of external irritation.

The same conditions lead in the cornea to similar hyaline degeneration (arcus senilis, band-shaped corneal opacity, yellow patches in corneal scars). Another important change of the conjunctiva at the site of the pinguecula consists in an enormous increase in size and number of the elastic fibers, for which there is no analogy in any other organ in the body.

## New Inventions, etc.

### PRESENTATION OF INSTRUMENTS AT THE THIRTEENTH MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

A *laryngeal forceps* was exhibited by Dr. Mulhall. "The instrument is the well-known forceps of Morell Mackenzie, modified to meet certain contingencies. The case for which it was designed was one of laryngeal papillomata attached to the lower surface of the vocal cords, in a deeply situated larynx, requiring the use of long blades. It was found that when the blades, from the angle to the laryngeal ends, were made of the requisite length—three inches and three quarters to four inches—the cutting lips could not be made to approximate accurately. To overcome this, a joint was made in each blade, half an inch from the



Snare presented by Dr. Asch.

angle, and the result I show you is an instrument whose lips approximate perfectly. The instrument will be made, on order, by Hohlkamp, Grady, & Moore, 915 Olive Street, St. Louis, Mo."

A *snare*, combining many of the features of instruments already well known, was presented by Dr. Morris J. Asch.

## Miscellany.

**Recent Investigations regarding Favus.**—Dr. George D. Holsten, of Brooklyn, contributes the following on this subject:

In the *New York Medical Journal* for July 11, 1891, a *résumé* was given of the results of investigation on the fungus of favus up to that time. Since then further studies have been made.

Louis P. Frauk (*Monatshefte f. prak. Dermatol.*, March 15, 1891), working in Unna's laboratory in Hamburg, has applied all the resources of modern bacteriological technique to determine the following questions: 1. Is the favus of animals and man the same? 2. Are there different forms of human favus fungus; also of animal favus fungus? 3. Should it be proved that different forms of favus fungi exist, which of them is to be regarded as the true form, and are the others separate forms or only varieties?

He examined four pure cultures of favus from the human being and two cultures of mouse favus. As the mouse favus is not so well known as the human favus, he describes it. "The entire head from snout to neck was covered with thick, dirty gray-white crusts, the eye

of one mouse being completely overgrown. There were several isolated scutella in the neighborhood of the shoulders and some small ones on the back. The shoulder blades were not invaded by the disease, as they are said to be in many cases." He excised skin and crusts, hardened in alcohol, and prepared sections.

From these six cultures three forms were isolated, whose characteristics are briefly described as follows: 1. Both mouse favi. Growth, which begins on the second or third day, is superficial and feathery white, the border of the colonies radiating, the under surface dark gray, with a yellowish shimmer. The diameter of the mycelia measured 1.8 to 4  $\mu$ , running in long striæ and terminating in sharp tips. 2. Fungi of cultures Nos. 2 and 4 (known as Form II) of human favus, which macroscopically and microscopically seemed identical, showed a markedly slower growth, did not extend in so superficial a manner as the first, but rather grew in depth. Colonies, especially the older ones, in chalk-like masses, were, on the lower surface, of a deep golden color, with shading toward brown. Mycelia measured 2.0 to 5.0  $\mu$ ; branches short and at right angles, terminations clubbed, pear-shaped and branched, or chandelier-like. This he considers identical with Quincke's  $\gamma$  favus. 3. Fungi of cultures Nos. 1 and 3 (known as Form III) were likewise identical. Growth slower than that of mouse favus, but more rapid than Form II; border rather cloud-like than radiating; superficially mealy, under surface deep golden. Diameter of mycelia 2.5 to 5.0  $\mu$ , and microscopically resembling the mouse favus.

Culture I inoculated on his arm was followed twenty-six days after by a patch resembling that of herpes tonsurans; the periphery was dark red and covered with small vesicles, which, drying into sero-yellow crusts, were generally situated around the mouths of hair follicles. Mycelium and spores were found microscopically in the hairs and crusts. After two months the favus patch spontaneously passed away.

Recultures from this gave a positive result on one black mouse; negative results on three white mice. The experimental cycle was as follows: Favus from a mouse was cultivated on agar, then inoculated on his arm, producing a "favus herpeticus"; from the hairs and crusts cultures were again made, and these inoculated on a black mouse gave positive results.

Culture I was also inoculated directly on several white and gray mice; after five days a beautifully formed yellow scutellum of the size of a small pea developed on one white mouse; the rest negative.

Culture II on mice and himself gave negative results.

Culture III on himself showed appearances very similar to the mouse favus, except that the patch did not attain so great a size, nor was the periphery so clearly marked. Examination of hairs gave the same results.

The forms discovered are then compared with those of other investigators. Form II agreed with Quincke's  $\gamma$  fungus and the mouse favus with the  $\alpha$  fungus, but none of Quincke's descriptions agreed with Form III.

Grawitz's description corresponds with Frank's II and with Quincke's  $\gamma$ , and seems to be the one most often met with. Grawitz describes the colonies as growing in herds of lentil size, round, becoming later on dry, with a whitish or straw-yellow center, and thereby becoming very similar to the scutellum as seen on the skin.

Fabry, in his interesting experiments, employed a fungus which he declared to be identical with the  $\gamma$  fungus. Some of the specimens placed at the disposal of Frank proved to be the same as Form II.

Münnich's cultures correspond with Grawitz's. Microscopically, Frank found them like Quincke's  $\gamma$  and his own Form II.

Jadassohn, in his demonstration of favus cultures, showed that they were identical with Quincke's  $\gamma$  form, and also with the one described by Grawitz.

Verujski, in photographs taken on the seventeenth and forty-second day of cultivation, showed a fungus identical with Form II.

Elsenberg's Variety 1 resembles Quincke's  $\alpha$  fungus, especially the macroconidia; Variety 2 is like the  $\gamma$  fungus in growth.

The fungus of Král, which Piek considers the achorion, did not correspond to any of Frank's. If this be proved also to be a true favus fungus, then there are three, possibly four forms: 1. Quincke's  $\gamma$  fungus,

identical with Frank's II, the fungus found by all the recent investigators (Quincke, Grawitz, Fabry, Münnich, Jadassohn, Verujski, Elsenberg, Unna, and v. Sehlen), and from which by inoculation Quincke, Grawitz, and Fabry obtained positive results, but Frank only negative. 2. Form I (or mouse) favus of Frank, with positive inoculation results. 3. The III fungus with positive results. 4. Král's achorion, from which Piek obtained positive results.

Frank thinks there are different forms of fungi for animals and man, still it remains for further investigators to prove if one or the other form predominates. The possibility of the conveyance of mouse favus to human beings he thinks can not be doubted, a matter of great interest from a hygienic point of view.

Kaposi (*Internat. klin. Rundschau*, 1891, Nos. 13 and 15) reiterates his former opinion that there is a difference between the fungus of favus and herpes tonsurans, but does not accept the views of recent investigators that different forms of favus fungi may exist.

V. Mibelli (*La Riforma med.*, 1891, Nos. 69 and 79, quoted in *Monatsch. f. prak. Derm.*, September 1, 1891) gives the results of his studies on favus in Sardinia, where the disease is very prevalent and severe. He arrives at the following conclusions: 1. Only one single species of fungus can produce favus. 2. This fungus produces the common as well as the herpetic favus. 3. The different appearances of colonies and the morphological differences of cultures are dependent on age and on culture media, and various other causes. 4. The variety of ways in which cultures develop depends upon the stage of growth and source of the original seed from which the new vegetation arises. 5. To such differences in origin and development are probably attributable the various pictures of favus herpeticus and favus vulgaris, as well as other transitional forms.

To the third of the questions which Frank propounded—should it be proved that different forms of favus fungi exist, which of them is to be regarded as the true form, and are the others separate forms or only varieties?—no answer could be made, for the reason that, clinically, only one favus disease has so far been recognized. Further investigations will have to consider if there may not be more than one form of the disease, and this question Dr. P. Unna considers in a paper entitled *Three Forms of Favus*, read before the Dermatological Section of the Society of German Scientists and Physicians, in Halle, September 24, 1891, and published in the *Monatshefte f. prak. Derm.*, January 1, 1892.

During the past summer Unna studied in his laboratory, in company with Dr. Frank, the three forms of favus fungi which the latter isolated and cultivated. He also experimented with some ten samples of material, two of which he received from Scotland, two from Holland, and one from Italy, and expresses the opinion that there may be more different forms of favus than were ever thought could exist, but confines the results of his experiments to Frank's three forms alone.

In order to establish positively which is the true favus fungus, it will be necessary to produce on animals and man scutella which shall correspond to the disease as developed spontaneously; and also that it shall run a subacute or chronic course.

Frank inoculated on his arm cultures of Form I (mouse favus), and obtained a beautiful, scaly, strongly reddened ring, with small vesicles and yellow points around the hair follicles. That these were true favus growths was proved by recultivating on proper media and reinoculating on a black mouse, when typical scutella resulted. That this favus herpeticus was not a traumatic dermatitis was shown by the fact that the symptoms did not appear until three weeks after inoculation.

Inoculations with Form III also produced on Frank a red, scaly patch, in the scales and hairs of which favus fungi were visible, but recultivations were not successful. Therefore further experiments were made on Dr. Williams, who inoculated Cultures I and III on his right leg. Inflammatory reaction appeared on the third day on Culture I; on the fourth several very small vesicles appeared, and on the fifth swelling and pain were strongly marked. On the sixth day thick yellow crusts began to form, pain became very severe, and locomotion was impossible. Form III ran a similar, but much slower and milder, course, the inflammation beginning on the fourth day.

On the ninth day both cultures were nearly the same, except that in Form I the crusts were much thicker. Removal of crusts revealed thin,

shining, red epidermis; no more vesiculation. Extraction of hairs very painful; crusts contained many spores but little mycelium, a few spores in extracted hairs.

On the ninth day all crusts were washed off with hot water, whereupon pain subsided. Small yellow points, generally but not always around the hair follicles, remained. Thin scales then began to form which in the course of three weeks became typical scutella of pepper-corn to pea size.

It was now of interest to note that these two favus patches lying close to each other on the same region of the skin on the same individual should be unlike each other and remain so. These differences are as follows: 1. Scutella of I less numerous and less concentric than III; some scutella of I being a half ring, while III shows a disposition to assume the full, round, saucer-like form. 2. Favus I is of gray-yellow color, while III is a dark sulphur color. The first resembles the gray-yellow color of mouse favus. 3. Scutella of I much softer and more friable than III. The latter permitted of being removed *in toto*, while the former would break in pieces. 4. Scutella I more firmly attached to the horny layer than III, which also increased the difficulty of removal. Adding to these, 5, the more rapid development of reaction; 6, the greater inflammatory symptoms, especially at the beginning; and 7, the greater amount of pain in Favus I, then the differences between the two become sufficiently great to clinically separate them.

These two forms, I and III, are illustrated by a beautiful chromolithograph.

Favus II was also inoculated on Dr. Williams, but, owing to an accident, did not develop.

Later Dr. Douglas inoculated Favus II and some Scotch favus received from Edinburgh. The II developed some ring-shaped, faintly reddened patches, which remained six weeks, scaled, and then spontaneously disappeared. Cultures were not obtained.

Dr. Leslie Roberts was the fifth and Unna the sixth person to inoculate themselves with Favus II.

This Favus II, with thick, short, septated mycelia, forked chandelier-like terminations, clubbed ends and spores, resembles Quincke's  $\gamma$  favus, the favus of Grawitz, Fabry, Verujski, Jadassohn, Mibelli, and the second variety of Elsberg.

Inoculations were made on white and black mice, on rats, guinea-pigs, rabbits, cats, and chickens, with the three forms of favus. Good scutella were never developed on white mice and rats, black rats, and chickens. The best success was obtained on rabbits and guinea-pigs; in a second degree on black mice and cats; at the same time there is a difference in the vulnerability of different animals to the three forms of favus. Form I develops best on mice and rabbits; form II on guinea-pigs; and III again on rabbits.

The scutella were then examined microscopically. They were composed mainly of the fungus with some of the epidermic cells intermixed; resting on the basal horny membrane, at the beginning they were covered above and at the sides with the superficial and middle layers of the horny epidermis, but later on were free. They did not, as some investigators have said, invade the entire epidermis and cutis. The lower portion of the scutella grows rapidly, the sides less so, while the upper portion not at all or but very little. As the lower portion in growing meets with the resistance of the epidermis, it is compelled to push out at the sides, while above, the suspension of growth tends to draw the sides toward the center, causing the characteristic cup-shape. This is true whether the growth occurs around a hair follicle, on non-hairy surfaces, or on culture media, and also occurs with other fungi which have a similar growth.

Favus I on rabbits and mice showed a very rich and regular insertion of the root ends of the mycelia into the horny layer, where they did not branch, but were straight. Here the mycelia were parallel, very little branched, grew strongly upward, and formed voluminous scutella. The proliferation of oidium spores was very rich and regular, becoming with age thicker and larger in the center.

Favus II on guinea-pigs showed a less regular and rich insertion of the root ends. They were often forked on implantation, and bent into a hooked form. The further development of the mycelia was a less parallel one than in Favus I; more bent, more often branched, and grew less strongly in height, whereby the scutella became less volu-

minous. On the other hand, the deeper mycelia showed a desire when around a hair to reach the depths of the follicle. Proliferation of oidium spores not so abundant and regular as in Favus I.

Favus III on rabbits showed a great upward growth from the horny layer, but it was not straight as in I, nor in such rounded bent lines as in II, but rather in peculiar knotty branches with many sharp corners. The very small amount of spore formation also distinguished this from Favus I. Branching in the depths of hair follicles took place, but not so regularly as in Favus II.

A division of favus into scutella and herpes favus, as Quincke proposed, seems to Unna not feasible; then each form of favus can give a variety of pictures, according to the skin on which it grows, to surrounding circumstances, as foreign fungi which hinder the growth, formation of crusts and scales, erythema, vesicles, and from the reaction of the skin it may be destroyed.

As a result of these investigations, Unna believes he has demonstrated three characteristic species of fungi, which are capable of developing typical favus scutella on animals and man.

He proposes for the fungus of Favus I the name *Achorion euthytrix* (meaning with straight or parallel filaments); and for the disease produced by this fungus the name *Favus griseus*, from the gray-yellow color of the scutella. (*Griseus*—apothecary's Latin; *Favus rarus*—gray-yellow—would be more classical, but not so well understood.) Fungus II he names *Achorion dikroon* (not dichroon), on account of the forked terminations; and the disease *Favus sulfuricus tardus*, from the sulphur-yellow color and the slow growth. Fungus III he proposes to call *Achorion atakton*, on account of the irregular mycelia processes; and its disease, *Favus sulfuricus celerior*, from the yellow color of the scutella and its somewhat rapid growth.

That other investigators have reached results differing from the foregoing due to their not having inoculated apparently different forms side by side, either on skin or on culture plates. The best culture medium Unna considers one composed of agar, four per cent.; peptone, one per cent.; levulose, five per cent.; salt, one half per cent.

In a postscript to the above-mentioned article the results of further inoculations with the II form (*Favus sulfuricus tardus*) are given. On non-hairy human skin, after eight inoculations, only erythematous papules were produced; therefore Unna considers that this form is only capable of producing on non-hairy adult skin a short-lived superficial disease, a so-called favus herpeticus. Nevertheless, it is a true favus for human beings; then it was bred from the scutellum from a child's head. On the mouse, on the other hand, good results were achieved. Differing from the gray-yellow, rough scutellum of *Favus griseus* and the small, dish-shaped ochre-yellow of *Favus sulfuricus celerior*, this scutellum is of a white-yellow or cream-color, has a smooth, finely folded upper surface, and a leather-like shine. Small particles of this scutellum gave on cultures the *Favus sulfuricus tardus*.

Noticing that scutella were most often seen around the muzzle of captured mice, Unna discontinued artificial inoculations and fed the mice with the old agar-peptone-levulose cultures, and in this manner arrived at better results.

The different diagnostic appearances of scutella on the backs of the gray mouse are as follows:

<i>Favus griseus.</i>	<i>Favus sulfuricus tardus.</i>	<i>Favus sulfuricus celerior.</i>
Scutella of medium size (lentil); thick; on upper surface flat or raised, not saucer-shaped; gray-yellow, like old wash leather, without shine and smooth; pierced all over by fine hair and spurs of hairs.	Scutellum becomes very large and covers the entire back; is thick; on upper surface hollowed out into cup shape; surface covered with small studs, folded, yellow-white or cream-colored; of leather-like smoothness, in places shining; hairs are pressed down; do not pierce the crust.	Scutellum remains small, about size of pepper-corn; on upper surface cup-shaped, smooth, but without shine; around the periphery light-ochre color, toward the center more whitish, on the curled-up edge horny-like brown; pushes the small hairs back, while the spurs of hairs pierce through.

These three forms of favus, when inoculated on mice, will give their characteristic scutella, and two of them have been found spontaneously on captured mice.

**A Case of Malignant Disease of the Stomach in which Gastro-enterostomy was considered.**—At a meeting of the Philadelphia County Medical Society, held on February 10th, Dr. John B. Roberts read the following paper:

I desire to briefly report the result of a case in which I was only deterred from making preparation for gastro-enterostomy by the debilitated condition of the patient, but in which the post-mortem findings showed the inutility of such an operation. The delay which prevented me from subjecting the patient to the expense and anxiety of so serious an abdominal operation is so justified by the pathological conditions that it has caused me to present the specimen for examination.

Upon being summoned to another State for surgical consultation, I found a man about fifty-two years of age suffering from great pain in the epigastrium. He was vomiting large amounts of fluid. The temperature was normal, but the muscular weakness was great, and sleeplessness pronounced. The abdomen was distended with gas, and there was a marked prominence in the neighborhood of the left hypogastrium. The patient had suffered for about four years with dyspeptic symptoms, during which time he had been under the care of many physicians. He had recently been treated by lavage, which relieved the pain temporarily, and he had suffered with such obstinate constipation as made the attending physician think that there was some obstruction in the alimentary tract. It was this as well as the excessive pain that induced him to call in surgical aid.

The character of the vomiting, the situation of the prominence in the left hypogastrium, and the general aspect of the case made it very evident to me that it was one of dilatation of the stomach. I gave an opinion that it was very possible that there was malignant disease in the neighborhood of the pylorus; but it was impossible to determine the question because of the distended abdomen, and the diagnosis was hence left undecided. The administration of food by the mouth was stopped entirely, and enemata of peptonized milk combined with whisky were given every two hours night and day. Lavage was continued to empty the stomach and relieve pain. This line of treatment was continued for about three weeks. The patient's discomfort was relieved, the pain disappeared, the vomiting discontinued, and the consequent reduction of tympany rendered it possible to detect a hard mass below the liver in the median line. The bowels in the mean time had become regular by the occasional administration of cascara. This for two weeks, however, was not needed, because of spontaneous evacuation of the bowels, probably due to the enemata. Microscopic examination of the vomited matter showed me that blood was present in the ejecta, and I now made a diagnosis of malignant disease.

At the end of three weeks small amounts of nourishment were given by the stomach. We commenced with a drachm of peptonized milk with a few drops of whisky every two hours, and daily diminished the amount of food administered by the rectum. Gradually the amount of food taken into the stomach was increased until it reached three ounces every two hours. The prolonged rest during the period above mentioned seemed to have been beneficial to the stomach, so that the small amounts of food given at frequent intervals were digested without pain; there was no vomiting, though the tympany became more or less prominent.

At the time he began to take food by the mouth I told the patient that he had malignant disease of the stomach, and that exploratory examination was proper with a view of determining whether an artificial opening could be made between the stomach and intestine, or the growth removed. This was deferred until the strength of the patient should be somewhat improved under gastric alimentation. The patient, however, continued to lose ground, and died about a month after my first visit. When the food given by the stomach reached three ounces and a half he began to have pain.

The autopsy showed, as the specimen makes clear, malignant disease infiltrating about one fourth of the long diameter of the stomach

with several nodular masses at the pylorus. The pylorus, however, is sufficiently patulous to admit readily the introduction of a finger-tip. There was, therefore, no marked obstruction. The cardia is much thinned, while the middle portion of the stomach presents the normal thickness and characteristics. An adhesion has taken place between the stomach and the liver at the point where the growth is most marked.

Gastric dilatation had occurred secondarily to malignant disease of the pylorus. The only time at which it seems to me gastro-enterostomy would have been wise was previous to his coming under the care of Dr. H. A. Stout, who called upon me for assistance; and it is very doubtful if at any time the operation would have been beneficial. The pylorus, as shown at the autopsy, must have had an opening as large as would probably have been made had the operation in question been performed; and the infiltration of the wall of the stomach for one third of its length would have made the area for an opening between the stomach and intestine limited. An opening would have had to be made between the thinned and dilated portion of the stomach at the cardiac extremity and the large area infiltrated with malignant growth toward the pyloric end. This, of course, could have been done, but prolongation of life would probably not have been gained.

The facts that the man was walking about and attending to business and that the tumor presented no external manifestations make it extremely probable that an operation would not have been suggested previously to the time he came under the care of the physician who consulted me, except by an enthusiast.

I present the case partly because of the interesting character of the specimen, and partly as a contribution to a branch of abdominal surgery which is assuming increased importance.

The recent series of cases reported by Dr. N. Senn have been read by me with great interest; but the conclusion has almost been forced upon me that many of them were cases that scarcely justified operative procedure. Perhaps I am too conservative; but may it not be that he is too enthusiastic?

**The United States Marine-Hospital Service.**—The surgeon-general, Dr. Walter Wyman, has issued the following notice, dated February 23, 1892: A board of officers will be convened in Washington on May 2, 1892, for the purpose of examining applicants for admission to the grade of assistant surgeon in the U. S. Marine-Hospital Service. Candidates must be between twenty-one and thirty years of age and graduates of a respectable medical college, and must furnish testimonials from responsible persons as to character.

The following is the usual order of the examination: 1. Physical. 2. Written. 3. Oral. 4. Clinical. In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify for service in any climate. The examinations are chiefly in writing and begin with a short autobiography by the candidate. The remainder of the written exercise consists in examinations in the various branches of medicine, surgery, and hygiene. The oral examination includes subjects of preliminary education, history, literature, and the natural sciences. The clinical examination is conducted at a hospital, and, when practicable, candidates are required to perform surgical operations on the cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur. Upon appointment, the young officers are, as a rule, first assigned to duty at one of the large marine hospitals, as at Boston, New York, New Orleans, Chicago, or San Francisco. After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Promotion to the grade of surgeon is made according to seniority and after due examination as vacancies occur in that grade. Assistant surgeons receive sixteen hundred dollars, passed assistant surgeons eighteen hundred dollars, and surgeons twenty-five hundred dollars a year. When quarters are not provided, commutation at the rate of thirty, forty, or fifty dollars a month, according to grade, is allowed. All grades above that of assistant surgeon receive longevity pay, ten per centum in addition to the regular salary for every five years' service up to forty per centum after

twenty years' service. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For further information or for invitation to appear before the board of examiners, address Walter Wyman, M. D., Supervising Surgeon-General, M.-H. S.

**The New York Academy of Medicine.**—The special order for the meeting of Thursday evening, the 3d inst., was the reading of a paper on Cases of Appendicitis illustrating Different Forms of the Disease, with Remarks, by Dr. Charles McBurney.

At the next meeting of the Section in Genito-urinary Surgery, on Thursday evening, the 10th inst., Dr. J. E. Kelly is to read a paper on The Anatomy of the Bladder, and the chairman, Dr. E. L. Keyes, will open a discussion of the question Pus in the Urine—how to discover its Source?

At the next meeting of the Section in Pædiatrics, on the same evening, there is to be a discussion on Empyema, by Dr. H. Koplik, Dr. J. W. Brannan, Dr. J. H. Ripley, and Dr. J. W. Roosevelt.

At the next meeting of the Section in General Surgery, on Monday evening, the 14th inst., a paper on Multiple Tendon and Nerve Suture with Perfect Recovery in Spite of Suppuration will be read by Dr. H. Lillenthal, and one on Fibrous Mammary Tumors by Dr. C. N. Dowd.

**Mortality in Cities in the United States.**—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for February 26th :

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—													
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varicella.	Typhus fever.	Eberth fever.	Septic fever.	Diphtheria.	Measles.	Whooping-cough.				
New York, N. Y.	Feb. 20.	1,515,201	908	129	2	2	2	39	26	13	6						
St. Louis, Mo.	Feb. 20.	451,770	127	24				1	1	1							
Boston, Mass.	Feb. 20.	448,477	206	22					7	9							
Baltimore, Md.	Feb. 20.	434,433	233	27					3	20	13	3					
San Francisco, Cal.	Feb. 13.	298,997	.....	.....													
Cincinnati, Ohio	Feb. 19.	206,908	130	8					2	1	10						
New Orleans, La.	Feb. 6.	242,039	189	19													
New Orleans, La.	Feb. 13.	242,039	162	14													
Detroit, Mich.	Feb. 20.	205,876	82	.....					1	10	5						
Minneapolis, Minn.	Feb. 20.	164,798	57	.....						1	1	1					
Louisville, Ky.	Feb. 20.	161,129	60	10					3	1	1						
Rochester, N. Y.	Feb. 20.	133,896	49	3					1	1	10						
Kansas City, Mo.	Feb. 6.	132,716	27	3													
Kansas City, Mo.	Feb. 13.	132,716	38	7													
Providence, R. I.	Feb. 20.	132,146	51	.....													
Denver, Col.	Feb. 13.	106,713	32	5													
Denver, Col.	Feb. 20.	106,713	21	6													
Indianapolis, Ind.	Feb. 13.	105,436	33	10													
Indianapolis, Ind.	Feb. 20.	105,436	43	9					1	3	2						
Toledo, Ohio.	Feb. 19.	81,494	25	.....													
Richmond, Va.	Feb. 20.	81,388	41	5					4								
Nashville, Tenn.	Feb. 20.	76,168	40	9													
Fall River, Mass.	Feb. 19.	74,398	46	2													
Portland, Me.	Feb. 20.	36,425	17	.....													
Binghamton, N. Y.	Feb. 20.	35,005	20	.....					2		4						
Mobile, Ala.	Feb. 20.	31,076	15	.....													
Galveston, Texas.	Feb. 5.	29,084	17	1													
Galveston, Texas.	Feb. 12.	29,084	11	.....													
Auburn, N. Y.	Feb. 20.	25,858	11	1													
Pensacola, Fla.	Feb. 13.	11,750	7	1					1								

**The Prophylaxis and Treatment of Influenza.**—In the February number of the *Satellite of the Annual of the Universal Medical Sciences* we find the following abstract of the teachings on these subjects in Dr. Cyrus Edson's book on *La Grippe and its Treatment*: Three indications are to be fulfilled: (1) Means must be taken to assist the system to rid itself of the poison to which the attack is due; (2) pain must be relieved; and (3), not the least important, depression must be counteracted. The first indication is obtained by means of castor oil or two compound rhubarb pills. Three or four three-grain powders of phenacetin are usually sufficient to relieve headache and muscular pains. Salol, two grains and a half to each dose, may be added to the phenacetin with advantage. He deprecates antipyrine and its congeners, which serve to augment the depression, and recommends instead Hoffman's anodyne, which is diaphoretic, diuretic, and stimulant. To overcome depression during and after the disease, he recommends the free use of tonics. He repeats Professor Laffont's (of Lille) recommendation of coca preparations, those of Mariani being given the preference. During the disease a hot grog, one third Mariani wine of coca and two thirds sweetened water, is administered, taken very hot, several times

a day, the slight diaphoresis induced being a valuable addition to the tonic action. (The editor, in the coming issue of the *Annual*, recommends the exhibition of coca in the early stages of the disease, with a view to counteract the impending asthenia and curtail the disease. Six grains of blue mass are first ordered, and, as soon as a couple of movements have been obtained, two tablespoonfuls of Mariani coca-wine are given every two hours; lozenges, each containing two grains of coca leaves and one twelfth of a grain of cocaine, contribute greatly to ward off the pharyngo-laryngeal complications. A six-per-cent. solution of cocaine, applied occasionally to the nasal mucous membrane, directing the cotton-covered probe toward the roof of the nose and anteriorly, reduces markedly the pain caused by involvement of the frontal sinus. He fully agrees with the author as regards the contra-indication of antipyrine.) Edson considers champagne, generous wines, tonic doses of quinine, iron, and strychnine also of value. The catarrhal irritation of the air passages is best allayed by inhalations of compound tincture of benzoin. Chloroform liniment is recommended as a rubefacient: opium and carbonate of ammonium for the cough. The treatment of pneumonic *grippe* is essentially the same as that of uncomplicated pneumonia, the author emphasizing the advisability of preserving the strength of the patients.

**To Contributors and Correspondents.**—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

A REVIEW OF  
FIVE YEARS OF DERMATOLOGICAL PRACTICE  
IN NEW ORLEANS.\*

By HENRY WILLIAM BLANC, B. S., M. D.,

HEALTH OFFICER, UNIVERSITY OF THE SOUTH, SEWANEE, TENNESSEE;  
FORMERLY DERMATOLOGIST TO THE CHARITY HOSPITAL, NEW ORLEANS;  
LECTURER ON DISEASES OF THE SKIN, TULANE UNIVERSITY OF LOUISIANA;  
INSTRUCTOR IN SKIN DISEASES AND SYPHILIS, NEW ORLEANS POLYCLINIC;  
CHIEF SANITARY INSPECTOR FOR THE CITY OF NEW ORLEANS, ETC.

HAVING found it necessary to change my residence from Louisiana to the more bracing climate of Tennessee, it seems right and proper that I should give an account of my stewardship in the field that I have surrendered, and more especially so as no full statement has ever before been made, so far as I am aware, of any systematic dermatological work performed in the Gulf States.

Reports of skin diseases observed in the South have occasionally appeared in our journals, but the writers have only pointed out the presence rather than the prevalence of these affections in their section, and have failed to convey any idea of their relations to race and climate.

We are familiar with the class of diseases commonly observed in Chicago, New York, and Boston, but the dermatological practice of New Orleans and other large Southern cities has up to this time been an unknown quantity.

The writer took charge of and organized the department for skin diseases in the great Charity Hospital of New Orleans in October, 1885, and surrendered it in July, 1891, after a period of nearly five years, and was the first dermatologist ever appointed by the administrators of that institution.

This paper records cases observed during this period both at the hospital and in private practice, and of every one here referred to careful notes have been taken. A number of cases seen in public and private practice were not recorded, owing to a variety of causes, and of course they can not figure in these statistics.

With the exception of syphilis, the venereal diseases are all excluded, and also the eruptive fevers, including vaccinia, as these would be out of place in the present analysis. Otherwise the last-mentioned affections would occupy a conspicuous portion of this report, as the writer's position of chief sanitary inspector of the Louisiana State Board of Health has given him unusual opportunities for observing the eruptive fevers, while it also made him the head of the bureau of vaccination during his tenure of office.

The following table, representing some seventy-five varieties of skin disease, is arranged to show sex and color, but it must be admitted that the record of colored cases is quite incomplete, due to the fact that negroes are not treated in the same department of the hospital as the whites, thereby causing some confusion in the records. It may be safely said that one half of the cases of skin disease in negroes

who applied for treatment at the hospital are not recorded here at all:

TABLE I.  
*Diseases arranged in Alphabetical Order.*

DISEASE.	White.	Color'd.	Male.	Female.	Total.
1. Abscessus.....	2	..	1	1	2
2. Acne.....	103	5	42	66	108
3. Albinismus.....	1	1	2	..	2
4. Alopecia areata.....	4	..	3	1	4
5. Alopecia præmatura.....	2	..	2	..	2
6. Anthrax.....	1	1	2	..	2
7. Cancer en cuirasse.....	1	..	..	1	1
8. Cellulitis.....	4	1	4	1	5
9. Chloasma.....	13	6	1	13	19
10. Cystoma.....	5	..	4	1	5
11. Dermatitis.....	101	3	81	23	104
12. " herpetiformis....	4	..	1	3	4
13. Dysidrosis.....	8	..	5	3	8
14. Ecthyma.....	18	1	15	4	19
15. Eczema.....	481	39	301	219	520
16. Elephantiasis Arabum.....	1	1	2	..	2
17. Epithelioma (rodent ulcer)..	53	..	15	38	53
18. Erysipelas.....	14	1	6	9	15
19. Erysipeloid.....	6	..	1	5	6
20. Erythema.....	44	2	21	25	46
21. Favus.....	1	..	..	1	1
22. Furunculus.....	35	..	26	9	35
23. Herpes simplex.....	7	..	5	2	7
24. " zoster.....	31	3	25	9	34
25. Hydroa.....	4	..	4	..	4
26. Hyperæsthesia.....	3	..	1	2	3
27. Hyperidrosis.....	5	..	4	1	5
28. Hypertrichosis.....	10	..	..	10	10
29. Ichthyosis.....	3	1	3	1	4
30. Impetigo.....	18	1	8	11	19
31. Impetigo contagiosa.....	11	1	3	9	12
32. Keloid.....	1	1	1	1	2
33. Keratosis.....	5	..	2	3	5
34. Lentigo.....	2	..	..	2	2
35. Lepra.....	70	13	49	34	83
36. Lichen planus.....	8	1	5	4	9
37. " scrofulosorum.....	1	..	..	1	1
38. " tropicus.....	4	..	3	1	4
39. Lupus erythematosus.....	3	1	2	2	4
40. " vulgaris.....	1	3	3	1	4
41. Molluscum fibrosum.....	1	3	3	1	4
42. " epitheliale.....	1	..	1	..	1
43. Morphea.....	3	..	1	2	3
44. Myoma.....	1	..	1	..	1
45. Mycosis fungoides.....	1	..	1	..	1
46. { Nævus pigmentosus.....	3	..	3	..	3
{ " nnius lateris.....	1	1	1	1	2
{ " vasculosus.....	6	..	3	3	6
47. { " hypertrophicus.....	1	..	1	..	1
48. Onychia.....	3	1	2	2	4
49. Papilloma.....	2	..	2	..	2
50. Paronychia.....	4	1	4	1	5
51. Pemphigus.....	6	..	5	1	6
{ Pediculosis capitis.....	29	1	6	24	30
{ " corporis.....	50	1	48	3	51
{ " pubis.....	11	..	11	..	11
53. Pernio.....	1	..	1	..	1
54. Pityriasis rosea.....	1	..	1	..	1
55. Pompholyx.....	2	..	1	1	2
56. Prurigo.....	5	..	2	3	5
57. Pruritus.....	57	4	31	30	61
58. Psoriasis.....	37	..	25	12	37
59. Purpura.....	11	..	5	6	11
60. Sarcoma.....	3	..	1	2	3
61. Scabies.....	104	6	85	25	110
62. Scleroderma.....	6	1	4	3	7
63. Scrofuloderma.....	8	1	6	3	9
64. Seborrhœa.....	35	1	24	12	36
65. Sycoosis (non-parasitic).....	17	..	17	..	17
66. Syphiloderma.....	236	23	163	96	259
67. Teleangiectasis.....	5	..	1	4	5
68. Tinea favosa.....	1	..	..	1	1
{ Tinea trichophytina barbæ.....	7	2	9	..	9
{ " " capitis.....	7	..	1	6	7
69. { " " corporis.....	15	2	9	8	17
{ " " cruris.....	25	..	20	5	25

\* Read before the Tri-State Medical Society of Alabama, Georgia, and Tennessee, October 29, 1891.

DISEASE.	White.	Color'd.	Male.	Female.	Total.
70. Tinea versicolor.....	31	5	26	10	36
71. Ulcus.....	19	1	14	6	20
72. Urticaria.....	12	1	2	11	13
73. Verruca.....	3	..	1	2	3
74. Vitiligo.....	5	3	4	4	8
75. Unclassified.....	13	1	6	8	14
Total.....	1,878	145	1,205	818	
Grand total.....					2,023

*Acne*.—This disease constituted 5.33 per cent. of all the diseases treated. A large majority of the cases of acne were seen in private practice and among the better class of people. Acne is quite common among the lower orders, but for obvious reasons an affection that produces so little pain and inconvenience is not apt to be brought to a hospital for treatment until increasing disfigurement causes its possessor to look about for a remedy. Negroes are not so subject to acne as the whites, and when they have it it is usually of the papular variety, seldom becoming pustular, and is accompanied by a mild seborrhœa oleosa. Under this heading are included a number of cases of rosacea, associated almost invariably with some of the papules of acne. The remaining cases were varieties of acne vulgaris, with the exception of two cases of *acne atrophica*, to which I prefer applying the title of *acne rodens*, in order to avoid confusion with certain atrophic conditions sometimes noted in strumous persons following the resolution of the pustule of acne vulgaris, or common acne.

The clinical history of these cases of *acne rodens* will be reported elsewhere.

*Chloasma*.—Out of nineteen of these cases there were eighteen in females, and six were negroes. Most of them were women between twenty and forty years of age, and all of them had passed the age of puberty when the disease began. The majority had some disorder of the menstrual function, and several were, or had recently been, pregnant.

Two young women (unmarried) who had no evidences of menstrual disorder were exceedingly anæmic.

*Chloasma gestationis* is, perhaps, more common in Louisiana among negro women than among white women. The pathology of this disease being a displacement of pigment, we find that in brown and black negroes, and to a less extent in the mulattoes, the skin turns lighter, instead of darker as in the case of the whites. The intensity of the shade depends upon the natural color of the negro, being darker in darkest skins. The edges of chloasma patches in negroes are not so clear-cut and well-defined as in cases of albinism and vitiligo, and the light patches have more pigment in chloasma.

*Dermatitis*.—The class of eruptions usually placed under this heading are burns and scalds (d. ambustionis), inflammations due to injuries, such as excoriations, contusions, and the like (d. traumatica), and inflammations due to external irritants.

Seven cases were due to mosquito bites, four out of the seven being in persons who had just come to the city from a foreign country. Not using mosquito-bars, as is the custom in New Orleans in the summer season, they were devoured by these little pests, in several cases, from head to

foot. The scratching that ensued set up considerable inflammation, with the formation of pustules, and medical aid was sought. An interesting case was that of a young Russian who had acquired malarial fever in Costa Rica. On his way up the river to the city he was stung by mosquitoes from top to toe and then deposited in the hospital while delirious from fever. Arriving in my absence, the ambulance surgeon was much concerned as to how to dispose of a case which looked like an early stage of small-pox, and the patient's not speaking the language made the case all the more perplexing. When he was seen by me a little later, the diagnosis was made by noting the presence of minute hæmorrhagic puncta in the center of the pinkish papules, this being the point where the proboscis of the insect had been inserted. Under this heading are included forty-one cases of dermatitis venenata, thirty-five being in males and six in females. The cause of this eruption was usually ascertained to be the *Rhus toxicodendron*, though several cases were due to irritation from dyes.

*Dermatitis Herpetiformis*.—Of this affection, sometimes known as Duhring's disease because of the special study which this writer has given to it, there were four cases, all white, three being females. One of the cases is the *impetigo herpetiformis* of Hebra; but, as it evidently belongs to the group of cases described by Duhring, a brief recital of its clinical history is here appended:

E. L., aged twenty-nine years, native of Mississippi. Has five children, and when first seen had been pregnant five months and a half. History of having caught cold while carrying her fourth child, but had no eruption, only great itching of body during the week following its birth. With the fifth child an eruption appeared when quickening was felt, and lasted till her baby was three weeks old. She is now pregnant with her sixth child, the eruption having appeared one day before quickening was felt. The lesions appeared as circular, erythematous patches, well marked on the chest, back, and arms, but not clearly defined elsewhere, though occurring all over the body except the head. These patches were deeper in color at the periphery, giving them a ringed appearance. On the rings were vesicles, blebs, and pustules in all stages of development. They were not numerous, however, some rings having but three or four of these lesions. She stated that when the eruption first appeared the blebs were very numerous.

Patient's reason for applying for treatment was the incessant and intolerable itching, worse at night. This caused her to greatly aggravate the eruption, as she was unable to desist from scratching. Constant regulation of the diet and bowels and a carbolic salve (ʒ ss. to ʒ j) ameliorated, but did not cure, the itching. She was not seen after her child was born.

*Dysidrosis*.—Without pausing to give my reasons for separating this affection from *pompholyx*, a disease with which some writers have attempted to identify it, I will give briefly two cases of the disease classed under this heading:

CASE I.—Mr. A. B., aged fifty-six years, native and resident of New Orleans. Has been at times a hard drinker. Is suffering with a rodent ulcer on bridge of nose. Is corpulent, and has enlarged capillaries in skin of face, giving it a ruddy appearance.

On the bridge of the nose, on the temples near the eyes, and on the forehead here and there are little sago-grain appear-

ances, which are quite tense when pressed, but which emit when broken a watery liquid, acid in reaction. These do not itch and cause no inconvenience. It was noticed that some of them, after being incised with a small knife, remained dark for ten or fifteen days thereafter, on account of the venous blood that passed into them after the incision. They then healed and did not reappear, so far as I am aware.

CASE II.—MRS. M. E., aged forty-eight years, native of Germany. Has also ringworm of the thighs, which has spread on to the abdomen. General health good. Passed the climacteric period four years ago. Was formerly a wine-drinker, but has been taking a good deal of beer for the past two years. Is stout and plethoric, having dilated blood-vessels on the face.

Has noticed that during the past three summers a little sago-grain eruption would appear on her face and disappear in winter.

This eruption consists of vesicles of the size of a small pea, slightly raised above the skin, but also quite deep beneath the surface. They do not itch, and are located on the forehead, temples, nose, cheeks, and chin, being most numerous on the temples. After puncture, a hæmorrhage takes place in them, as in Case I. The liquid in them caused litmus paper to turn red. They all disappeared after incision.

Of the eight cases recorded, two were affected on the face alone, two on the hands alone, two on the toes alone, and two on hands and toes.

*Eczema.*—This affection, the commonest of all the diseases of the skin, has a fair share numerically among the diseases mentioned in this report, though it is not as common in New Orleans as it is in certain other localities. For example, the five hundred and twenty cases of eczema here reported are 25.7 per cent. of the total number of cases recorded in a period of five years. This is a lower percentage than that of the combined returns of the American Dermatological Association for the ten years between 1878 and 1887, for, out of 123,746 cases of skin disease recorded during that time, 37,661 cases were eczema, a percentage of 30.43.\*

In my cases, as in those referred to, the eruptions produced by the *Acarus scabiei* and the *Pediculus* are classed as *scabies* and *pediculosis*, and are enumerated elsewhere.

The following table illustrates the ages of patients suffering with eczema:

TABLE II.

*Ages of Patients with Eczema.*

Under one year.....	32
“ two years.....	14
“ three years.....	12
“ four years.....	7
“ five years.....	10
Between five and ten years.....	34
“ ten and fifteen.....	23
“ fifteen and twenty.....	43
“ twenty and thirty.....	86
“ thirty and forty.....	80
“ forty and fifty.....	75
“ fifty and sixty.....	57

\* In an analysis of 8,000 cases of skin disease Bulkley found 2,679 cases of eczema, or 33.48 per cent. See *Archives of Dermatology*, vol. viii, No. 4, October, 1882.

Between sixty and seventy.....	38
“ seventy and eighty.....	9
Total.....	520

There were seventy-five cases of eczema in children under five years of age, being 14.4 per cent. of the total number of cases treated. This percentage is small when we compare it with Bulkley's figures drawn from a larger number of cases.\* In 2,500 cases of eczema he reported 614 cases occurring under the age of five years, or 24 per cent.

Referring to Table I, it will be seen that 481 patients were white and 39 colored, while 301 were males and 219 females.

Table II shows that no age is exempt from this disease, and that the greatest number of cases occurring in a decade was in persons between the ages of twenty and thirty. There were seven between the ages of four and five, and nine between seventy and eighty. So youth and age may be alike affected.

*Epithelioma.*—A large majority of these cases were of the rodent ulcer, or superficial variety of epithelioma, and had not involved the neighboring glands. Eight cases were of the deep variety, and characterized by all the clinical and pathological symptoms noted in malignant disease. Some still presented the flat, waxy node so characteristic of this disease, while in others this had already broken down into crust-covered ulcers. The face is the common seat of these lesions, either on the cheeks, nose, temple, or forehead.

The youngest patient observed was a white man twenty-eight years old. The lesion occurred on either side of his nose as a waxy tubercle. After its removal by the curette, he remained well for two years, when the disease reappeared on the right temple. This second lesion was of the size of a silver quarter-dollar, and was removed with the curette, followed by the application of arsenical paste. A large ulcer was made, which healed slowly, but the disease has not yet returned. The oldest patient was eighty-eight years old.

There were no cases among the negroes, who are more subject to the deep-seated form of this disease. Fifteen cases were in males and thirty-eight in females, a reversal of the rule, as the disease is commonest in men.

TABLE III.

*Ages of Patients with Epithelioma.*

Between twenty and thirty years.....	2
“ thirty and forty years.....	6
“ forty and fifty years.....	10
“ fifty and sixty years.....	13
“ sixty and seventy years.....	12
“ seventy and eighty years.....	9
“ eighty and ninety years.....	1
Total.....	53

*Erythema.*—A variety of affections are classed under this heading, including simple localized, idiopathic erythema, erythema multiforme, erythema nodosum, and certain

\* *Loc. cit.*

other forms, such as erythema intertrigo and a number of rashes due to the application of irritants to the skin. Erythema multiforme constituted the majority of the cases, while erythema nodosum was seen in but one patient.

Of the fifty cases of this affection recorded, there were twenty-one in males and twenty-nine in females.

*Erysipeloid.*—Rosenbach\* describes an eruption due to wound infection with putrid animal matter, and this he has called *erysipeloid*. It consists of a red spot upon the skin which extends peripherally, while the center undergoes involution. It produces a sensation of burning and passes away in two or three weeks without febrile symptoms.

Six cases of this disease have come under my observation, two of them being typical, according to the description given by Rosenbach. In the remaining four, the spot, though circumscribed and clear-cut at the edges, did not fade in the center, at least not before treatment was instituted. This consisted in an ichthyol ointment, as recommended by Elliot,† or in a salve of oil of cade with oxide-of-zinc ointment. Five of these patients were cured after two weeks of treatment, while the remaining one relapsed and was not entirely well for a month. Erysipeloid evidently belongs to the group of erythemas, and closely resembles *erythema annulatum*. Considered from this point of view, it would be classed as an *erythema venenatum*. It is my belief that this disease occurs more frequently in surgical practice than is generally supposed, and that a greater number of cases have not been reported because of the mildness of the attack, coupled, perhaps, with an inability to classify it dermatologically. The surgeon, being satisfied as to its cause and character, has been content to let a simple ointment and Nature do the rest.

My cases were briefly as follows:

CASE I.—Female, aged thirty-two. Cleaning crabs five days ago, and next day noticed inflammation of index finger of left hand. This has spread to the metacarpo-phalangeal joint, and presents a circumscribed, convex border. Eruption is very itchy, and at times burns and pains.

CASE II.—Female, aged forty. Eruption located at root of left index finger. Began one week ago after she had scratched her hand while preparing food for cooking.

CASE III.—Male, aged thirty-eight. Eruption on back of left thumb. Drives a garbage-cart and bruised his hand while shoveling garbage.

CASE IV.—Female, aged thirty. Scratched her hand twelve days ago while cleaning crabs. Hand was painful same night, but eruption came later. Eruption located around root of thumb, and is painful.

CASE V.—Female, aged twenty-six. Duration three weeks. Cut left hand while slicing raw meat. This was followed in two days by a circumscribed, itching erythema of palm and back of hand.

CASE VI.—Female, aged forty-five. Cut left hand in fold between index and middle finger while peeling vegetables. On the second day after this the eruption appeared. This has circular, well-defined edges, and is paler in the center than at the periphery.

*Herpes.*—There were seven cases of herpes simplex, two of them occurring on the prepuce—*herpes præputialis*. The remainder appeared about the mouth.

The cases of herpes zoster were thirty-four in number, and were distributed as follows:

TABLE IV.

*Cases of Herpes Zoster.*

Zoster facialis.....	5
“ cervico-facialis.....	2
“ cervico-brachialis.....	2
“ collaris.....	2
“ pectoralis.....	16
“ abdominalis.....	4
“ lumbo-femoralis.....	2
“ sacro-femoralis.....	1
Total.....	34

One of the cases of zoster facialis involved the mucous membrane of the mouth. The patient had taken Cayenne pepper for colic, followed by senna and salts, and experienced the next day a burning sensation in the mouth. On the third day the eruption appeared on the right side of the nose, spreading to the cheek, the right eyelids swelling at the same time. When seen by me, seven days afterward, the nose was red and discharging mucus, the right cheek was swollen, and the lacrymal glands occasionally discharging a tear. On the upper and lower lips to the right of the median line, and on the right side of the hard and soft palates, were a number of small, painful ulcers.

A second case is one of double zoster. The patient was a white man, thirty-one years of age, who had been treated by me for syphilis a year before. The grouped vesicles first appeared on the left side of the abdomen, extending down over Scarpa's triangle and on to the pubes. A few hours later another grouped eruption, but of papules instead of vesicles, appeared on the right side over the sacrum, extending down over the great trochanter to the thigh. A mild ointment was used, and the papular eruption of the right side began to yield to treatment and never formed distinct vesicles. The grouping of these lesions, and the erythemato-papular character of the aborted eruption, together with the pain that accompanied it, leave no doubt in my mind that here was a case of double zoster.

TABLE V.

*Ages of Patients with Zoster.*

Under ten years.....	2
Between ten and twenty.....	1
“ twenty and thirty.....	9
“ thirty and forty.....	7
“ forty and fifty.....	4
“ fifty and sixty.....	7
“ sixty and seventy.....	2
“ seventy and eighty.....	2
Total.....	34

*Leprosy.*—Leprosy, like tuberculosis, is a disease which any one is liable to contract, but which must be acquired under certain conditions. Without pausing to give all of my data, let me state that, in my experience, hereditary disease—that is to say, leprosy in one's parents or grandparents—debility from sickness or alcoholism, certain diets, such as meat, and more particularly salt meat, predispose the patient to this baneful disease. Leprosy does not make a

\* *Arch. f. klin. Chirurgie*, 1887, No. 2.

† *Jour. of Cut. and Genito-urinary Dis.*, January, 1888, p. 12.

woman more infertile than any other wasting disease, though it *does* tend to produce miscarriages or very delicate children. Even this rule has its exceptions, for I have seen leprous women with non-leprous children, who were born after the disease was well marked in the mother. Referring to predisposing causes, the following facts, taken from my histories, will give an idea of the character of the infirmity of which the patient and his relatives were subject, each note being taken from a different case: 1. Stunted growth and mind feeble; is eighteen years old and has not menstruated; breasts and púbes undeveloped. 2. Leprosy appeared just after childbirth—two cases. 3. Old age—is seventy-nine years old; stopped menstruating at age of twenty-nine. 4. Imbeciles; two patients, brothers. 5. Followed measles. 6. Hard drinker. 7. Blind from early childhood, and always feeble. 8. Mother insane. 9. Father died of phthisis. 10. Delicate always. 11. Father insane and uncle epileptic. 12. Followed typhoid fever. 13. Brother insane. 14. Had tape-worm when disease began. I have of late become convinced that one of the ways that leprosy is produced is from animal matter introduced into the system in an uncooked or raw condition.\* My reasons for coming to this conclusion are briefly these:

1. History of having eaten *raw* meat.
2. History of intestinal worms, which are frequently produced by the ingestion of imperfectly cooked meat or fish.
3. Fondness of patients for meat, preferring it greatly to vegetables, and eating it in excess of the latter.
4. Occupation of such a character as to make patient liable to inoculation from animal matter: one was a butcher, one was a rag-picker, and a large majority of the women were either cooks or in the habit of cooking their own meals.

The eighty-three cases here reported were all, with the exception of three, observed in New Orleans, and the patients were residents of the State.† Seventy were white and thirteen were colored; forty-nine were male and thirty-four female. The following tables will illustrate the age and nativity in the cases recorded:

TABLE VI.

*Ages of Leprosy Patients.*

Under ten years .....	2
Between ten and twenty .....	15
"    twenty and thirty .....	26
"    thirty and forty .....	10
"    forty and fifty .....	12
"    fifty and sixty .....	8
"    sixty and seventy .....	8
"    seventy and eighty .....	1
"    eighty and ninety .....	1
Total .....	83

TABLE VII.

*Nativity of Leprosy Patients.*

Louisiana....	}	New Orleans.....	39
		Elsewhere in the State.....	18

\* See communication from the writer in the *Journal of the Leprosy Investigation Committee*, No. 2, February, 1891, p. 97.

† Forty-two cases of leprosy observed by the writer were reported in the *New Orleans Medical and Surgical Journal*, September-October, 1888. Since then forty-one cases more have been observed, making the eighty-three cases of this report.

Other States.	}	Missouri.....	1
		Tennessee.....	1
		New York.....	1
		Virginia.....	2
Foreign.....	}	Alabama.....	1
		Germany.....	12
		France.....	1
		England.....	1
		Austria.....	1
	}	Ireland.....	4
		Spain.....	1
Total.....		83	

The two patients under ten years old were aged six and nine, respectively. I have never seen the cutaneous lesions of leprosy on a new-born baby. Leprosy produces a marked dyscrasia, but the disease, so far as I am aware, is not inherited in the sense that syphilis is, for example.

It will be seen from Table VII that fifty-seven of my patients were natives of Louisiana and that six were natives of other States, making a total of sixty-three born in the United States. Twenty were born in foreign countries, a large majority coming from Germany.

My records do not give the birthplaces of the parents of all the leprosy patients, but such notes as I have show that twenty-seven of the patients recorded as having been born in the United States had either one or both parents of *foreign birth*.

*Lichen Scrofulosorum.*—The only case of this disease observed is of such interest that it can not be passed over, as it combined the ulcerative scrofuloderm with the papular eruption of lichen scrofulosorum. It is natural that these two affections, due to a common cause, should be found in the same patient, though as a rule this is not the case.

The patient was a white woman, a prostitute, and entered the Charity Hospital on March 8, 1891, with a history of having had considerable flooding three years ago, after an abortion had been produced upon her while she was in the third month of gestation. This left her very weak and anæmic. Her father and mother had both died of consumption, the latter having had the disease only three months.

In August, 1890, the patient had chills and fever with headache, and, on recovering from the attack, her feet were swollen. In the beginning of November she took a hot bath, after which purplish spots appeared over the epigastrium and rapidly spread all over the body, becoming more numerous and deeper in color about the menstrual period.

In the latter part of November the glands on the left side of the neck began to swell, followed in January by the glands on the right side.

On admission to the hospital she was very thin and pale, and presented on the neck, behind the angle of the jaws and an inch and a half below the ears, a swelling from enlarged lymphatic glands, which was covered by bluish-red patches of skin three fourths of an inch wide and two inches and a half long. The outline of the red patches was irregular, and had none of the characteristics of the syphilide. The patch on the left side was open, discharging a purulent liquid. Besides these patches, there was a papular eruption all over the body, except the head and hands, which consisted of minute red papules in small groups, each group being about half an inch in diameter, its outer papules blending it somewhat with adjacent groups; but

this grouping was quite distinct. The eruption was deeper and thicker on the legs below the knees. It did not itch. A close examination of the lesions showed that some of the papules were raised and acuminate and covered with fine scales, while others were flat, some seeming to be slightly below the level of the skin and probably undergoing involution. Those on the legs, if observed alone, might easily have been mistaken for purpura simplex.

This case was under observation about twelve weeks, and during this time the eruption faded or grew deeper several times, owing to the absence or presence of the menstrual flow. The ulcerated glands in the neck were removed under chloroform by Dr. J. D. Bloom, and the glands sent to the pathologist of the hospital, but I have never heard whether or not the bacillus of tuberculosis was found. Erysipelas set in and retarded recovery from the operation, but when this had passed off the patient improved rapidly, leaving the hospital much better, though not yet cured.

*Lupus*.—Two varieties of this disease are generally recognized—*lupus erythematosus* and *lupus vulgaris*—though I must confess that I have never seen very much resemblance between them beyond the fact that both are circumscribed lesions occurring usually on the face.

Four cases of erythematous lupus were treated by me, three of the patients being white and one colored, while two were males and two females. The location in all of them was the face. All but one yielded readily to the curette, followed by a pyrogallie-acid ointment. The one that did not yield would improve for a time and relapse, looking as badly as before.

Of the patients with *lupus vulgaris*, which is now generally recognized as a form of tuberculosis of the skin, one was white and three were colored.

Three of these cases were of the warty variety—*lupus verrucosus*. One consisted of a well-defined patch on the back of the left hand in a mulatto aged twenty-eight years.

The second case was that of a white man aged thirty-two. The papillomatous growth appeared as large, ringed patches on the legs below the knees. These rings spread entirely around the legs, meeting in the rear, leaving the centers smooth, hard, and mottled in color, causing the growth to present the appearance called by French writers *lupus scléreux*.

The third case presented exactly the same appearance as the second, except that it was in a colored boy and located on the face and neck.\* None of my cases were ulcerative—*i. e.*, the so-called *lupus exedens*, a name which is very confusing, as persons afflicted with the ulcerative syphilitic of the nose, or with epithelioma of that organ, have been sent to me more than once as having *lupus exedens*.

*Pediculosis*.—This disease, due to one of the three varieties of pediculi or lice—namely, the *Pediculus capitis*, *Pediculus corporis*, and *Pediculus pubis*—is found usually in filthy and unkempt persons, and frequently is accompanied by an extensive dermatitis or artificial eczema. Sometimes, however, very cleanly persons may be afflicted with these little pests, as in a case of a young lady observed by me, who had considerable irritation of the eyelids after having re-

mained two days on a sleeping-car. An examination with a magnifying glass, and afterward with the naked eye, disclosed the presence of large numbers of the *Pediculus pubis* adhering to the lashes near the eye.

Another case was that of a young lady who was constantly troubled with very itchy erythematous patches on the back of the neck and shoulders. I was able after a long examination to discover a few nits, or ova, in the hair, and cured the disease with antiparasitics. After some months she returned to me with the same trouble, which she had acquired on returning to her room after a summer spent elsewhere. The majority of my cases of pediculosis capitis were in females, probably on account of the greater length of the hair in women and the greater amount of shelter thereby afforded the insect, while the majority of my cases of pediculosis corporis were in men.

The skin of the negro is not so tempting to the pediculus as that of the white man, and the two negroes recorded as afflicted with this disease were half white. I have never seen a case of pediculosis capitis in the genuine African, and believe that these people have an immunity to some extent from the disease. The ninety-two cases of pediculosis observed constitute 4.6 per cent. of the cases recorded.

*Pompholyx*.—Though only two cases of this disease were observed, it is my desire to record one of them for comparison with the cases of dysidrosis already considered.

Mr. J. H., aged forty-seven, consulted me February 7, 1887. Patient had an iliac abscess opening at Poupart's ligament. He had been afflicted with this about eighteen months and greatly weakened by it. Eleven years ago an eruption appeared in the spring-time at the tips of the first three fingers of each hand, and continued to come at this season for four successive years, lasting twenty or thirty days each time. During succeeding years the eruption spread to the other digits, and finally to the palms. When the eruption is present it makes him exceedingly nervous in his already weak condition, and he has resorted to large poultices to relieve the intensity of the itching. When observed by me his hands were swollen and covered with vesicles and blebs, the former being sunk deep into the skin and resembling sago grains. They were located chiefly on the tips of the fingers and the outer edges of the palms, while on the palms and on the finger joints nearest the palms were large, loose blebs filled with a sero-purulent fluid which the patient was at the moment busily removing. A few blebs and vesicles were on the back of the hands. I ascertained that during the past year the eruption had come at irregular intervals, appearing every three or four months and lasting from two to six weeks. It was evident, then, that the debility produced by the abscess had aggravated the eruption. A salve composed of salicylic acid, carbolic acid, and diachylon ointment was used, giving great relief, and in two weeks the eruption had passed away, leaving a smooth, red, scaling surface. During the two years that ensued the eruption appeared some eight or ten times, always relieved by the ointment. Finally it disappeared, and has not troubled him since, though the abscess is not yet cured.

*Pruritus*.—This affection, consisting of cutaneous itching without eruption, was found in fifty-seven white and four colored patients, while the sexes were nearly equally divided. In many of these cases torpidity of the liver was doubtless the exciting cause, as they were relieved by small doses of calomel.

\* This patient reacted strongly to a subcutaneous injection of *tuberculin*. See *New Orleans Medical and Surgical Journal*, June, 1891.

It is a well-known fact that jaundice produces itching, but there are certain cases of intense itching not accompanied by this symptom and in which malaria seems to be the exciting cause. This variety of pruritus may occur in patients whose chills and fever have been broken for some time, or in others in whom the malarial poison lies dormant; but the rule is for a cure to be effected by large doses of quinine. I have treated nine cases of this character, and others of doubtful origin, and have been in the habit of describing this disease to classes of students as *pruritus malarie*.

*Psoriasis*.—None of the thirty-seven patients with psoriasis were negroes. Twenty-five were males and twelve were females. All the varieties of psoriasis were represented in these cases save the *p. annulata*, the *lepra* of Willan. Nothing special was observed with reference to this disease save its utter rebelliousness to arsenic, a remedy supposed by some to be a specific in psoriasis.

Psoriasis constituted 1.8 per cent. of the total number of cases recorded.

*Scabies*.—Out of one hundred and ten cases of scabies recorded, one hundred and four were in white persons. Eighty-four were in males and twenty-five in females. Scabies, though due to an animal parasite, was found in a much more refined class of people than pediculosis. This disease constituted 5.9 per cent. of the diseases observed.

*Syphiloderma*.—In private practice the early and late lesions of syphilis were about equally divided, but at the hospital nearly all were late manifestations, the early ones being relegated to the venereal wards.

Of the two hundred and fifty-nine cases recorded, two hundred and thirty-six were in white persons. One hundred and sixty-three were in males and ninety-six in females. Syphilis constituted 12.8 per cent. of the total number of cases recorded. Three cases of chancre of the lip were observed, in two the lesion being located on the lower lip, and in the third case upon the upper and lower lip—a double chancre. A case of chancre of the cheek was treated. The lesion was about two inches in front of the right ear, and was regarded by me for nearly a week as a furuncle which had not "pointed." On making an incision into it a small amount of pus exuded from a honey-combed tissue exactly like that found in carbuncle. In the mean time the neighboring glands had become swollen and indurated, exciting my suspicion, when I ascertained that the patient, who was a lady of refinement, had wiped upon a towel several weeks before which had been used by a gentleman visiting her house, who had had some sort of skin disease. In due time the eruption appeared, confirming my tardy diagnosis.

*Tinea*.—Only one case of *tinea favosa*, or favus, was observed. It was in a Jewish girl, eleven years of age, born of Sicilian parents.

Fifty-eight cases of *tinea trichophytina*, or ringworm, were observed—nine being ringworm of the beard; seven, ringworm of the scalp; seventeen, ringworm of the body and face (*tinea circinata*); and twenty-five, ringworm of the pubes and thighs (*eczema marginatum*). This latter, in sev-

eral cases, extended as far down as the foot, and in others spread on to the abdomen and the axillary region.

Thirty-nine males and nineteen females were afflicted with this disease.

Ringworm constituted 2.86 per cent. of the cases of disease here reported.

There were twenty-six males and ten females affected by *tinea versicolor*. This eruption in the negro is of a lighter hue than that of the skin.

## LONGEVITY OF THE TUBERCLE BACILLUS.

A CONVENIENT AND RAPID METHOD OF COLORING THE ORGANISM.  
THE EFFECTS OF SOME OF THE STRONGER ANTISEPTICS  
ON ITS CHEMICAL DECOMPOSITION.\*

BY HENRY HEIMAN, M. D.,  
PHYSICIAN TO THE OUT-DOOR DEPARTMENT OF MOUNT SINAI HOSPITAL.

It is not my purpose to present to you an exhaustive paper on the tubercle bacillus. Voluminous literature has been published from a bacteriological, hygienic, and, of late, especially from a therapeutical standpoint. It is my purpose to present to you a few observations regarding—

1. The length of time which this bacillus may be exposed to ordinary temperatures outside the body without losing its staining possibilities.

2. Concerning the most rapid and convenient method of staining.

3. The effects of some of the stronger disinfectants on the tubercle bacillus.

The duration of my labors dates back to January 15, 1891. In the month of March, 1891,† a similar paper was published by Dr. A. K. Stone, of Boston. My paper may seem to you a repetition, or at least a corroboration, of his painstaking and competent labor. My work was, however, done in my office and without the aid of a properly appointed laboratory. Being many times questioned as to the possibility of staining specimens days, weeks, or months exposed, I could give no positive answer. The different coloring agents which I used for staining I shall hereafter mention.

In order to give you a more rapid and comprehensive way to look over the numerous examinations made as to the length of time we are enabled to color the tubercle bacillus, as given to us for examination, and thus exposed to ordinary room temperature, I have deemed it appropriate to tabulate my work.

In viewing the result which I have obtained, you will at first be impressed with the fact that in no single instance have I failed to find the tubercle bacillus after having once determined its presence. Moreover, your attention will be called to the varying number of bacilli found in some of the same specimens. In order not to discuss the last question at great length, I can only say that we can advance numerous theories to account for this variation, the one most plausible to my mind being the drying process of the sputum, forcing out its watery constituents, and leaving be-

\* Read before the Harlem Medical Association, October 7, 1891.

† *American Journal of the Medical Sciences*, March, 1891.

NUMBER OF BACILLI FOUND.

Specimen No. 1.			Specimen No. 2.			Specimen No. 3.			Specimen No. 4.			Specimen No. 5.			Specimen No. 6.			Specimen No. 7.			Specimen No. 8.		
1891.			1891.			1891.			1891.			1891.			1891.			1891.			1891.		
1.	Jan. 17	b	Jan. 15	b	Jan. 20	e	Jan. 25	e	Jan. 26	e	Jan. 26	b	Jan. 26	b	Jan. 29	b	Jan. 29	b	Jan. 31	b	Jan. 31	b	
2.	" 20	b	" 17	e	" 22	e	" 26	e	" 26	e	" 29	e	" 29	b	Feb. 2	b	Feb. 2	b	Feb. 1	b	Feb. 1	b	
3.	" 22	b	" 20	e	" 26	e	" 28	e	" 29	e	Feb. 2	e	Feb. 2	a	" 3	e	" 3	e	" 4	b	" 4	b	
4.	" 26	b	" 22	c, e	" 26	e	" 28	e	Feb. 2	e	" 5	e	" 5	a	" 6	b	" 6	b	" 7	c	" 7	c	
5.	" 28	e	" 26	e	" 31	b	" 31	b	" 5	e	" 8	b	" 8	a	" 9	b	" 9	b	" 10	b	" 10	b	
6.	" 31	e	" 28	e	Feb. 3	b	" 6	b	" 8	e	" 11	e	" 11	e	" 12	b	" 12	b	" 13	b	" 13	b	
7.	Feb. 3	b	" 31	b	" 6	b	" 11	e	" 14	b	" 14	b	" 14	e	" 16	b	" 16	b	" 16	b	" 16	b	
8.	" 6	b	Feb. 3	b	" 9	b	" 14	e	" 17	e	" 17	e	" 17	a, f	" 18	a	" 18	a	" 19	e	" 19	e	
9.	" 9	b	" 6	b	" 12	b	" 17	e	" 20	e	" 20	e	" 20	a, f	" 21	b	" 21	b	" 22	b	" 22	b	
10.	" 12	b	" 9	b	" 16	b	" 20	e	" 23	e	" 23	e	" 23	a	" 24	a	" 24	a	" 25	b	" 25	b	
11.	" 16	b	" 12	b	" 18	b	" 23	e	" 26	e	" 26	e	" 26	e	" 28	e	" 28	e	" 28	b	" 28	b	
12.	" 18	b	" 16	b	" 21	b	" 26	e	Mar. 1	e	Mar. 1	e	Mar. 1	e	Mar. 2	b	Mar. 2	b	Mar. 3	b	Mar. 3	b	
13.	" 21	b	" 18	b	" 24	b	Mar. 1	e	" 4	e	" 4	e	Mar. 1	a	" 5	b	" 5	b	" 6	b	" 6	b	
14.	" 24	b	" 21	b	" 27	b	" 4	e	" 7	e	" 7	e	" 4	a	" 8	b	" 8	b	" 9	b	" 9	b	
15.	" 27	b	" 24	e	Mar. 2	b	" 7	e	" 10	e	" 10	e	" 7	a	" 11	b	" 11	b	" 12	b	" 12	b	
16.	Mar. 2	b	" 27	e	" 5	b	" 10	e	" 13	e	" 13	e	" 10	a	" 14	b	" 14	b	" 15	e	" 15	e	
17.	" 5	b	Mar. 2	e, c, f	" 8	e	" 13	e	" 16	e	" 16	e	" 13	e	" 18	b	" 18	b	" 18	b	" 18	b	
18.	" 8	b	" 5	e, c, f	" 11	e	" 16	e	" 19	e	" 19	e	" 16	e	" 20	b	" 20	b	" 21	b	" 21	b	
19.	" 11	b	" 8	e	" 14	e	" 19	e	" 22	e	" 22	e	" 19	b	" 23	b	" 23	b	" 24	b	" 24	b	
20.	" 14	b	" 11	e	" 18	e	" 26	e	" 26	e	" 26	e	" 22	b	" 27	b	" 27	b	" 28	b	" 28	b	
21.	" 18	b	" 14	e	" 20	e	" 26	e	" 29	e	" 29	e	" 26	b	" 31	b	" 31	b	April 1	b	April 1	b	
22.	" 20	b	" 18	e	" 23	e	" 29	e	April 2	e	April 2	e	" 29	b	April 3	b, e	April 3	b, e	" 4	b	" 4	b	
23.	" 23	b	" 20	b	" 27	e	April 2	e	" 5	e	April 2	e	" 5	e	" 7	e	" 7	e	" 8	e	" 8	e	
24.	" 27	b	" 23	e	" 31	e	" 5	e	" 9	e	" 9	e	" 5	b	" 10	e	" 10	e	" 11	e	" 11	e	
25.	" 30	b	" 27	e	April 3	b	" 9	e	" 12	e	" 12	e	" 9	b	" 13	e	" 13	e	" 15	e	" 15	e	
26.	April 3	a	" 30	e	" 7	b	" 12	e	" 16	e	" 16	e	" 12	b	" 17	e	" 17	e	" 19	e	" 19	e	
27.	" 7	b	April 3	e	" 10	b	" 16	e	" 20	e	" 20	e	" 16	b	" 22	e	" 22	e	" 23	e	" 23	e	
28.	" 10	b	" 7	e	" 13	b	" 20	e	" 26	e	" 26	e	" 20	b	" 26	b	" 26	b	" 26	b	" 26	b	
29.	" 13	b	" 10	e	" 17	e	" 26	e	.....	...	.....	...	" 26	b	Sept. 1	a	Sept. 1	a	Sept. 1	a	Sept. 1	a	
30.	" 17	e	" 13	e	" 22	b	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	
31.	" 22	b	" 17	e	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	
32.	Sept. 1	e	" 22	b	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	

Specimen No. 9.			Specimen No. 10.			Specimen No. 11.			Specimen No. 12.			Specimen No. 13.			Specimen No. 14.			Specimen No. 15. Non-tubercular.		
1891.			1891.			1891.			1891.			1891.			1891.			1891.		
1.	Feb. 1	e	Feb. 1	e	Feb. 1	e	Feb. 6	a	Feb. 19	e	Mar. 5	b	April 7	d						
2.	" 4	e	" 4	e	" 4	e	" 8	b	" 23	e	" 8	e	" 19	d						
3.	" 7	e	" 7	e	" 7	e	" 11	b	" 11	e	" 11	e								
4.	" 10	b, c	" 10	e	" 10	e	" 14	b	Mar. 1	c, e	" 14	e								
5.	" 13	e	" 13	e	" 13	e	" 17	b	" 4	e, e	" 18	b								
6.	" 16	b	" 16	e	" 16	b	" 20	b	" 7	c, e	" 20	b								
7.	" 19	e	" 19	e, e	" 19	e	" 23	e	" 10	e	" 23	e								
8.	" 22	e	" 22	e	" 22	e	" 26	b	" 13	e	" 27	e								
9.	" 25	e	" 25	e	" 25	e	Mar. 1	b	" 16	e	" 31	b								
10.	" 28	e	" 28	e	" 28	e	" 4	b	" 19	e	April 3	e								
11.	Mar. 3	e	Mar. 3	e	Mar. 3	e	" 7	e	" 22	e	" 7	e								
12.	" 6	e	" 6	e	" 6	e, e	" 10	e	" 26	e	" 10	e								
13.	" 9	e	" 9	e	" 9	e	" 13	e	" 29	e	" 13	e								
14.	" 12	e	" 12	e	" 12	e	" 16	e	April 2	e	" 17	e								
15.	" 15	e	" 15	e	" 15	e	" 19	e	" 5	e	" 22	b								
16.	" 18	e	" 18	e, f	" 18	e	" 22	e	" 9	e	Sept. 1	b								
17.	" 21	e	" 21	e	" 21	e	" 26	e	" 12	e										
18.	" 24	e	" 24	e	" 24	e	" 29	e	" 16	e										
19.	" 28	e	" 28	e	" 28	e	April 2	e	" 20	e										
20.	April 1	e	April 1	e	April 1	e	" 5	e	" 26	e										
21.	" 4	e	" 4	e	" 4	e	" 9	e												
22.	" 8	e	" 8	e	" 8	e	" 12	e												
23.	" 11	e	" 11	e	" 11	e	" 16	e												
24.	" 15	e	" 15	e	" 15	e	" 20	b												
25.	" 19	e	" 19	e	" 19	e	" 26	e												
26.	" 23	e	" 23	e	" 23	e														

a, great number; b, considerable number; c, few in number; d, none; e, broken appearance; f, in nests.

hind as sediment the solid materials, including the tubercle bacilli. Their number on that account varies in an inverse ratio to the bulk of the sputum left and also to the mechanical means employed in selecting the sputum to be spread upon the slide. In the supernatant fluid I have not been able to find any tubercle bacilli.

We must also consider that the constant decrease of tubercle bacilli in some of the specimens is entirely due to the continuous withdrawal of tubercular material and also because tubercle bacilli only grow or multiply at blood

temperature, and in more favorable culture media than ordinary expectorations. The oldest specimen, which I first stained successfully on March 5, 1891, has been in possession of Dr. E. Friedenbergs for more than a year, and still after twenty months have elapsed I have found tubercle bacilli each time in sixteen examinations. Now, in order to rule out the possibility of tubercle bacilli having fallen into my phials, I have kept non-tubercular sputum amidst all the tubercular ones, one bottle even uncovered, but after repeated examinations have not been

able to find any tubercle bacilli in the control bottles. As far as finding the tubercle bacilli in the sputum of non-tubercular patients, I have also in the specimens which I have examined obtained a negative result. This work, however, has been fully studied by Koch\* in his master-work, and by Fraentzel and Balmer† and Ziehl,‡ who have also, after numerous examinations, been unable to detect the tubercle bacillus in the sputum of non-tubercular patients. The finding of *living virulent germs* even in dry sputum after such length of time, as Dr. Stone has shown, I consider a most important practical point. Cornet,§ by his numerous experiments, has vividly and justly called our attention to this matter, especially from a hygienic standpoint—the importance of preventing the spread of tuberculosis by simply placing water in the cuspidors. We can only conclude, from the results obtained, that the tubercle bacilli under ordinary environments retain a longevity similar to the other bacteria, due to their true spore formation. I have seen Koch demonstrate a pure culture of anthrax bacilli still retaining their virulency after eighteen years.

As regards the changes undergone by the tubercle bacilli || in course of time, they seem to me to be that they did not take on the coloring agents as well [Ziehl's solution], and that they appear of a more brownish color. To determine the presence of the tubercle bacillus in local tuberculosis, I have examined the discharges of forty cases, including joint disease, cold abscesses, and scrofulous glands. Eighty specimens were prepared. Only in one—that coming from a cervical (cheesy) gland—I have found the germ. I firmly believe in their presence in all the other aforesaid affections. Koch ^ mentions three cases of freshly extirpated scrofulous glands, in two of which the tubercle bacillus was found. Out of four cases of tubercular joint disease, its presence was detected in two. It is a well known and recognized fact that we rarely find them in pus, but generally in cheesy concretions. Dr. Kanzler ¶ reports thirty-one cases of scrofulous glands, finding the tubercle bacillus fourteen times in two hundred and thirteen prepared slides. Thirteen cases of bone tuberculosis with eight positive results.

Concerning the most convenient and rapid method of staining the tubercle bacillus, I shall not describe the various methods known, or those which I have employed. Suffice it to say, Koch's,‡ Ehrlich's,§ Biedert's,¶ and Gram's\*\* were used for some of my specimens. For over four hundred of them, however, I have employed Friedländer's method, as described by Dr. M. Manges,†† and, on account of its simplicity, I was prompted to undertake this labor. Its application insures cleanliness, rapidity, efficiency, and little

expense. Methylene blue is used as the differential coloring. I, however, substitute malachite green, because of its property of coloring the specimen more intensely and quickly, at the same time differentiating the red colored bacillus as well as is done by the methylene blue. The disadvantages of Friedländer's method, however, consist in the manner of spreading the sputum on the slide and the continuous and exposed friction causing it to dry with great rapidity, thus separating numbers of little particles, and in this manner jeopardizing our own respiratory apparatus. Weichselbaum\* has clearly proved that after inhalations of tubercular sputum, tubercles were found in the lungs, also in other organs. May this point be a special warning to those examiners predisposed to tuberculosis. I have stained and examined slides with this method in six minutes' time, especially if the sputum be old. For your convenience I shall briefly quote this excellent method. Special attention I have paid in all my work never to use an old slide. Thus I exclude one possible error. In collecting the sputum in a small wide-mouthed bottle, I have never required the transfer of it into a watch-glass. The solutions used for this method are :

1. *Ziehl's Fuchsine Solution :*

Fuchsiue.....	1·0 ;
Alcohol, 95 per cent. ....	10·0 ;
Sol. acidi carbolici, 5 per cent.....	100·0-

2. *Decolorizing Solution :*

Nitric acid.....	5·0 ;
Alcohol, 95 per cent.....	85·0 ;
Distilled water.....	15·0.

3. *Differential Staining Solution.*—Concentrated aqueous malachite-green solution, prepared by taking an excess of malachite green ; add to distilled water, allow it to stand for two days, then filter.

Now clean the slide ; sterilize it by passing slowly through flame. With a sterilized platinum hook select sputum and spread it in the center of the slide to the size of a one-cent piece until dry. As slides require longer to become heated, pass them through a flame quickly ten to twenty times add with a pipette fifteen to twenty drops of Ziehl's solution, which amount protects the separated particles. Allow this solution to act about five minutes, then hold the slide with swaying movements over a small alcoholic or Bunsen flame until the specimen steams ; wash off with water, and dry with filter paper. Now add the decolorizing solution, to act on it about thirty seconds, or rather until all the red color disappears. Wash off and dry again with filter paper. Finally cover with a few drops of the concentrated aqueous malachite-green solution for about five to ten seconds. Wash off and dry with filter paper. The specimen is now made ready for examination by placing one drop of cedar oil on it. For permanency first add one drop of Canada balsam and a cover glass. In the beginning this method may appear discouraging, but after a few trials a pretty even surface of the sputum on slide will be obtained. On this our success depends.

As to the effects of some of the stronger disinfectants

\* *Berliner klinische Wochenschrift*, No. 15, 1882.

† *Ibid.*, No. 45, 1882.

‡ *Deutsche medizinische Wochenschrift*, No. 4, 1883.

\* *Berliner klinische Wochenschrift*, 1889, No. 12.

|| Leitz ocular I, oil immersion,  $\frac{1}{12}$  ; Abbé's condenser.

^ *Berliner klinische Wochenschrift*, 1882, No. 15.

¶ *Ibid.*, 1884, Nos. 2 and 3.

‡ *Ibid.*, 1882, No. 15.

‡ *Ibid.*, 1883, No. 1.

¶ *Virchow's Archiv*, 1884, B. 98, p. 91.

\*\* *Fortschritte der Medizin*, 1884, No. 2, p. 185.

†† *Medical Record*, November 22, 1891.

\* *Wiener medizinische Presse*, 1883, p. 1574.

on the tubercle bacillus, I must confess that my experiments were few and partly unfinished, because of the disadvantages under which I had to labor. To carry out this work properly, one must make biological experiments, and direct inoculation of animals, for which a complete laboratory is essential. I have confined myself only to the use of some of the stronger disinfectants, and their action on the tubercle bacillus, as far as the microscope reveals to us. Koch \* has already shown that the tubercular sputum, even in a dry state, after two to four or eight weeks, still retains its virulence, but finally the organisms die or become transformed into spores, and then lose their coloring property. The cadaver will certainly take on coloring agents up to the time it becomes chemically decomposed, which I believe to be able to demonstrate to you in cases of the disinfectants I have used. A five-per-cent. carbolic solution does not destroy them chemically, for we employ it in our Ziehl's solution. On that account I have employed a ten-per-cent. carbol-glycerin solution, with the result of staining the tubercle bacillus. Schiller and Fischer, † in their experiments with disinfectants, have proved by inoculations that tubercle bacilli were killed by a three-per-cent. carbolic solution in twenty hours. A. Yersin, ‡ a French observer, reports having killed them after heating for ten minutes up to 70° C. Pampukes, § in Athens, heated them up to 120° C., obtaining the same results, though still taking on the coloring agents. I applied sublimate solutions (1 to 1,000 and 1 to 500), and after either solutions, well mixed with tubercular sputum, I have been enabled to color the tubercle bacillus. Their resistance to such great heat and rather strong disinfectants indicates to us the kind of disinfectants we ought to employ in order to destroy them chemically.

As the last and strongest disinfectant, I applied chlorine solutions—twenty-five per cent., fifty per cent., and in a concentrated form. In none of the specimens, after the use of these strong solutions, have I been able to determine the presence of the tubercle bacillus, nor other organized elements of sputum. Notwithstanding the disagreeable and pungent odor of chlorine, it certainly bears to-day the name of one of our most efficient disinfectants for such dangerous germs.

May the publication of this paper be especially of some aid to the general practitioner, who may be far distant from his colleague who is practicing clinical microscopy. The physician can instruct his patient to expectorate directly into a small, sterilized, wide-mouthed bottle, with a cotton-covered cork. It is best to collect the first sputum raised in the morning, as in day-time the large amount of mucus formed dilutes the specimen. In this manner sending it for examination, the same result will be obtained as if examining the sputum directly after expectoration. To Dr. B. Stiefel I must extend my sincere gratitude for his able assistance in this work.

220 EAST ONE HUNDRED AND SIXTEENTH STREET.

\* *Berliner klinische Wochenschrift*, 1882, No. 15.

† *Central für Bakteriologie und Parasitenkunde*.

‡ *Ibid.*, iii, No. 18.

§ *Ibid.*, 1891, ix, No. 139.

## PRIMARY RHEUMATIC ENDOCARDITIS WITH ERYTHEMA NODOSUM.

By C. G. CHADDOCK, M. D.,

TRAVERSE CITY, MICH.,

ASSISTANT MEDICAL SUPERINTENDENT OF THE NORTHERN MICHIGAN ASYLUM;  
FELLOW OF THE CHICAGO ACADEMY OF MEDICINE.

THE following case presents several features of interest and importance with reference to diagnosis, and it shows a distinct relation between rheumatism and erythema nodosum that is not sufficiently appreciated:

On October 4, 1891, W. P., a young man aged eighteen, consulted me concerning a cough that had troubled him for nearly two weeks. I was thoroughly acquainted with his previous health and habits, as well as with the fact that he was working in a basement where light and ventilation were bad. Some weeks before, a sister, six years older than himself, had died of pulmonary phthisis. On September 27th, a week before I saw him, his lungs were examined by a colleague, who found the breath-sounds of the right apex equivocal, and was inclined to fear incipient phthisis. In the week before he came to me he had lost nine pounds in weight. When I examined his lungs I found the condition that had been described to me by my colleague. The heart-sounds were without murmurs; there may have been accentuation of the pulmonary second sound at that time, but I failed to discover it. The apex-beat was in a normal position, and the superficial cardiac dullness was not increased. The pulse was full and regular at 80. During the examination he coughed frequently, but there was no expectoration and had been none. His subjective symptoms were a general feeling of malaise, indefinite pains through the chest, shortness of breath, annoying thirst, and chills at times followed by what seemed to him mild fever. For more than two weeks he had had night-sweats. According to his statement, his illness had begun on the night of September 21st, when he woke up to find himself perspiring very freely. He was never in better health than just before this illness.

Temperature on the evening of October 4th, 101° F. A diagnosis of incipient phthisis seemed all but justified, and prescriptions with this view were made.

The patient had been working up to that time. Rest was enjoined. The temperature reached 102° F. the following evening, and on the evening of the 6th it was 103° F.: and examination of heart at that time revealed a soft systolic murmur at the apex, with accentuation of the second sound of the pulmonary valve. The following morning the murmur was again heard. The thought that this murmur was hæmic did not seem entirely satisfactory, and rheumatic endocarditis suggested itself as its cause. The suspicion of rheumatism led to careful examination of joints, and revealed no anomalies; but on the front of each leg were found six spots of erythema nodosum, which varied in size from a quarter to half an inch in diameter. These spots were excessively painful on pressure. The patient had noticed them the day before, but had failed to speak of them, owing to the fact that they caused him no pain save when he touched them. This discovery, with the systolic mitral murmur, led to the diagnosis of rheumatism, and the treatment recommended by Dr. Latham \* was undertaken. The diet was restricted, and seventy-six grains of salicylic acid were given during the afternoon. The result of this was an evening fall of temperature to 98° F., and a slowing of the pulse to 64, while all tenderness of the spots of erythema was removed. Slight hebetude was also induced. There was annoying breathlessness on attempting to rise in bed, and absolute rest was enjoined.

\* *Lancet*, 1886, vol. i, p. 818.

October 8th.—Temperature at 8.30 p. m., 98° F.; pulse, 56, with hesitancy of the beat. Thirteen grains of salicylic acid during the day. Cough less troublesome.

9th.—Right ankle very painful; some swelling and great tenderness over front of joint. Temperature rose to 102.4° F. at 6 p. m. Seventeen grains of salicylic acid during the day. The cardiac murmur was very distinct at apex and there was marked reduplication and accentuation of the pulmonary second sound, the reduplication of second sound being heard also at apex. It was evident that the left ventricle was undergoing hypertrophy. The apex-beat had reached the mammillary line in the fifth interspace, and the heaving could be seen in both the fourth and fifth interspaces. The cardiac dullness had increased, but there was no dullness to the right of the sternum. The spots of erythema were still distinctly red, but were only slightly tender.

10th.—Both shoulders and both elbows stiff and tender. One tender spot of erythema nodosum over middle of spine of right scapula. Several similar spots on back of neck; one back of left ear. Several red herpetic spots on left side of neck; all tender on pressure. Reduplication of second sound at apex no longer heard. Temperature reached 104° F. Pulse, 72, with slight irregularity and some hesitancy of beat. Thirty grains of salicylic acid during the day. The temperature chart shows the subsequent events of fever and pulse.

From October 11th, forty grains of salicylic acid were taken daily until the 15th, when the amount was increased to fifty grains; and this daily dose was continued until the 23d, when it was reduced to thirty grains. This dose was continued until the 26th, when it was reduced to twenty grains, and finally discontinued on the 30th.

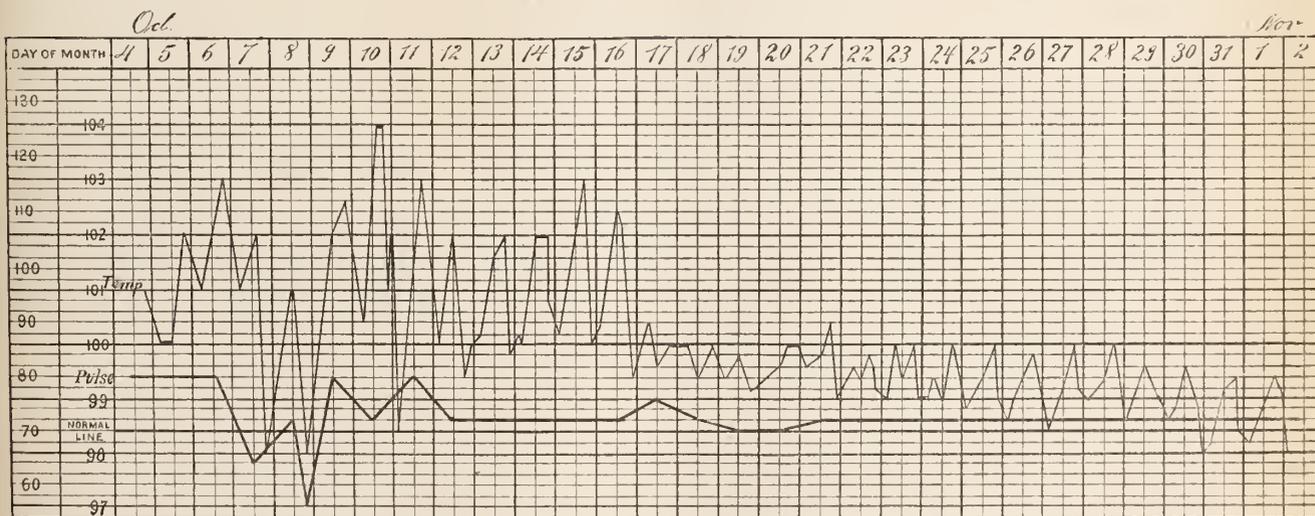
During treatment the bowels were moved almost daily with calomel and salines. The tenderness of shoulder and elbow joints disappeared on the 12th, but the ankle continued painful until the 26th. On the 22d it is noted that the erythema is gone, save for a few spots on back of neck. There was some desquamation of the spots on the neck. There were two spots on the dorsal surface of left hand half an inch in diameter that were herpetic in character. Sweating occurred occasionally at night during the illness.

may be seen in the fourth, fifth, and sixth interspaces. No dullness to the right of sternum. Pulse regular, full, and strong at 72. During the last two weeks of the illness there was no cough.

It should be added that there is a strong hereditary predisposition to rheumatism. On both the father's and mother's side there is rheumatism, and the patient's brother passed through a severe attack.

The actual duration of the disease was forty two days, but the symptoms were not such as to induce the patient to consult a physician, though several were immediately at his service, until a week had elapsed, and then actual treatment was postponed for a week more, owing to uncertainty of diagnosis. The symptom that was earliest to appear and most troublesome was dry cough, and this was due to pulmonary congestion, not to incipient phthisis. When the diagnosis of endocarditis was made there was no other evidence to support it than the mitral insufficiency with fever. At no time were there any subjective cardiac symptoms; at no time was the cardiac rhythm seriously altered. The discovery of erythema nodosum, occupying its favorite seat, made it seem, with the strong existing predisposition, almost certain that the malady was of a rheumatic nature, and salicylic acid was given. The medicine altered the condition of the erythema at once, but it did not prevent the development of the joint affection, though the joints involved were never so much affected as to cause the patient suffering. With the advent of these symptoms there could no longer be any doubt about the correctness of the diagnosis.

In this case the erythema nodosum developed subsequently to the endocarditis, but before the joint affection, and it formed a prominent feature of the disease. It was not due to the acid, for it was present before that medicine was exhibited; but it was affected by it—made less painful. Those spots that developed during the exhibition of the acid were less painful than the first eruption had been, and showed a herpetic tendency with ultimate desquamation. Certainly, erythema nodosum should be assigned a place in



27th.—The temperature reached normal without medicine (antifebrine had occasionally been given), and on November 2d there was an absence of fever.

Condition of the heart on November 1st: Soft mitral regurgitant murmur heard at apex; second pulmonary sound much accentuated; apex-beat in fifth intercostal space half an inch outside mammillary line. The heart-beat is very diffuse and

the symptomatology of rheumatism; even one case like this goes far to confirm the conclusions reached by Mackenzie\* in his study of the relations of rheumatism, cardiac disease, and erythema nodosum.

\* Dr. Stephen Mackenzie. Erythema Nodosum. A paper read before the Clinical Society of London, April 9, 1886.

It is noteworthy that large doses of salicylic acid, with its decided antipyretic influence, had no other effect on the heart than to reduce the number of the beats. It does not seem that the acid exerted any effect on the duration of the fever, but it certainly made the symptoms of the disease, usually so insufferable, quite endurable.

The marked prolongation of the fever after it had ceased to rise above 100° F. is remarkable, and, in the absence of any other explanation, may be ascribed to the continuance of an inflammatory condition of the endocardium. The patient is now convalescent and shows but slight etiolation, though he lost sixteen pounds in weight.

## ON THE OPERATIVE TREATMENT OF DIVERGENT STRABISMUS.\*

BY EMIL GRUENING, M. D.

ABSOLUTE divergent strabismus is so often associated with high degrees of myopia, with anisometropia, or with monolateral amblyopia, that these conditions are regarded as causative in the development of the muscular anomaly in question. Not infrequently, however, this very form of squint is observed in persons whose two eyes are emmetropic and equal in vision. In divergent strabismus the range of motility is normal; both in the squinting eye and its fellow the inner edge of the cornea touches the caruncle upon extreme adduction, and the outer edge of the cornea the outer canthus upon extreme abduction. The power of accommodative convergence is lost. In some cases the degree of divergence changes with the position of the object, the deviation being more pronounced in distant than in near vision. There is no tendency to use both retinae for the binocular act of vision for any position of the object.

These characteristic features are pointed out here because, for the purpose of this paper, it is necessary to exclude on the one hand the various forms of periodic divergence, and on the other hand all forms of divergence known as secondary, parietic, and paralytic.

The latter go to make up separate classes of deviation, are recognizable by limitation of motility inward, and require for their correction the operation of advancement. The ordinary divergent squint, on the contrary, shows no limitation of motility and can be corrected by simple tenotomy of both recti externi muscles. In many of our recent text-books of ophthalmology the various forms of divergent squint and the operative methods applicable to their relief are somewhat commingled. As a consequence of this intermixture of classes and measures, the following proposition is induced: "Tenotomy of the recti externi muscles generally proves insufficient for the correction of absolute divergent strabismus." Yet the reverse is true. If by absolute divergent strabismus the so-called concomitant divergent strabismus is understood, the proposition should read: "Tenotomy of the recti externi muscles, with the addition of

an adducting suture, generally proves sufficient for the correction of divergent strabismus.

In the past ten years I have practiced this operation with the greatest satisfaction in all my cases of absolute divergent squint, and of many I possess a detailed record. Some of them remained under observation a number of years—a sufficiently long time to permit me to say that the favorable results were not only immediate, but also permanent. It is now almost forty years since Albrecht von Graefe wrote that the precautionary measures so essential in tenotomy of the rectus internus did not apply to the rectus externus, inasmuch as a free division of the conjunctiva over the externus and of the muscle itself could cause neither an unsightly recession of the caruncle nor a vexatious limitation of motility. These considerations guide me, and in my operations the conjunctiva is freely incised and the whole extent of the tendon and its insertion exposed. Both recti externi are operated upon at one sitting. In cases of divergence of not more than two millimetres the tendons are divided at their points of insertion. Whenever the deviation measures more than two millimetres, the tendons are divided at a distance from their insertions, the distance corresponding to the degree of squint.

Thus, in a case of divergence where the measurement by corneal reflex, according to Hirschberg, showed a deviation of five millimetres, both tendons were divided at that distance from their points of insertion. The tendinous stumps are not removed. The conjunctival wounds are closed by a few interrupted sutures placed horizontally. A silk thread is passed through the conjunctiva over both interni muscles in a line with the horizontal meridian of the cornea and tied over a pledget of cotton on the bridge of the nose. The eyes are thus coupled in a position of strong convergence which is maintained twenty-four hours. A binocular bandage may be applied; it relieves the discomfort caused by the suture.

CONCLUSIONS.—(a) The operation here described yields better results in cases of absolute divergent strabismus than advancement.

(b) It is a simpler operation.

(c) In advancement the graduation of the effect is impossible.

(d) In tenotomy of the externi, the shortening of the muscles in accordance with the degree of squint, though practiced empirically at present, suggests the possibility of attaining mathematical exactitude in the graduation of the effect.

## ON TANNATE OF MERCURY.\*

BY S. LUSTGARTEN, M. D.

I HAVE to express my thanks for the opportunity extended to me of giving my views in this learned society concerning the subject upon which Dr. Allen has dwelt in so elaborate a manner. This opportunity is so much

\* Read before the American Ophthalmological Society at its twenty-seventh annual meeting.

\* Read before the Section in Genito-urinary Diseases of the New York Academy of Medicine, December 10, 1891, in the discussion of Dr. Charles W. Allen's paper on the same subject.

more welcome as, since I first brought the tannate of mercury before the profession, in 1884,\* I have not communicated until now my further experiences with this preparation. In spite of the latter circumstance, the tannate has now many friends, although a marked predilection in some countries for the hypodermic treatment has not been favorable to more extensive and unprejudiced trials of internal methods in the treatment of syphilis. To the list of authors who speak favorably of the preparation in question I could add several more—such as Campana, Doruig, Epstein, Lane, Monti, Zeisler. Furthermore, the *hydrargyrum tannicum oxydulatum* was made about three years ago an official preparation of the Austrian Pharmacopœia.

What gives this preparation a remarkable position is its peculiar chemical reactions. As it is not acted upon by dilute acids, it will pass the normal stomach without any symptoms whatever. As soon as, in the duodenum, the reaction changes to an alkaline one, it is reduced to exceedingly small globules of metallic mercury—so small that a direct absorption in this state, by the *villi* of the small intestines, is imaginable. That is the reason why, in my original publication, in discussing this point, I ventured the expression, “*internal inunction.*” It is indeed highly probable that the chemical process, which finally brings about the solution of mercury and its entrance into the circulation, is the same with the metallic globules of the gray ointment in the skin and the reduced particles of mercury of the tannate in the intestines. That would account for the satisfactory therapeutic action and for the freedom from irritation of the latter. Although, in a small minority of cases, irritation of the bowels has been recorded, it is still generally admitted that the salt in question is a comparatively mild and non-irritating one.

I have proved the presence of mercury in the urine within twenty-four hours after the administration of the tannate. In an elaborate series of quantitative examinations of the urine in different mercurial treatments, Winternitz † has found the largest amounts after injections with insoluble mercurial compounds, and the smallest after internal treatment, among others, with the tannate. Inasmuch as the internal medication shares the same fate with the inunctions, which I, with many others, think to be, if properly applied, the most energetic treatment, these interesting experiments prove once more that theoretical views are not always in accordance with the facts derived from practical observations.

There are two methods for the manufacture of the tannate of mercury—a wet and a dry process. The former one, which I used myself in my first experiments, consists in precipitating a concentrated solution of tannic acid by freshly prepared oxydulated nitrate of mercury, dissolved in water, and drying the precipitate at a low temperature. The second consists in rubbing together tannic acid and oxydulated nitrate of mercury, washing and drying. The more expensive wet process gives, as wet processes in general do, a preferable preparation, consisting in an impalpable powder, free from nitric acid, which guarantees a quicker and more complete absorption. Such a preparation, manufactured by G. Hell & Co., Troppau, Austria, is mostly used in Austria. The French tannate is prepared in a similar manner, while Merck's drug is obtained by the dry process.

My experience extends to about three hundred cases. It would take too much time to develop my views concerning the treatment of syphilis, so I shall confine myself to describing the rôle which the tannate plays. I am an adherent of a modified intermittent treatment. In this treatment, in order to bring about the most favorable results, it is of the greatest importance that the first treatment after the appearance of the secondary eruption be as energetic as possible, and, if practicable, it always ought to be a course of thirty to forty inunctions. The subsequent treatment consists in the administration, for one month at a time, of three to five grains daily of tannate of mercury, with increasing intervals of from one to three months.

The tannate has also given me very satisfactory results in the recurrent forms of the secondary stage and in the tertiary stages, where iodide of potassium can be given, if the precaution be taken to leave an interval of several hours between the alternating doses—*e. g.*, in the morning a dose of potassium, three hours afterward the tannate, six hours later another dose of potassium, and before retiring a second dose of the tannate.

The daily dose for adults begins with three grains, and if this is well borne and it be found necessary, it can be increased to five grains or even more. One course of treatment consists of 100 to 150 grains.

The daily dose for adults begins with three grains, and if this is well borne and it be found necessary, it can be increased to five grains or even more. One course of treatment consists of 100 to 150 grains.

In a healthy state of the digestive tract—and only in this case should mercury be given internally—I have never observed symptoms on the part of the stomach, which is only natural, as the tannate, as above stated, does not, in all probability, undergo any change in its acid contents. With regard to the bowels, it is in a minority of cases apt to produce two or three soft passages a day, which is often desirable; in the majority of cases it does not interfere at all. Certain dietetic precautions ought, of course, to be taken, especially with persons given to diarrhœa—such as refraining from fresh fruit, beer, white wine, etc. For years I have refrained from combining with this treatment even the slight doses of opium formerly employed, as the continued use of this drug has seemed undesirable.

I have never had a bad case of stomatitis, as this preparation has no cumulative qualities and as I have watched the mouth carefully and stopped the use of the tannate for a while, upon the slightest appearance of irritation, until these symptoms had disappeared. This is a great advantage of the tannate, especially over the injections of insoluble compounds of mercury with their treacherous stomatitis and other dangerous possibilities. I use the latter only where for some reason the other methods are not applicable or where delay is dangerous, as in syphilis of the nervous system, where it is desired to bring a large quantity of mercury into the circulation at short notice.

The tannate has given me excellent results in the treat-

\* *Wiener med. Wochens.*, 1848.

† *Arch. für Derm. und Syph.*, 1889, 6. Heft.

ment of children in hereditary as well as in acquired forms. I have prescribed in these cases a third of a grain two to four times a day, to be taken in a teaspoon with milk—if feasible, mother's milk.

The formula which I have generally used with adults is the following:

℞ Hydrarg. tannic. oxydulat. . . . . gr. jss. ;  
 Acid. tannic., }  
 Sacch. lactis, } . . . . . āā gr. ¾.

M. F. in pulv. sive in capsul. gelatin.

Sig.: One twice or three times a day.

In America I have used largely, in private practice, the one-grain soluble pills manufactured by W. H. Schieffelin & Co., and have reason to be satisfied with the results.

In dispensary practice, for the sake of economy, I have used the one-grain compressed tablets made by John Wyeth & Brother. Tablet triturates can not be used, as water is necessary for their preparation, which causes chemical decomposition in a short time.

In conclusion, I wish to state that, in my hands, the tannate of mercury has proved a very efficacious and valuable preparation of mercury, comparatively free from unpleasant accompanying symptoms, and I should be loath to dispense with it in the treatment of syphilis.

15 EAST SIXTY-SECOND STREET.

AMPUTATION OF THE VAGINAL PORTION OF THE CERVIX UTERI IN CASES OF SUSPECTED CARCINOMA.\*

BY ANDREW F. CURRIER, M. D.,  
 NEW YORK.

PERHAPS it would be better to say *provisional amputation*, or "exploratory excision," as Müller styled it in a paper written in 1884 (*Ann. de la Soc. de méd. d'Anvers*, 1884, xlv, 235), the idea being that the operation is to be performed to enable one to complete a diagnosis which is incomplete and unsatisfactory without it. The object of the operation is also to avoid the alternative of removing the entire uterus and finding that the carcinoma was only a suspicion existing in the mind of the operator, which certainly does not magnify the wisdom or judgment of the latter and leaves the patient unnecessarily mutilated, even if she escapes with her life. As has already been intimated, the idea is not a new one, but I am not aware that the operation has been practiced to any considerable extent for the purpose of verifying a diagnosis of carcinoma of the vaginal portion. It is suggested because of the inconclusive results which so often attend the examination of scrapings from the endometrium, and even of small portions of the cervical tissue itself. If a segment of tissue large enough and long enough to reveal the vital condition in the entire length and breadth of the vaginal portion is removed from any except very large organs, in which case amputation or trachelorrhaphy will frequently be indicated whether there

is malignant disease or not, the resulting wound will quite destroy the symmetry and usefulness of the organ and may necessitate amputation, which might better have been determined upon at the outset. With the entire vaginal portion removed, we are in a position to study the extent of the disease, if disease exists, to decide with a greater degree of certainty, by the preparation of many sections, if necessary, as to the virulence of the disease, and either to interfere no further surgically or to perform hysterectomy if the conditions warrant such an operation. To a certain extent the proposition is analogous to that which is meeting with no little approval among general surgeons—namely, to precede resection of the intestine by colotomy.

The position which I take is entirely in harmony with the view which I have held and expressed for years, that upon early diagnosis must we mainly depend for the successful surgical treatment of malignant disease of the uterus. This point can not be too often repeated or too strongly emphasized, and the gynæcologist can not insist too vigorously that the general practitioner should seek advice whenever he finds a patient suffering with a stubborn erosion or ulcer of the mucous membrane of the vaginal portion or with hæmorrhage from the endometrium for which he can not satisfactorily account. But this position is aside from the question of precision in diagnosis, which in many cases will only be attained by the performance of the exploratory or provisional operation to which I have alluded. Excluded from consideration at the present time are all those cases in which the existence of malignant disease is so unmistakable, both clinically and microscopically, that no time need be lost in provisional procedures. For such I would advocate, as I have done for years, the immediate total removal of the uterus and its diseased surroundings, or the palliative operation with scissors, curette, caustic, and cautery, if radical removal is impossible. Two motives have influenced me to the discussion of this subject in a brief paper. The first is that, in common with many other gynæcologists, I frequently see cases which make me suspicious of the presence of malignant disease of the vaginal portion of the cervix uteri. As already stated, the examination of scrapings and bits of tissue in such cases is often very inconclusive, and upon such evidence one should hesitate to recommend to a woman the dangers of a grave operation, the resulting mutilation and deformity, and the interference with important functions. The second is that operations have been performed, uteri and adnexa removed, only to find that there was no serious disease present in the organs. Naturally enough, the history of such cases is never published in all its details, the specimens are seldom shown at our society meetings, and he would be a very courageous or a very ignorant man who would run the gantlet of the criticism which the presentation of such specimens would call forth. But there is no man so acute in his judgment or so skillful in his operative work that he can afford to ignore the lesson which such experiences, real or potential, teach—namely, that careful diagnosis is at the bottom of all good work in the field which is under consideration.

\* Read before the Medical Society of the State of New York at its eighty-sixth annual meeting.

Among the conditions which render diagnosis difficult with reference to the presence or absence of malignant disease of the vaginal portion may be mentioned the following:

1. Endometritis, with or without hæmorrhage from the interior of the uterus.
2. Hyperplasia, with or without fissure of the os and endometritis.
3. Erosions, ulcers, and glandular disease.

In other words, the conditions which must always call for careful attention in connection with disease of the vaginal portion are hæmorrhage, infiltration, and ulceration, and the conditions which are kindred to or suggestive of them.

I. Endometritis is a comprehensive term. In its ordinary acceptance, in which there is merely a catarrhal condition of the endometrium, it does not excite apprehension of any serious pathological disturbance. It is the most common of all the disorders of the endometrium; there are few women who have experienced the pregnant state who do not suffer with it, and I am satisfied that we frequently attach greater importance to it than is warranted by the actual condition of affairs. But if the condition is one of active inflammation, with a constant discharge of pus, or of pus mingled with blood, it is neither simple nor harmless, and calls for serious investigation as to its cause and the proper means for its relief. It may be entirely unaccompanied by pain. There may or may not be a certain degree of debility resulting from the discharge. But in any case the endometrium should be thoroughly curetted, the tissue being scraped away to the submucous tissue, and the scrapings carefully examined. As has already been stated, such an examination frequently shows us nothing but the evidence of an inflammatory process, or it may leave us in doubt whether there is not also the existence of a neoplasm. If after the lapse of a few weeks there is no evidence of improvement, the discharges of pus, blood, and epithelium continuing, we are justified as the next step in the treatment in amputating the vaginal portion, which will yield us material for determining with greater certainty as to the extent of the disease, and we can then decide whether all necessary operative procedures have been adopted, or whether we should take steps of a more radical character and remove the entire uterus. If the disease proves to be purely inflammatory, or is very limited in its extent as a malignant process, no harm will have been done, the uterus will still be enabled to perform its customary functions, and we will have been placed on our guard for subsequent developments. I have known of cases of this kind which have retained their suspicious, semi-malignant character for years which have been held in check by curetting performed at sufficiently frequent intervals, and which have never enabled one to say with certainty that there was sufficient severity of the symptoms to warrant complete removal of the uterus. I have had cases in which the vaginal portion was amputated and in which the microscope showed that the malignant disease was limited to an area well below the plane of section. Of course one must not ignore the fact that the corporeal endometrium may be the seat of disease simultaneously with that of the cervix, perhaps even

to a greater extent than the latter. Such cases unquestionably require the radical operation, and our investigation should not be limited to any one portion of the organ in determining the extent to which it is the subject of a disease process. The endometritis with hæmorrhage which results from abortion, retroflexion of the uterus, and the presence of submucous myomata has not infrequently given rise to the suspicion of malignant disease of the vaginal portion. I have seen illustrations of all these conditions in which such a suspicion was aroused.

II. Hyperplasia of the vaginal portion may be suggestive of the infiltration which accompanies malignant disease. I have seen such a suspicious condition in both nulliparous and parous women. The mucous membrane may be smooth and apparently healthy and the endometrium show nothing abnormal or only a slight catarrhal condition, and yet the unusual size of the vaginal portion suggests the possibility of a neoplastic process. I can recall such a case in a nulliparous woman in which the vaginal portion was amputated more than three years ago, nothing more than an excess of connective tissue being found in the specimen. The body of the uterus is still very large, the patient continues to suffer with dysmenorrhœa, and it is yet undecided whether she is afflicted with a slowly progressing interstitial inflammation or with an adenoma which may yet require radical measures.

In the cases in which there is not only enormous increase in the size and density of the vaginal portion but fissure of the os as well, with eversion of the endometrium, and possibly endometritis and hæmorrhage, the suspicion of malignant disease is often a reasonable one. It is this class of cases, in which the nutrition is so perverted, that suggested to the mind of Emmet years ago the possibility of the development of carcinoma upon such a foundation. I believe that with these conditions such a development frequently does occur. At any rate, amputation should be performed and the diagnosis can then be determined. Amputation, in my experience, is preferable in such cases to Emmet's operation, for though the latter would enable one to obtain a sufficient quantity of tissue for careful microscopic investigation, the depraved character of the tissue is not conducive to good union in case the wounded surfaces are brought together by a plastic operation. Of course this remark applies only to the cases in which the vaginal portion is very large, the fissuring very extensive, and the density of the tissue excessive.

III. Erosions, ulcers, and glandular disease of the vaginal portion are frequently mistaken for malignant disease, but in many cases amputation will not be necessary to complete the diagnosis.

Erosions are sufficiently common, may include only a narrow circle of mucous membrane immediately contiguous to the os uteri, or may present a much more extensive area. The typical erosion, of benign character, is simply an accumulation of granulation tissue, which bleeds easily, like all granulation tissue, is never of spontaneous origin, and frequently disappears when the exciting cause is removed. In the great majority of cases it is caused by the discharge which accompanies endometritis, whether that be pus, blood-

or mucus, and whether the endometritis be the consequence of an abortion, an intra-uterine tumor, or some other lesion of the endometrium. It is occasionally of traumatic origin, as in cases in which coitus has been violent, or in which a large and heavy vaginal portion has rested upon the floor of the vagina and the epithelium has been rubbed off by the movements of the patient. The free hemorrhage which so often accompanies it, with the enlargement of the vaginal portion, which is also frequently present, should excite suspicion. If there is an endometritis or an intra-uterine tumor, the latter should be removed if possible, curetting should be performed, and the latter operation should include the careful scraping away of the granulation tissue forming the erosion. I have seen suspicious cases satisfactorily cleared up by such treatment and the diagnosis of benign disease determined; but if the eroded tissue absolutely refuses to heal, amputation of the vaginal portion will be indicated as the next procedure. Ulceration of the vaginal portion, apart from that which occurs in well-marked cases of malignant disease, may be traumatic, syphilitic, or chancreoidal, rodent and papillomatous. The traumatic ulcer may be the result and extension of erosion, it may follow an œdematous condition of the vaginal portion, to which condition I called the attention of the profession in a paper presented to the American Gynecological Society in 1889, or it may be the result of violence from various causes. The syphilitic or chancreoidal ulcer is not of frequent occurrence and should depend for diagnosis upon the data by which venereal sores are identified in other locations. The papillomatous ulcer, or *papilloma verrucosum*, was described by Heitzmann in 1887 (*Allgemeine Wiener medicinische Zeitung*, 1887, xxxii, 596). He had seen four cases—three in multiparæ and one in a nullipara—which subsequently became malignant and required extirpation of the uterus. He describes it as beginning as a small hypertrophic development upon the mucous membrane, usually upon the anterior lip, which may be as large as a lentil or a chestnut. It may become eroded or ulcerated and bleed freely. Its structure is papillomatous, with new glandular formation, and at the border of the erosion there may be groups of epithelial cells in nests, as in epithelioma. It may develop into epithelioma, but perhaps not until years have elapsed. The rodent or corroding ulcer of the vaginal portion was described by John and Charles Clarke, and is also a rare form of ulceration. John Williams has described three cases (*Transactions of the Obstetrical Society of London*, 1885, p. 60), and a paper upon the same subject has more recently been contributed by Browicz (*Centbl. für Gynäkologie*, 1888, p. 94). This disease is quite suggestive of lupus, may continue for years, and may terminate in carcinoma. One of Williams's patients was under observation ten years, the second died from paralysis nine years after the discovery of the ulcer, and in the third the cervix and vagina were nearly destroyed by the ulcerative process, and the fatal issue was probably influenced thereby. Browicz found no traces of carcinoma in his investigations, nor did Williams in either of his cases, but the number is too small to be considered as an argument against the development of carcinoma with this

condition. The rodent ulcer is seen almost solely among the aged, with whom degenerative changes take place slowly. As this condition upon the exterior of the body may degenerate or develop into carcinoma, I see no reason for thinking that the same result may not occur upon the vaginal portion of the cervix uteri. For this condition, therefore, as well as for all other forms of ulceration which refuse to heal after treatment for a sufficient length of time with astringent and stimulating applications, amputation is indicated, not only for its diagnostic but also for its probable curative value.

I have referred to glandular disease of the vaginal portion as leading to uncertainty concerning the presence or absence of malignant disease, because nearly or quite all the subject of erosions and ulceration of the os uteri is referred by Ruge and Veit to the new formation of glandular tissue. Included also are the retention cysts and follicles of the vaginal portion as a part of the same process. Ruge and Veit see in this condition not only one which is very suspicious, but one which it is often impossible to differentiate from carcinoma. The carefulness with which their investigations were made and the closeness of their reasoning compel respect, though clinical experience may not always harmonize with their conclusions. I believe, however, that their investigations would amply justify the proposition which I have suggested—to perform amputation in all cases in which the diagnosis is doubtful. I have said that stimulating and astringent applications were sometimes indicated before resorting to amputation. There is a degree of uncertainty as to the result in such treatment. It is impossible to foretell the degree of tissue irritation which will be caused by contact with a powerful astringent or caustic. I have seen cases in which the application of powerful solutions of chloride of zinc seemed to stimulate a malignant growth to increased activity. Spanton recently reported (*British Gynecological Journal*, 1890, vi, 70) a case in which nitric acid was applied to a supposed syphilitic ulcer of the vaginal portion, the patient being at the same time subjected to constitutional treatment. The ulcer healed, but in six months another appeared upon the same situation, and examination of the excised tissue revealed its malignancy. In the discussion of Spanton's paper Inglis Parsons stated that many cases were on record (unfortunately, none were referred to) in which cancer had formed upon the site of syphilitic lesions. On the same occasion Fenwick reported a case in which there was a supposed syphilitic erosion of the vaginal portion. It disappeared in two weeks without treatment, but three months later there was a malignant growth of the cervix and vagina.

It may be asked why this operation is proposed rather than the high amputation of the cervix, which was so earnestly advocated by Schröder. The reply, which is a reiteration of what has already been said, is that this operation is proposed chiefly for diagnostic purposes; incidentally it will be curative in a certain proportion of cases.

Schröder believed that carcinoma of the vaginal portion usually remained limited to the cervix, and hence consistently and logically performed high amputation in such cases, while hysterectomy was reserved for those in which

the body or the supravaginal cervix were involved. (See Winter. *Zeitschrift für Geburtshülfe und Gynäkologie*, xxxii, 1, p. 196.)

There is probably a field for the supravaginal amputation, though I doubt if it is as extensive as is believed by Hofmeier, Winter, and others of Schröder's followers; but this is not entirely german to the question under discussion. The same may be said of an indication for amputation of the vaginal portion, which occasionally occurs in the coexistence of carcinoma with pregnancy. The supravaginal operation is manifestly inadmissible, while the other operation can usually be done without great danger to mother or child. Interesting cases of this character have been recorded by Ashton (*Maryland Medical Journal*, 1887, xviii, p. 77) and Godson (*Transactions of the Obstetrical Society of London*, 1884, xxv, p. 18). Concerning the method of performing the operation I have nothing new to offer. It is a simple operation, and I have usually performed it with curved scissors and a tenaculum or volsella. In cases in which the tissue is very dense a knife is preferable to scissors. The circumstances connected with each individual case will determine whether it is better to cauterize the wounded surface of the uterus, to allow it to granulate, or to cover it with the contiguous mucous membrane of the vagina.

159 EAST THIRTY-SEVENTH STREET.

**The Study of Cancer.**—"Professor Adamkiewicz, of Cracow, who has been making researches on the aetiology and treatment of cancer, which he thinks likely to lead to important practical results, recently applied to the Austrian Minister of Education for permission to pursue his investigations in a larger clinical field than he can command at Cracow. The minister has placed the material in the First Surgical Clinic of the Vienna General Hospital at his disposal for the purpose during the next winter semester."—*Boston Medical and Surgical Journal*.

**Glycerin for Burns.**—"According to Dr. Grigorescu, of Bucharest, glycerin is a perfect and lasting analgesic in the case of burns. Applied at once to the burned surface, it occasions at the instant of application a slight feeling of burning, followed by complete relief from pain. Where the wound is large it should be kept constantly moist with glycerin. By means of this application inflammation is almost entirely avoided, and sloughing takes place gradually, leaving a much less marked scar than is the case with ordinary dressings."—*Druggists' Circular and Chemical Gazette*.

**The Society of Medical Jurisprudence.**—At the next meeting, on Monday evening, the 14th inst., Dr. William A. Hammond, of Washington, is to read a paper on A New Substitute for Capital Punishment and Means for preventing the Propagation of Criminals.

**Honorary Degrees.**—The *Lancet* announces that the senate of the University of St. Andrew's has resolved to confer the honorary degree of LL. D. on Professor Michael Foster, M. D., of Cambridge, and Professor George McLeod, M. D., of Glasgow.

**The Medico-chirurgical College of Philadelphia.**—The chair of obstetrics has become vacant by the resignation of Dr. E. E. Montgomery, who will hereafter devote himself entirely to the chair of gynecology.

**The Annals of Surgery.**—It is announced that this journal is henceforth to be published in Philadelphia, by the University of Pennsylvania Press. It will still be edited by Dr. Lewis S. Pilcher, of Brooklyn.

**The St. Louis College of Physicians and Surgeons** will hold its annual commencement exercises on Monday, the 14th inst.

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THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE.

ON the general question of the advisability of extending governmental aid to medical education we do not feel called upon to express an opinion. We do feel at liberty, however, to say that, once the Government has entered upon an undertaking that is designed to further that purpose, it should not weaken its efforts. These remarks are called forth by a proposition now before Congress to reduce the annual appropriation for the Library of the Surgeon-General's Office from ten thousand dollars to five thousand.

The library has for many years been widely known as one of the leading medical libraries of the world, and its management has been in such competent hands that it has proved of material usefulness to the whole medical profession, as well as to the medical corps of the army. Primarily, of course, the object of the library, as well as that of the Army Medical Museum, is to strengthen the resources of the medical officers of the army. If incidentally it at the same time benefits the whole medical profession, it does it at no additional cost; and, since the medical corps of the army is recruited from physicians in civil life, it goes without saying that the higher we can make the standard of attainments among the profession at large, the better will be the quality of the material on which the army can draw for the care of its sick and wounded.

All this is well known to thoughtful and well-informed persons, and it is to be hoped that our national legislators need only have their attention drawn to these considerations to lead them to lay aside all thought of crippling so beneficent an institution as the library by reducing an appropriation that is already none too large. Surely, in view of the country's prosperity, no requirement of economy calls for such a course.

PROGRESSIVE UNILATERAL ATROPHY OF THE FACE.

This is a rare disease, beginning early in life and occurring more frequently among women than among men. An instance of this disorder was first recorded by Parry in 1825, but the singular abnormality only received attention after it had been described by Romberg thirty years later. The disease has followed acute rheumatism, erysipelas, and syphilis, and appeared in persons hereditarily predisposed to tuberculosis. In one very remarkable case the affection began after an attack of scarlet fever with diphtheria at the age of six, and an attack of typhoid fever many years after was followed by distinct atrophy of the other side. Gowers gives as a fact in the history of one case the existence of the same trouble in an aunt of the patient's. With the exception of deformity and impaired motility

of the month, the condition causes little or no inconvenience, and though the prognosis as regards cure is unfavorable, it does not shorten life.

The most striking symptom is the obvious deformity. In well-marked cases the diagnosis presents no difficulties. But when the atrophy is but slight, the affection may possibly be confounded with facial paralysis, progressive muscular atrophy affecting the facial muscles, unilateral hypertrophy of the face, congenital asymmetry of the face and head, and central lesions, such as tumors at the base of the brain involving the fifth nerve. The chief points in the diagnosis are the slow and insidious onset, the chronic and progressive course, and the unilateral character of the atrophy, that in the majority of cases is sharply limited to the area of distribution of the fifth nerve, together with the fact that the skin and subcutaneous fat are the tissues most affected. When the disease appears before the skeleton is fully developed, the bones also are involved. Even in cases of later manifestation the bones probably undergo some change. The tongue on the affected side is often atrophied. White patches of morphaea may appear in the skin, and are by some considered the earliest visible change. More frequently, however, when the disease comes under observation, the skin presents a mottled appearance, owing to yellow or brown pigmentary deposits. Sometimes there is the glossy condition characteristic of trophic nerve disturbance. Anidrosis of the diseased region is not uncommon. The hair on the affected side may change color, become thinner, or fall out in places. The pupils are equal. Subjective sensations—such as pain, tingling, and burning—occasionally exist, but cutaneous anaesthesia or hyperaesthesia is rarely present. The sight, hearing, and smell are normal. Alterations in the sense of taste are exceptional. The electrical reactions in typical unilateral atrophy of the face present no distinctive changes, although there is diminution in some cases.

The subject is considered at length in the latest fasciculus of Bramwell's *Atlas of Clinical Medicine*. Local injury to the face or head seems in certain instances to have been the exciting cause. Mr. Jonathan Hutchinson's view is that facial unilateral atrophy is "nothing more than the arrest of growth following fifth-nerve morphaea." Clinical facts support the theory that it is a nerve lesion involving the trophic nerve fibers or cells of the fifth nerve. There is also some evidence in favor of a central origin. Mendel's post-mortem examination in the case reported by Virchow, in which the skin and muscles of the upper extremity were also affected, revealed the fact that, notwithstanding the distinct wasting of the facial muscles as the result of a simple atrophy, the facial nerve was healthy. The fifth nerve was diseased in all its peripheral branches, especially the second, and was affected with an interstitial neuritis. There was no change in the motor and sensory ganglia, though the descending root of the nerve within the medulla oblongata was atrophied. During life the sensibility of the skin on the affected side had not been impaired. The radial nerve was the seat of a peripheral interstitial neuritis. The nerve cells in the anterior horn of the spinal cord, at

the level of the origin of the fifth cervical nerve, corresponding to the origin of the radial nerve, were decidedly less numerous on the affected than on the sound side.

Opinions may readily differ in regard to the relative importance of the central and peripheral lesions in this particular case. If the atrophy of the tongue that sometimes exists is due to a nerve lesion, Bramwell very justly observes that it must involve the multipolar cells of the hypoglossal nerve nucleus, or their peripheral prolongations, within the medulla or outside it. In this event, the present view of restricted fifth-nerve lesion as the sole pathological factor will be proved to be unsatisfactory. The nutrition of the muscles of the tongue may possibly be maintained and regulated by nerve cells other than the multipolar nerve cells of the hypoglossal nucleus. In researches on the minute anatomy of the hypoglossal and other nerves of the medulla, Alexander Bruce found groups of small round cells in close connection with the nuclei of the hypoglossal and some of the other motor nerves. These small round cells may have a trophic function. Involvement of any part of the hypoglossal nerve must be determined by future post-mortem observation.

Experimentally, unilateral atrophy of the face has been induced in a dog by Girard (*Revue méd. de la Suisse romande*, 1891), who divided within the skull the sensory root of the fifth nerve, with the following results: Progressive unilateral atrophy of the muscles of mastication and of the bones and tongue on the same side, together with thinning of the skin and asymmetry of the face. From this Girard concludes that the trophic fibers of the trifacial nerve are contained in its sensory root, and that the facial nerve plays no part whatever in progressive unilateral facial atrophy. He also calls attention to two distinct forms of this particular disease—namely, the typical form due to defective power of function of the trophic fibers of the trifacial nerve, and a facial pseudo-trophoneurosis consequent on atrophy induced by paralysis of muscles following motor-nerve disease. In other words, there is a partial unilateral atrophy following neuritis of the facial nerve. This is an interesting and just distinction.

Two very instructive examples of this disease are reported in the *Neurologisches Centralblatt* for 1891, of which one is recorded by Muratow. The patient first sought treatment for clonic spasms in the muscles of mastication on the right side. Afterward the spasms became tonic and bilateral. Atrophy of the right side of the face had preceded the convulsive movements, together with facial asymmetry and thinning of the lips and tongue on the affected side. There was no alteration in the electrical reaction. Antedating the facial atrophy by several years were spots of circumscribed scleroderma (morphaea) on the right side of the face and on the back, which were at first white and the seat of a tingling sensation. Subsequently the sclerosed patches thickened and became yellowish-brown. The second case, Jankan's, occurred in a patient twenty-two years old, hereditarily predisposed to tuberculosis and consequently to chronic inflammations. The condition of unilateral atrophy followed hypertrophic pharyngitis and ozæna. Two

years before the patient's coming under observation there had been white patches on the right side of the face, atrophy, and localized deposits of yellowish pigment. The hair on the affected side had fallen out in spots, and the bone conduction of sound differed materially from that of the healthy side, which would seem to indicate some change in the bones of the skull. The thyroid gland was increased in volume and consistence. The urine was high-colored, and contained an excess of chlorides, indican, and uric acid. The author of the paper states that all three branches of the trigeminus were involved.

In an Italian journal Borgherini gives an account of another interesting and unusual case, manifestly of peripheral origin, occurring in a peasant over sixty years old and coming on after incision of the lacrymal gland to relieve phlegmonous dacryocystitis. This incision was followed by pains and formication about the orbit, together with a sensation of numbness in the skin as far as the right ala of the nose. There were spasms of the muscles of the face and forehead on the right side, also unilateral atrophy and keratitis and subsequently opacity of the cornea. By degrees the disease advanced as far as the lower border of the temporal muscle, involving also the masseter, but remaining limited to the territory supplied by the fifth nerve. In time the pathological process involved certain parts of the left side of the face. The atrophied muscles gave no response to faradism. Direct galvanic excitability was absent in all the muscles supplied by branches of the trifacial nerve. There was the reaction of degeneration on the left side in the muscles of the lips and in the orbicularis palpebralis.

While treatment fails to effect a cure, it is not improbable, Bramwell thinks, that in cases where the process becomes arrested this happy circumstance is due in part to therapeutic measures. The indications are to arrest the atrophic process and to maintain and restore the nutrition of the affected region. All conditions that produce nerve exhaustion should as far as possible be avoided. Nervine tonics are the most valuable, such as arsenic, strychnine, iron, and quinine. Massage of the face should be tried, care being taken to avoid irritation of the skin. The systematic and diligent practice of voluntary movements for a regular stated time each day must be insisted upon. Both forms of the electric current, constant and faradaic, have been employed with apparent benefit. The experiment of resection of the various branches of the trifacial nerve, as far as accessible, is advocated by Dr. F. X. Dercum (*Journal of Mental and Nervous Disease*, February, 1892). The maximum benefit to be derived from interrupting the communication between the trophic center and the peripheral distribution can only be obtained by an early operation, one performed as soon as the ominous white patch that is often the initial change makes its appearance on the cheek. Should the experiment fail, its advocate maintains that little or no harm can result, anesthesia being the only unpleasant consequence, and to this patients readily adapt themselves. The do-nothing plan of treatment is highly reprehensible.

## MINOR PARAGRAPHS.

### STEAM AS AN AGENT IN CAUSING THE SPREAD OF DIPHTHERIA.

In a discussion on diphtheria, published in the *British Medical Journal* for September 19, 1891, Dr. Russell cited several instances in which steam had seemed to be an active factor in the propagation of the disease. Hot water and steam from a brewery were introduced into some old cesspools and evidently wakened into activity germs which, if undisturbed, would have remained dormant. An epidemic of diphtheria soon developed in the vicinity, and was not checked until the steam was turned into other channels, when it quickly ceased. If, as we now believe, the bacillus of diphtheria develops with special rapidity in the presence of warmth and moisture and absence of light, it is not unreasonable to suppose that the introduction of hot water or steam into cesspools or sewers may be a most dangerous procedure. The maintaining of a considerable degree of heat in sewers can certainly not be wise from a hygienic point of view. Yet this condition prevails quite largely in New York, where sewers and water pipes are in many places kept at a continuous high temperature by the close proximity of the pipes of the steam-heating companies. No more favorable medium for the culture of micro-organisms could be found than warm sewage. Given an imperfect trap and a vulnerable mucous membrane, and an attack of diphtheria is almost assured.

### DISEASE OF THE BRAIN FOLLOWING A SIMPLE NASAL OPERATION.

The *Journal of Laryngology, Rhinology, and Otology* gives an abstract of an account of an unfortunate accident described by Wagner in the *Münchener medicinische Wochenschrift*. The author performed a galvano-cauterization of the left turbinated body in a patient twenty years of age, on account of headache. There was no special pain and there was no bleeding. The next day the patient had a severe headache, and on the third day there was hæmorrhage from both nasal cavities. This was treated first with ice water, then by tamponing the anterior and posterior nares. In the evening the patient became feverish, and Cheyne Stokes respiration appeared. The tampons were removed, but the temperature did not fall and symptoms of a severe affection of the brain appeared. Seven days later death occurred. A post-mortem examination was not allowed. The author concludes that the bleeding could not have been the direct consequence of the operation, because it followed some days afterward, and because parts bled which had not been operated on. He believes that thrombosis of a sinus occurred, which disturbed the circulation in the nose. In some other published case operative treatment of the middle turbinated body was followed by meningial disease.

### LEPROPHOBIA IN PHILADELPHIA.

It is stated in the public press that the health officer of Philadelphia, having discovered that a leper had been employed as a cook in a hotel in that city, has recommended that the hotel be closed, the furniture disinfected, the house fumigated, and the proprietor arrested for maintaining a nuisance prejudicial to public health. We are glad to be able to state that the health officer is not a physician, and thus relieve the medical profession of the responsibility for such unscientific and uncalled-for measures. Philadelphia officialism seems to be afflicted with leprophobia, and at any time it might be expected

to declare quarantine against Louisiana because there are a few cases of leprosy in that State.

#### THE INFLUENCE OF THE NERVOUS SYSTEM UPON INFECTION.

OBSERVATIONS by Féré upon this subject are noted in the *Mercure médical* for February 10, 1892. In an earlier communication he had made known the fact that vaccine virus proved more efficacious in paralytics upon the affected than upon the sound side. This is also true in cases of infantile paralysis. Vaccination during the stupor following epilepsy was performed upon all epileptic patients without result, with one exception only.

#### THE DECADENCE OF THE GRADUATION THESIS.

THE *Progrès médical* and the *Gazette des hôpitaux* are favoring the discontinuance of the custom of requiring a graduation thesis from candidates for the Paris medical degree. There is much to be said for and against the requirement. We are under the impression that it was done away with several years ago by the New York College of Physicians and Surgeons, and the action of the school does not seem to have worked to anybody's disadvantage.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 8, 1892:

DISEASES.	Week ending Mar. 1.		Week ending Mar. 8.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	32	4	20	3
Typhoid fever.....	12	13	8	4
Scarlet fever.....	241	35	219	38
Cerebro-spinal meningitis.....	1	2	2	4
Measles.....	339	18	337	21
Diphtheria.....	132	48	119	43
Small-pox.....	4	3	6	1
Erysipelas.....	1	0	0	0
Varicella.....	17	0	12	0
Pertussis.....	1	0	1	0
Mumps.....	0	0	2	0

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from February 28 to March 5, 1892:*

KEAN, JEFFERSON R., Captain and Assistant Surgeon, is relieved from duty at Fort Robinson, Nebraska, and ordered to St. Francis Barracks, Missouri, for duty, not later than March 25, 1892, relieving DAVID L. HUNTINGTON, Major and Surgeon. Major Huntington, upon being relieved by Captain Kean, will proceed to New York city for duty in connection with the Army Medical Board.

WYETH, MARLBOROUGH C., Captain and Assistant Surgeon, is relieved from further duty at Fort McIntosh, Texas, and ordered to Fort Supply, Indian Territory, upon the expiration of his present sick leave of absence.

TAYLOR, MARCUS E., Captain and Assistant Surgeon. Granted leave of absence for six months on surgeon's certificate of disability.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending March 5, 1892:*

BRUSH, GEORGE R., Medical Inspector. Ordered to the Navy Yard, Brooklyn, N. Y.

KERSHNER, EDWARD, Medical Inspector. Detached from the Navy Yard, New York, and ordered to the U. S. Steamer San Francisco.

CLARK, J. H., Medical Inspector. Detached from the U. S. Steamer San Francisco and ordered home.

GIBON, A. L., Medical Director. Detached from the Naval Hospital

and assigned to special duty at New York, attending officers of the Navy and Marine Corps.

SCOFIELD, W. K., Medical Director. Detached from special duty at New York, attending officers of the Navy and Marine Corps, and to wait orders.

BOGERT, E. S., Medical Director. Detached from the Medical Examining Board and ordered to the Naval Hospital, Brooklyn, New York.

DE VALIN, C. M., Assistant Surgeon. Ordered to the Naval Hospital, Norfolk, Va.

#### Society Meetings for the Coming Week:

MONDAY, *March 14th*: New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Lenox Medical and Surgical Society (New York—private); Society of Medical Jurisprudence (New York); Boston Society for Medical Improvement; Gynæcological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

TUESDAY, *March 15th*: New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Medical Society of the County of Kings, N. Y.; Ogdensburgh (N. Y.) Medical Association; Baltimore Academy of Medicine.

WEDNESDAY, *March 16th*: New York Academy of Medicine (Section in Public Health and Hygiene); Northwestern Medical and Surgical Society of New York (private); Harlem Medical Association of the City of New York; Medico legal Society (New York); Medical Society of the County of Allegany (quarterly), N. Y.; New Jersey Academy of Medicine (Newark).

THURSDAY, *March 17th*: New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, *March 18th*: New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynæcological Society.

SATURDAY, *March 19th*: Clinical Society of the New York Post-graduate Medical School and Hospital.

#### Answers to Correspondents

No. 374.—The following comparative analysis is given in Dr. Rotch's article in Keating's *Cyclopædia of Diseases of Children*:

	Human milk.	Cow's milk.
Water.....	87 to 88	86 to 87
Total solids.....	12 to 13	13 to 14
Fat.....	4	4
Albuminoids.....	1	4
Milk sugar.....	7	4.5
Ash.....	0.2	0.7

## Letters to the Editor.

#### INTUBATION IN TUBERCULAR LARYNGITIS.

COLUMBUS, OHIO, *February 29, 1892.*

To the Editor of the *New York Medical Journal*:

SIR: Apropos of Dr. F. E. Hopkins's report of a case of intubation in tubercular laryngitis, in your last issue, I desire to state that in the *Medical Record* of March 8, 1890, I reported a case of intubation for the relief of dyspnoea in tubercular laryngitis. Although, according to Dr. Hopkins's article, I presume I was the first to adopt this method of securing relief, I am merely a general practitioner, not a specialist, and hence did not imagine that I had done anything very wonderful.

J. F. BALDWIN, M.D.

## Proceedings of Societies.

### NEW YORK NEUROLOGICAL SOCIETY.

*Meeting of February 2, 1892.*

The President, Dr. LANDON CARTER GRAY, in the Chair.

**Eachymeningitis and Myelitis.**—Dr. MARY PUTNAM JACOBI read an account of a case of this condition, which had at first been supposed to be due to Pott's disease, but in which a solid tumor had developed against the spine during the last weeks of life, and been diagnosed as sarcoma.

**The Surgical Treatment of Epilepsy.**—Dr. JOSEPH PRICE, of Philadelphia, read a paper in which epilepsy was defined as an apyretic nervous affection characterized by seizures of loss of consciousness with tonic or clonic convulsions. Its history, from a therapeutic standpoint, was one that had taxed the efforts of supreme superstition and defied the resources of scientific medication. Its treatment had been one of trial and disappointment, for it still remained one of the greatest opprobria of medicine. Its attacks were visited upon both sexes, hysteropilepsy for the most part being confined to females. Women were attacked when a marriageable age was reached. Debauchery had frequently led to it. Young widows were prone to attacks, and its origin outside of physical causes might be traced to amorous songs and certain stimulants, such as chocolate and coffee. For its cure various suggestions had been made, among others that of resorting to venery. It had, however, been abundantly proved that excessive lust had produced epilepsy, and was, no doubt, yet to be recognized as a great factor in its causation. That it was transmissible did not admit of dispute any more than that it was caused by traumatism. Operative interference in the traumatic cases, for the removal of the cause, was logical and often successful. The operation of clitoridectomy had brought Baker Brown into disrepute, and yet we had to-day no less a person than Lawson Tait boldly expressing the opinion that there was doubtless a place for the operation. The belief that a moral element must be reached in addition to the physical interference was no doubt justified by the facts. One table that the author had consulted gave as high as 73.7 per cent. of patients cured of masturbation by clitoridectomy. This surely made it not presumptive to favor its recognition. Epilepsy in women appeared to be more fatal than in men. The acquired epileptic habit was more fatal than the congenital. In the congenital form it was twice as fatal, and in the acquired form three to four times as fatal, in women as in men. As to the hereditary nature of the disease, it was sufficiently evident to require that marriage should be discouraged among epileptics. The history of eunuchism as a preventive of epileptic propagation, and also the edicts forbidding the marriage of epileptics, were of interest to the student of law as well as to the theologian and the physician. In the treatment of epilepsy proper there was no doubt that surgery must form an important factor, whether in traumatic cases or for the removal of reflex causes. In entering upon the consideration of the removal of the uterine appendages in women for the cure of epilepsy it was unnecessary to take up in detail the history of castration as practiced upon the male for the same purpose. Suffice it to say that the history of this operation, both from a priestly standpoint and from a carnal or musical standpoint, was often instructive and oftener horrifying. The mortality was often simply terrible, while the practice of mutilating children to preserve their voices for song marked an era of refined religious cruelty scarcely conceivable. So far as the surgery of the disease was concerned, in a general way the operation had the best of the argument. Out of sev-

enty-one cases treated medically, and out of a second series of seventy one treated surgically, statistics showed that by the surgical treatment all were at least benefited, while in the medical series a great proportion showed no effect at all from treatment, and in others the conditions were aggravated. In a general surgical way, then, if the operation was beneficial when the trouble could be directly traced to the ovaries or their diseases, logical deduction would seem to indicate that beneficial results might at least be hoped for. So far as unsexing an epileptic was concerned, the author did not understand how or why there was reason to feel compunction at such a suggestion. He could hardly question the protective value to society, not only of forbidding epileptics to marry, but of rendering them unable to procreate. Wise legislation would of course be needed to prevent abuse, but the essential right of society to protect itself ought not to be questioned. Aside from the actually demonstrable disease, what was to be done in the presence of epilepsy? In the case of an unmarried woman in whom every menstrual period, from the initiation of puberty to the time that she came under the physician's care, was marked by an epileptic seizure, who at other times was entirely free from attacks and showed no tendency to fall into them, who recovered as soon as the period was over, and who had no other demonstrable disease or probable cause of seizures than her monthly irritation, there was little doubt that an operation was justifiable. Unless we could thus pin down the seizures to definite time and cause, the author held that it was wrong to burden surgery with an operation that could not fail to detract from its good name, while it did no possible good to the individual. If ovarian disease was found to be the cause of the epileptic seizures, it was of no use to do a partial removal and expect relief or cure. The effect obtained might be due to either one of two causes: first to the removal of an irritable or diseased organ whose presence stirred up the reflexes into a commotion, or to the excitation by the operation of a different epileptigenous zone. Charcot had laid down as a principle that irritation of one epileptigenous zone might be relieved by irritation of or pressure upon another. Assuming it as a fact that the disease was often a reflex manifestation of a local trouble, it followed that in those cases in which deposits were found as a result of a systemic affection resort should be had to the recognized remedies, and the chances for effecting a cure were equal to those of cases where operative interference was resorted to.

Dr. C. A. HERTER thought it unfortunate that no autopsy had been made in the case reported by Dr. Jacobi, as the diagnosis seemed open to a good deal of speculation. There was apparently no justification for the assumption that two lesions existed, and a single one would explain the symptoms. This lesion might have been one of sarcoma or of tubercular disease, and it would be difficult to determine which.

Dr. W. H. THOMSON disagreed with the last speaker. The chief point of interest was in the fact that there might have been two distinct lesions in the cord, presenting in their symptoms the contrast in the nature of the lesions. It was well known that in the case of tumors pressing upon the cord there was present as a symptom local pain, especially in movement of the parts. Transverse myelitis would present this kind of pain, and, unless it was accompanied by distinct meningitis, there would be no irritation of the nerve roots. Therefore, according to the description, there might have been two conditions of the cord occurring in the same patient. The symptoms developing afterward in the legs were the sequelae of transverse myelitis. Finally, the effect of the presence of a tumor invading and spreading into the tissues was simply pressure at that point.

Dr. B. SACNS doubted if in the majority of cases there was

myelitis associated with the presence of a tumor, though in a tuberculous case this sometimes occurred. Tubercular myelitis was distinguished by being more destructive to the substance of the cord than other forms.

Dr. JACOBI said that the reason for supposing that there was a second lesion differing from the original one was the persistence of the epigastric reflexes. It was presumed that there was a tumor of the cord beginning in the first dorsal vertebra, causing pachymeningitis at that point followed by myelitis.

Dr. H. J. BOLDT, speaking on the subject of Dr. Price's paper, thought that some nervous diseases might be due to menstrual disorders, but they were not numerous. The removal of the uterine annexa was one of the gravest operations in surgery, both in its medical and in its medico-legal aspects. It was most important to select the cases. When absolute pathological conditions were present and treatment had been carried on unsuccessfully by all the methods known to the profession, and when a gross lesion could be discovered to be present in the annexa, the operation was perhaps justifiable and good results might accrue. If the epileptic attacks were restricted to the menstrual period, and it was concluded that the prime cause lay in the annexa, the operation might be resorted to, but little else but bad results were to be expected.

Dr. G. M. HAMMOND thought that two points should be borne in mind—the establishment of the epileptic habit, and the influence of pathological conditions of the uterus and ovaries in producing epilepsy. The fact that operations performed on the brain for the relief of epilepsy when there existed a well-defined lesion were not in the majority of cases followed by cure of the seizures was well known now. The habit persisted, and many of the patients so operated upon had been reported cured too soon. The condition was, in fact, only abated or rendered dormant for a more or less limited period. As to the influence of abnormalities of the genital apparatus in the production of epilepsy, it seemed to the speaker that those of the uterus were more potent than those of the ovaries. Lacerations, malpositions, and inflammations of the uterus were more likely to cause epileptic seizures than irritation of the ovaries. At a time when gynecologists were removing ovaries by the bushel, the speaker had sought to inform himself of some of the results by writing to a number of asylums. The questions put had been as to the cases of melancholia in which operation had been done. He had received a stock of reports. The consensus of opinion was to the effect that epilepsy and insanity had not been relieved by removal of the ovaries. As to the effect of oophorectomy in producing insanity, he had seen four or five cases of epilepsy and hystero-epilepsy come on in a few days after it had been performed. Others had met with the same experience. While he had seen some subjects of insanity and melancholia recover after relief from uterine irritation, he had never seen such result follow oophorectomy.

Dr. A. H. BUCKMASTER said it was hardly fair to call epilepsy a disease. It was a collection of symptoms which had no anatomical basis. It was influenced by irritation of all kinds, and naturally those produced in the reproductive organs would be of the most marked character, though observers were not agreed upon the exact rôle that these organs played in this respect. The previous speaker was probably correct in assuming that more irritation could arise from injuries of the uterus than from lesions in the Fallopian tubes or ovaries. The evidence was so strong that no good was accomplished by oophorectomy in the conditions under consideration that it was to be condemned.

Dr. W. M. POLK said his experience of the results of operations for the cure of hystero-epilepsy was limited to three cases, and was not such as to embolden him to continue to operate. Two of the patients had become insane, and the third one was

in a distressing condition of nervous irritability. Epilepsy was still really a fruitful field for investigation. It must be remembered that eighty per cent. of women were stated to be hysterical. A large amount of epilepsy was known to be due to peripheral irritation, and there was no reason why the ovaries should not set up some of this. If they did this, they should be taken out.

Dr. SACHS had seen a number of cases in which the operation had been done, and with no effect upon the epilepsy. It was a mistake to remove ovaries because the patient had epilepsy at the menstrual period. If it could be proved that the person had no congenital epilepsy, that the first attack had come on with menstruation, and that seizures had occurred constantly since, but only at the menstrual period, there might be some fair reason to remove some of the sexual organs. Because a woman was an epileptic and had sensitive organs which could be removed was a ridiculous argument in favor of their removal.

Dr. L. WEBER did not hold the view that the irritation following laceration of the uterus was a cause of epilepsy. In a large experience of twenty-eight years he had never seen more than two cases in which the epileptic condition had been thus induced, unless there was a history of hysterical or epileptoid taint before the age of puberty. He believed that true epilepsy acquired from lesions of the genital organs was a rare condition. He would only give his consent to operative interference on very narrow grounds and where there was a fair hope that by the removal of the ovary the condition could be cured.

Dr. BUCKMASTER explained that he had not meant that injuries to the uterus following parturition were active in producing epilepsy, but that of all lesions to the reproductive organs these were most likely to act as irritants, and were therefore quite likely to result in the nervous condition under discussion.

The PRESIDENT said that all neurologists were agreed that what was called the epileptic state was nothing more than a symptom indicating intracranial disturbance, spinal or peripheral nerve irritation, or inflammation of the visceral nerves. The most frequent source of the symptoms lay in intracranial disorders. Spinal epilepsy was rare, as was also that arising from peripheral irritation. How important a part the abdominal nervous system played was not quite known. But the most uncertain of all was the influence of the female generative organs in producing the epileptic symptoms. At any rate, there was not a single reputable record of the cure of epilepsy; not one that would stand the test of examination. To report relief for a few months or even a few years was to report nothing, and this was all that had been done. Almost every therapeutic or surgical measure had done good, but there was nothing more in the way of cure reported by modern effort than could be found chronicled by Esquirol in 1828.

Dr. PRICE reiterated his opinion that permanent benefit was possible in properly selected cases.

## NEW YORK ACADEMY OF MEDICINE.

SECTION IN GENERAL SURGERY.

Meeting of February 8, 1892.

Dr. JOSEPH D. BRYANT in the Chair.

**A Cutting Operation for the Relief of an Old Dislocation of the Inferior Maxilla.**—Dr. R. H. M. DAWBARN presented a patient who had suffered a long time with dislocation of the inferior maxilla, the mouth being permanently open. The patient had had several attacks which suggested tetanus, and many attempts on the part of skillful surgeons to reduce the dislocation had failed. As a last resort, the speaker had made incisions almost dividing both masseter muscles, enabling him

to reach the displaced bone and pry it back into place. The result had been permanent and satisfactory. In another case the speaker had been able to effect reduction after nearly dividing only one of the masseter muscles.

The CHAIRMAN thought that dislocations of the inferior maxilla must be preceded by relaxation of the muscular or ligamentous structures. In experiments upon animals it had been shown that dislocation could not be caused by spasmodic action of the muscles alone.

The further discussion of the question elicited several cases of the same character, due to a variety of causes, such as vomiting, talking, laughing, gaping, also the direct application of severe force, as that of a blow from the clinched fist.

**Primary Amputation, Consecutive Amputation, and Resection in Traumatism of the Extremities.**—Dr. T. H. MANLEY read a paper with this title. He believed that primary amputation should never be resorted to in civil life unless the vitality of all the tissues had been destroyed. In such cases amputation should not be delayed. In children, even though the injury was severe, amputation should be delayed as long as possible, and a resection should be preferred to amputation if practicable. In consecutive amputation after injury one could proceed along precise lines. The flaps should be as long as possible, should contain as much muscular tissue as practicable, and should be so approximated that the resulting scar would not be impinged upon by the end of the bone. During the operation he objected to the use of antiseptics about the bone. However unirritating they might be to the soft parts, he believed they often produced injury to the bone. If drainage-tubes were required they should be used for the shortest possible time. An abundance of soft gauze dressings was indicated in all cases. In cases of compound comminuted fracture of the thigh amputation would frequently be necessary for the reason that the femur seemed to tolerate such injuries less readily than the other long bones. Another reason for avoiding amputations in children, when possible, was that they bore the shock and loss of blood of such operations badly. In injuries of the hands and feet the successes of osteoplasty encouraged delay. Ollier had demonstrated the great reparative force of the periosteum; hence, though the bone was destroyed, if the periosteum was preserved the bone might be renewed. If the bone was shattered and separated from the periosteum, it (the bone) should be removed. The speaker was not in favor of the insertion or introduction of wedges of decalcified bone. In general it would be well to save as much tissue as possible in doing amputations, and to avoid opening joints when this could be done. If sublimate or other antiseptic solutions were used in the course of an operation, their use should be followed by abundant irrigation with plain hot water.

Dr. DAWBARN thought that the name of Macewen was quite as worthy of mention as that of Ollier in connection with the subject of saving bony structures. With reference to heteroplasty, he was in favor of the introduction of Neuber's decalcified bone wedges into the gaps between bone fragments.

Dr. R. H. SAYRE approved of the policy of waiting before amputation as a general principle, since reparative processes were often very vigorous.

Dr. F. KAMMERER thought the same rules should apply for adults as for children in the matter of primary amputation. It had not been his experience that the use of antiseptics upon osseous tissue was deleterious.

Dr. W. R. TOWNSEND thought that the conservative principle in the matter of saving tissue at the time of an amputation might be carried too far. If an amputation was imperative, one of the most important considerations was to obtain such a stump as would furnish a good base for an artificial limb.

The CHAIRMAN agreed to the statement that as much tissue as possible should be saved in performing an amputation, but it was equally desirable that only so much should be saved as would be of practical utility.

Dr. MANLEY was aware that Macewen attached comparatively little value to the periosteum as a means of repair. But, if he was right, all the teachings of physiology must be wrong. With regard to the value of decalcified bone for ossific centers, the speaker thought it had none. He had never seen a case of successful bone grafting.

**Senn's Hydrogen-gas Test.**—Dr. DAWBARN believed there were many objections to Senn's hydrogen-gas test for the determination of wounds of the intestine. Although he had never had an opportunity to try it upon the living subject, he had tried it twenty-two times upon the cadaver. The gas was stored in a large rubber bag and was pumped from the bag into the bowel by means of a Davidson's syringe. The result had been very great distention of the bowel, which in the living subject would be harmful. In all but two of the cases the hydrogen had found its way from the bullet wound which had been made in the intestine to the tube that was placed in an opening in the abdominal wall, and its presence had been ascertained by combustion when a flame was applied to the tube.

If a bullet wound, or other intestinal wound in which the test was applied, was clogged with feces, or if the lumen of the bowel was obstructed by fecal masses, the test would be unavailing. It was a well-known fact that not all bullet wounds of the intestine required treatment by abdominal section, for leakage from a wound might not take place if the wound was closely pressed upon by a coil or coils of uninjured intestine. On the other hand, the pressure of the hydrogen might force fecal matter out of a wound and into the peritoneal cavity and be followed almost inevitably by a fatal result unless an abdominal section was made. In those wounds of the intestine which occurred below the navel, abdominal section should be promptly performed and the hydrogen test would be unnecessary. On two occasions the application of the flame to the tube from which the hydrogen emerged had been followed by an explosion of the gas within the abdomen. If the conditions were ever such that a similar explosion should take place in the abdomen of a living person the result would probably be disastrous.

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## Book Notices.

*The Microscope and Histology*; for the Use of Laboratory Students in the Anatomical Department of Cornell University. By SIMON HENRY GAGE, Associate Professor of Physiology. Third Edition, entirely rewritten. Part I. The Microscope and Microscopical Methods. Illustrated. Ithaca, N. Y., 1891. Pp. 96.

This volume deals particularly with homogeneous immersion objectives, the substage illuminator, the camera lucida, the microspectroscope, and the micropolariscope.

The author deserves credit for expounding his subject in a very readable form. No one will fail to detect easily that the work is the result of long experience in practical laboratory work, or that many obscure points in microscopic technique are skillfully explained.

Though the readers of the book are supposed to be familiar with the principles of optics, the author takes particular pains in impressing upon the student's mind the fact of the importance

of knowing the working of the optic systems and of their being explained.

The section on slides and cover-glasses and on mounting, labeling, and staining microscopical preparations will be found of assistance. The value of the book lies greatly in the fact that it gives the most recent methods of microscopy as found in the leading current literature.

#### BOOKS, ETC., RECEIVED.

A Case of Congenital Malformation of the Heart. Atresia of the Pulmonary Artery, with Persistence of the Foetal Circulation. By William T. Howard, Jr., M. D., Baltimore. [Reprinted from the *Archives of Pediatrics*.]

Humau Monstrosities. By Barton Cooke Hirst, M. D., Professor of Obstetrics in the University of Pennsylvania, and George A. Piersol, M. D., Professor of Histology and Embryology in the University of Pennsylvania. Part II. Illustrated with Thirteen Photographic Reproductions and Twenty-five Woodcuts. Philadelphia: Lea Brothers & Co., 1892. Pp. 112.

The Aetiology, Pathology, and Treatment of Diseases of the Hip Joint. By Robert W. Lovett, M. D., Out-patient Surgeon to the Boston City Hospital, etc. Boston: Damrell and Upham, 1892. Pp. 9 to 220. [Fiske Prize Fund Dissertation, No. xlii.]

The Human Figure: its Beauties and Defects. By Ernst Brücke, Emeritus Professor of Physiology in the University of Vienna, etc. With a Preface by William Anderson, Professor of Anatomy to the Royal Academy of Arts, London, etc. Authorized Translation, revised by the Author. With Twenty-nine Illustrations by Hermann Paar. London: H. Grevel & Co., 1891. B. Westermann & Co., New York.

Coca and Cocaine: their History, Medical and Economic Uses, and Medicinal Preparations. By William Martindale, F. C. S., etc. Second Edition. London: H. K. Lewis, 1892. Pp. viii to 76.

Impure Air, and Ventilation of Private Dwellings. (The Orton Prize Essay.) By Howard Van Rensselaer, M. D., Albany, N. Y. [Reprinted from the *Transactions of the New York State Medical Association*.]

Abscess of the Antrum, with Cases and Treatment. By I. P. Wilson, D. D. S., Burlington, Iowa.

Empiricism; Rational Practice; Practice under Guidance of Law. A Lecture to Medical Students. By Charles S. Mack, M. D., Ann Arbor, Mich. [Reprinted from the *North American Journal of Homoeopathy*.]

Tuberculin. The Value and Limitation of its Use in Consumption. By Charles Dennison, A. M., M. D., Denver, Col. [Reprinted from the *Transactions of the Colorado State Medical Society*.]

Rheumatism and its Treatment by Turkish Baths. By Charles H. Sheppard, M. D., Brooklyn.

To what Extent is the Diagnosis of Pregnancy possible in the Early Months? By Charles Jewett, A. M., M. D., Brooklyn. [Reprinted from the *Brooklyn Medical Journal*.]

An Account of the Influenza as it appeared in Philadelphia in the Winters of 1889-'90 and of 1891-'92. By J. Howe Adams, M. D. Philadelphia. [Reprinted from the *University Medical Magazine*.]

Trendelenburg's Posture in Gynecology. By Florian Krug, M. D., New York. [Reprinted from the *Transactions of the Association of American Obstetricians and Gynecologists*.]

Total Extirpation versus leaving a Stump in Operation for Uterine Fibro-myomata. By Florian Krug, M. D., New York. [Reprinted from the *New York Journal of Gynecology and Obstetrics*.]

Méthodes pour préparer de l'eau aseptique. Par le docteur J. F. Heymans. [Extrait des *Annales de la Société de médecine de Gand*.]

Considérations pathogéniques sur l'hémospémie d'origine non inflammatoire (observations d'éjaculations sanglantes). Par le Dr. R. Jamin. [Extrait des *Annales des maladies des organes génito-urinaires*.]

Présence du phosphate d'alumine dans l'urine. Par M. le docteur R. Jamin et M. Alexandre Girard. [Extrait des *Annales des maladies des organes génito-urinaires*.]

Some Educational Problems. The Introductory Address to the Eleventh Lecture Course of the Albany College of Pharmacy, delivered October 5, 1891. By Willis G. Tucker, M. D., Ph. D.

Transactions of the American Ophthalmological Society. Twenty-seventh Annual Meeting, Washington, D. C., 1891.

Fifth and Sixth Annual Reports of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. 1891 and 1892.

Annual Report of the Hospital of the New York Medical College and Hospital for Women.

The Demilt Dispensary, in the City of New York. Forty-first Annual Report, for the Year 1891.

First Annual Report of the State Board of Medical Examiners of New Jersey. 1891.

Transactions of the Detroit Medical and Library Association. 1891.

## Miscellany.

**Removal of the Uterine Appendages.**—The *Medical Record* for March 5th contains the following editorial article:

The *University Medical Magazine* of December, 1891, contains articles on the subject of the remote effects of the removal of the uterine appendages by Dr. Wharton Sinkler and Dr. Charles Carroll Lee. These articles are written in a judicial spirit, and present very fairly the opinions which medical men may and should hold at the present time regarding the matter in question.

Dr. Sinkler first shows what the ordinary phenomena are that follow removal of the ovaries. These phenomena, as has long been known, resemble in many respects the changes of the climacteric. They consist of flushings and sweatings, which are very common, appear early, and last with lessening intensity for two or three years. Disturbance of the heart's action, including rapid heart beat, is frequent; numbness and various parasthesiæ also appear. Patients may gain some flesh, but they rarely get fat, contrary to a common belief. They do not necessarily have wasting of the mammae, nor is there ever a change in voice or growth of coarse hair. The sexual appetite is not much changed for two or three years, but eventually tends to become lessened and abolished. Nervousness, irritability, and mental depression appear to be common, especially in women originally of a neurotic temperament. Insanity occurs undoubtedly in a certain percentage of cases, variously estimated at five or ten.

As to the effect of the removal of the appendages upon neuroses and psychoses, the consensus of opinion seems to be very decidedly to the effect that good is rarely accomplished and harm often done.

Very little, if any, trustworthy evidence is given to show that oophorectomy is useful in insanity, although in the periodic menstrual form some successes are reported. As periodic insanities are of the psycho-degenerative class, one must always expect a recurrence of the disease eventually. There is much evidence to show that, at least in neurotic persons, oophorectomy tends to produce a condition of mental depression amounting often to melancholia.

In true epilepsy, even of a menstrual type, the operation is useless. In hystero-epilepsy, which many gynæcologists seem to think is a form of epilepsy and not a form of hysteria, the removal of the ovaries is not a legitimate procedure. In certain forms of neurasthenia and hysteria minor, associated with decided pelvic trouble, the operation sometimes does good, but the results are slow, and the operation should not be attempted until every other measure has been carefully tried.

Dr. Lee's paper is a most candid and scientific presentation of the results of his own work. In the main his conclusions agree with that of others; but he does not find that removal of the ovaries produces the melancholic condition which has been observed by some.

The conclusions of Dr. Sinkler, which embody the main points given above, may be inserted here:

"The remote effects of removal of the ovaries and tubes upon the general health are, as a rule, to improve nutrition and to better the strength, especially if the operation has been done for diseased ovaries or pus tubes.

"That excessive gain of flesh is rare, and that change of voice,

growth of hair upon the face, and loss of feminine characteristics do not occur.

"That the sexual appetite in women is seldom changed by castration within two or three years after the operation, but after several years it becomes lessened.

"That it is often the case that after this operation patients are more nervous than formerly, and mental disturbances of various forms, insanity, and epilepsy, not infrequently follow it.

"That the influence of the operation is sometimes good upon insanity and epilepsy which are associated with severe dysmenorrhœa or occur periodically at the menstrual epochs; but when the insanity is constant, although it may be aggravated at the monthly periods, removal of the appendages is of no benefit. Hystero-epilepsy is seldom permanently cured by the operation. Prolonged after-treatment is generally necessary to relieve such cases.

"Local pain is often not relieved by the operation.

"Certain cases of neurasthenia which are associated with dysmenorrhœa, or with structural changes of the ovaries, are cured by the operation; nevertheless, no such case should be subjected to the operation without beforehand having the benefit of prolonged and patient treatment. It is unjustifiable to remove the ovaries and tubes in cases of neurasthenia, hysteria, etc., when these organs are healthy."

We trust that the general practitioner and ambitious gynæcologists will both consider carefully the foregoing conclusions. They undoubtedly embody the experience of the profession, gained—at what a cost—during the past ten years.

**The Baby Students' Relief Bill.**—Several of the more influential newspapers have come to the aid of the medical profession in its opposition to Assembly bill No. 513, and not all of them are published in the metropolitan district. We are glad to see such an article as the following, from the *Syracuse Daily Journal*:

For many years the better part of the medical profession have striven to elevate the standard of medical education. At county, State, and national associations addresses have been delivered and resolutions passed urging medical colleges not only to adopt a better system of instruction and longer courses of lectures, but, by frequent and thorough examinations, to ascertain the fitness of their students for advancement and graduation. The majority of the schools have given little heed to these addresses and resolutions. They did not adopt a graded course extending through at least three years. They have not required each student to pass numerous oral and written examinations. They have not turned from the even tenor of their ancient way—faulty, unnatural, and jumbled though it concededly has been. In most of the schools the examinations have been so infrequent and superficial as to be of little if any practical value; so that, of the horde of graduates annually turned out upon a confiding community, the fitness of the majority has been complacently surmised rather than rigidly ascertained. Indeed, we understand that in some colleges the candidate for medical honors has been subjected to but a single and brief compulsory examination by each of the seven or more eminent professors throughout his entire two identical courses of six months each. It is evident that while many bright students, in spite of the faulty system, did derive great benefit from the admirable lectures and clinical advantages and voluntary attendance at quiz classes, the one only required examination—and that at the close of the students' course—could have furnished little guarantee to the public that the graduate possessed adequate qualifications.

Failing to accomplish needed reforms and secure protection to community through the action of the colossal rival medical schools, the profession at last applied to the Legislature. After long-continued efforts, partial success was achieved. Laws were enacted requiring each person proposing to enter a medical college to satisfy a State Board of Examiners that he possessed at least a fair acquaintance with the elementary branches of an English education. They also required him to attend three courses of lectures, and then, after obtaining his diploma from the college, to have his fitness to receive a license to practice ascertained by a carefully selected, independent State board. These laws were to take effect on the first of September, 1890, but were not to be applicable to those students who matriculated in 1889 or prior to that time.

The lazy and unworthy person who entered a medical college in 1890 had a full knowledge of the requirements. He received due notice that he could no longer neglect attendance on lectures and clinics and quizzes and feel assured that his easily obtained diploma would give him license to practice. He knew that, unless the wholesome law could be repealed or its action postponed till the next year's crop of candidates should be ripened, his ambition to gain an undeserved access to the bedside of human suffering would be checked by the ordeal through which all bright and worthy students willingly and successfully pass. So he summoned to his aid a great number of the dubious and timorous and incapable (who knew well enough that they would certainly pass the college examination and receive diplomas), and petitioned the Legislature to exempt him and them from this terrible examination of the State board, but righteously to subject all who should come after them, and all doctors coming from other States, to its searching and beneficent exactions. Thoughtlessly the Senate complied with the cowardly and unmanly petition, and passed the bill known as Assembly bill No. 513. There is no good reason why the qualifications of every medical graduate of 1893 to practice should not be determined by the Board of State Examiners.

In the interest of humanity the passage of this bill, No. 513, whose title should be: *An act to promote the admission of incompetent persons to the medical profession*, should not be possible. The Syracuse medical association unanimously protests against its passage. The Faculty of the College of Medicine of Syracuse University unanimously oppose its passage. And, to the high honor of their class, not one of the students of the college who would be affected by it has petitioned to have it passed.

It is but justice to the Syracuse college to state that it did not wait for compulsory legislation. We are informed that from its organization, twenty years ago, it has required an entrance examination—increasing beyond the State requirements in its salutary exactions. It has had a graded course extending through three years of eight months each instead of the customary two years' course of six months. Every graduate has been subjected to more than three hundred oral or written examinations before receiving his diploma; and he is willing and ready to go before the State board for its examination.

The public should join the medical profession in demanding that the safeguards against dangerous medical incompetency shall not be disturbed.

**Chronic Endometritis.**—At a recent meeting of the Philadelphia County Medical Society, Dr. J. M. Baldy read a paper in which he said that of late years it had become the habit of gynæcologists to consider almost all endometrial diseases as symptomatic, and not as independent lesions. It was certainly true that many pelvic diseases were accompanied by an unhealthy condition of the endometrium; especially in pelvic inflammatory disorders the lining membrane of the uterus was so frequently affected as to have given rise to the supposition that either it was caused by the pelvic disease or rarely occurred independently of it. In fact, such assertions were frequently made in print and before societies. The temptation was strong to accept this theory, which appeared at first blush to be so plausible, but which was nevertheless most fallacious. His daily experience was teaching him that endometritis as an independent disease was quite a common disorder, and was at the bottom of many of the discomforts suffered by women. The causes giving rise to this disease were much the same as those that originated colpitis, and particularly salpingitis—specific infection and post-puerperal sepsis being the most prolific, and giving rise to the bulk of the cases. Oftentimes the beginning of the trouble could easily be traced to a childbirth or to an abortion. The woman had had a slow getting up, and would give the history of some fever, or she had regained her usual health very slowly, possibly not at all; she would have complained of a vaginal discharge since her confinement, when previously she had been free from this annoyance. The history might be that of an attack of specific infection. Sometimes the history in such a case was clear—a sudden appearance of a yellowish vaginal discharge, with swelling of the labia and burning in micturition. At other times the evidence of specific infection was not entirely satisfactory, but it was notorious that women often became contaminated without giving the matter any particular attention, or the discomfort had been so

slight as to be soon forgotten. In any event, if the disease was neglected and spread to the cavity of the uterus, it soon spent its force and settled down to a chronic condition. It might or might not extend into the Fallopian tubes and cause salpingitis and peritonitis. Should it do so, as was often the case, the removal of the appendages would not necessarily bring about a cure of the patient. In fact, this was the secret of the failure of laparotomy in many cases. Even if the disease was complicated by pelvic disorders of an inflammatory nature, especially if the two arose from the same cause, it was well to first turn our attention to the endometritis, in which case a laparotomy might at times be avoided. In other words, in certain cases embracing the two diseases the symptoms of the endometritis might overshadow those of the salpingitis; this was especially true of many instances in which the intraperitoneal damage had not been very serious. In cases where the intraperitoneal inflammation had subsided, and only its products remained, the treatment of the endometrial inflammation, which, under these circumstances, was usually chronic, could be carried out with impunity if ordinary care was taken. Of course, in the event of there being an acute or even a subacute pelvic inflammation present, great care must be taken not to interfere with the uterus in any way, else an already bad condition of affairs might be made much worse, and even serious. In many patients in whom there existed post-puerperal septic endometritis or specific endometritis, the disease had stopped short of the tubes, and had not involved either them or the peritonæum. These cases were quite common, and were daily overlooked. The women wandered from one doctor's office to another, and finally, when their money was all gone, into the public clinics, seeking relief in vain. It was often a matter of surprise that many of them had never even had an examination made, but had been treated for months and years with drugs, or had been advised to use injections of hot water. The hot-water injections as usually given were worse than useless. Just sufficient water at a moderate temperature was used to cause a congestion of the uterus and pelvis, which congestion was not relieved by the secondary effect of the hot water—*viz.*, the contraction of the blood-vessels and consequent driving away of the blood from the parts. These women suffered from a continual uterine discharge more or less profuse; there was, perchance, a feeling of weight and heaviness in the pelvis, accompanied by back-ache; sometimes they felt weak and worn out. The menstrual function was disordered, being generally irregular and profuse; pain might or might not attend this function. These symptoms existed either alone or in various combinations, the only constant and reliable one being the uterine discharge. A local examination disclosed an enlarged and heavy uterus, from the cervical canal of which an unhealthy thickish discharge was oozing. Oftentimes the cervix was eroded, and the mucous membrane of the everted lips, if the lips were everted, bled on being touched with a piece of cotton or an instrument. This hæmorrhagic condition was more apt to be present when the disease was still acute or subacute; but, nevertheless, it was at times seen in the chronic cases. In some instances the uterine body was comparatively normal to the touch so far as its consistence was concerned; again, it might be either too soft or, what was more common, extremely hard, and even almost fibrous in character. These changes indicated that the disease was not altogether confined to the endometrium, but had invaded the structures comprising the uterine wall. It was no uncommon thing to see an endometritis and a metritis coexisting; in fact, in chronic cases it was rather the rule than the exception. The disease was almost always primarily an endometritis, and treatment which would cure this affection would be followed by a cure of the metritis almost as a matter of course. So much was this the rule that the author had got to look on these two diseases as very much one and the same.

Where this condition of affairs existed—a large and abnormally heavy uterus—there was very apt to be a retro-displacement of the womb sooner or later. Whether or not all displacements which gave rise to trouble were originally caused by uterine inflammations, it was a curious fact that it was a very rare thing to find a troublesome retro-displacement without either uterine or pelvic inflammatory diseases complicating it.

For the treatment of uncomplicated endometritis and metritis there was a variety of remedies, some of them quite effective, while many of

them were useless and were applied in a haphazard way. His own preference was to adopt the shortest and surest course of procedure. The woman was etherized, the cervix dilated, and the uterus thoroughly curetted; the uterine cavity was then washed out, and an application of Churchill's tincture of iodine made to its surface. If there was pretty free bleeding in consequence of these manipulations, the uterus was packed full of iodoform gauze, which was removed in the course of a day or two, as circumstances demanded. Ergot might or might not be given by the mouth, the indications for its use being hæmorrhage or an enlarged, heavy uterus. Usually, the author gave half a drachm of the fluid extract three times a day for a short period, gradually reducing the quantity until it was dispensed with altogether within about a week.

As to the steps of the operation: The patient was placed in the dorsal posture, and the dilatation was made with the Goodell rapid dilators after careful antiseptic precautions—only sufficient to introduce and manipulate the instruments easily—from three quarters of an inch to an inch. Great care was taken to make the curettement a thorough one. All *débriis* could be washed away, and the cavity cleansed by the use of the rectal nozzle of a Davidson syringe. The application of iodine followed immediately by means of a long-nozzled uterine syringe. The patient was now returned to bed, and nothing more was done for a week or two, except to give absolute rest and hot-water injections, and keep the bowels soluble, together with the use of ergot as indicated. The author had not found occasion to place a hard-rubber drain in the uterus, as Wylie did, nor to pack it with iodoform gauze for a prolonged period, as Polk proposed. He found, if the dilatation had been properly made, that the cervical canal remained sufficiently patulous for the necessary drainage. The uterus would resent in one way or another the presence of a foreign body, and these procedures could only result in just so much more irritation and consequent discharge.

Some patients were cured altogether by this treatment; but, for the most part, in order to secure a thoroughly satisfactory result, treatment must be kept up for some little time after the woman was allowed to get out of bed. It was the author's habit, in these cases, to make an intra-uterine application of iodine about twice a week for a few weeks, then once a week, and finally to withdraw the treatment altogether; the hot-water injection should be kept up twice a day throughout the whole course of treatment. It was not uncommon, where the endometrium had undergone a fungous change, for the disease to return, and the whole treatment had thus to be gone through with a second time.

Many patients would not submit to this treatment, in which event it became necessary to resort to other methods of management. A prolonged course of intra-uterine treatment would, in many cases, eventually bring about the same result. The author did not maintain that iodine was the only remedy to be used for this purpose, but he had come to use it habitually for the reason that he had found no other drug which would give better results. It was not advisable always to use it in full strength, in which case it might with advantage be diluted with glycerin in the required proportions. Ichthylol and all similar substitutes had only proved disappointing.

So much for the uncomplicated cases of endometritis. Where the disease was accompanied by a pelvic inflammatory condition the first question to settle was whether or not an abdominal section was to be performed for the removal of the appendages. If they were not sufficiently affected to call for the operation, and if the uterine symptoms predominated and were very annoying, he had no hesitation in treating the uterine cavity. A long-nozzled uterine syringe might with safety be passed into the uterus, even in the presence of considerable pelvic disease, and a local application thus made. In these cases the strength of the material injected should be regulated by the amount of inflammation, as a strongly irritating fluid would be much more likely to cause trouble than the mere passage of the instrument itself. When the pelvic disease was an old one and quiescent he had no hesitation in gently dilating the cervix and curetting the cavity of the uterus, and he had never seen any trouble follow such a procedure. In this class of patients there was an opportunity for the nicest kind of judgment, and if one was skillful and careful in selecting the proper cases the

treatment might be followed by the greatest benefit. The author was perfectly well aware that this was contrary to the teachings of many gynæcologists of the present day, but his own experience in these matters had opened his eyes to the fallacy of such ideas. If the gentlemen opposing the practice of intra-uterine treatment would try it on some of their patients who continued to have enlarged uteri and a vaginal discharge after the removal of the appendages they would soon become convinced of its practical value, even in these cases.

**The Pathology of Genius.**—In an editorial article the *British Medical Journal* says:

Huxley defines genius as innate capacity of any kind above the average mental level. Accepting the definition that genius is an in-born tendency to do certain things better than most men, it may be called something abnormal, but to treat it as something pathological is neither new nor true. Nevertheless, there will always be people willing to believe that men favored by Nature with great mental powers have some compensating deficiencies. Genius is perhaps not so uncommon as some assume, but there is a great reluctance to recognize it. There have been men of genius who never gained distinction owing to adverse circumstances. There is always a goodly number of men who step beyond the line in physical and mental endowments, and this superiority is evidently inborn. So far is this from being a proof of any morbid condition, that perfection of function is the highest result of happy heredity and healthy nutrition.

Mr. Nisbet, who, a short time ago, wrote a book on the insanity of genius,\* does not venture to espouse the statement of Moreau that genius is a neurosis, but he holds that great mental gifts are not obtained, as a rule, without some disturbance of the brain and nervous system. In favor of this view he quotes, curiously enough, an opinion expressed by Professor Huxley to the effect that a genius among men stands in the same position as a "sport" among animals or plants. He thinks it probable that "a large proportion of 'genius sports' are likely to come to grief physically and socially, and that the intensity of feeling which is one of the conditions of genius is especially liable to run into the fixed ideas which are at the bottom of so much insanity." Mr. Nisbet is able to enumerate a rather long list of celebrated persons who suffered from diseases more or less remotely connected with the nervous system, but whether in a given number of men of genius more nervous disease would be found in them and in their families than in the same number of ordinary men living under similar circumstances is an inquiry which it would be very difficult to make. Mr. Nisbet makes the most of the fact that toward the close of his life Julius Cæsar had occasional epileptic fits; nevertheless, Julius Cæsar was a man of astonishing strength, both bodily and mental, but the strain to which he subjected his constitution from his ceaseless toils and his sensual excesses seemed sufficient to wear out any human organism.

On looking over Mr. Nisbet's list of neurotic great men we miss a large number against whom nothing can be said. He claims Alexander the Great as a neuropathic genius, on the ground that he had an affection of the muscles of the neck, which compelled him to hold his head on one side; and that a brother of his was an idiot. This must be Aridæus, son of Philip by a concubine, who is described as of feeble intelligence, but certainly not an idiot. Plutarch merely says that Alexander had a slight droop of the head, and that the weakness of Aridæus was not congenital, but Olympias destroyed his intellect with her drugs. Besides these two, no other of the great generals of antiquity are claimed as neuropaths. Mr. Nisbet seems satisfied if he can assign any defect or disease against a man of genius, or even against his ancestors. For example, he thinks it worth while to tell us that Southey's father was "passionately fond of field sports," and then observes: "Extraordinary physical energy is often found in connection with nerve disorder, the result of an excessive stimulation of the motor centers of the brain." We are told that Cromwell died of ague at fifty-nine, a "malady the exciting causes of which are still unknown, but which is obviously of a nervous character." Then Marlborough was

subject to headaches and giddiness; and Turenne had a weak constitution in boyhood, stuttered, and was subject to a convulsive movement of the shoulders. We hear nothing of Condé or other great French generals save Napoleon, as to whom we have the story of his being an epileptic. We are told that Wellington was also an epileptic. Certainly Marlborough, Napoleon, and Wellington were all men of very strong constitutions. All writers who have taken up this view about the unhealthy character of genius soon take us away to poets and painters, who are mostly men of extreme sensibility, and often leading strange and unconventional lives.

There have been, no doubt, too many sickly poets who have gained notoriety by gratifying a morbid taste for unwholesome reading, but Tasso seems the only great poet who ever was insane. Mr. Nisbet tells us he was confined for a time on account of homicidal mania. There is, indeed, a story of Tasso's drawing a knife on a man, but we do not know the provocation; and this is the only record of his trying to injure any one. The character of his insanity was certainly not homicidal mania.

To those who are willing to believe that the poet has a touch of insanity about him, Shakespeare is a great difficulty which Mr. Nisbet evidently prides himself in having done something to remove. He tells us that Masson has discovered that he (Shakespeare) "was, in his solitary hours, an abject and melancholy man." Three of the poet's sisters died in childhood, one brother in early manhood, and two others in what ought to be the prime of life. Mr. Nisbet informs us that the retirement of the great dramatist to Stratford-on-Avon when he was forty-eight was not owing to his having made a fortune, but owing to his health having broken down, and he assumes, without any adequate proof, that his last illness looks like successive shocks of nervous disorder. Mr. Nisbet gives us the choice between a paralytic or an epileptic seizure or paralysis agitans. As for his children, they either died in infancy or they were stupid. Judith must have been either capricious in her rejection of offers of marriage, or very unattractive, for she was thirty-two years of age before she secured her husband, Thomas Quiney, a vintner, not of good family nor particularly well-to-do. As for Susannah, who married Dr. Hall in her twenty-fifth year, she was a stupid woman who sold her husband's medical manuscripts without reading them. The statement that she was "witty above her sex" Mr. Nisbet regards as conventional "tombstone flattery." Suppressing the continuation of the epitaph, "More than all, wise to salvation was good Mrs. Hall," he observes: "Unfortunately, this is all that can be told to her credit." On the other side of the account, our author lets us know that Mrs. Hall was troubled in childhood with scurvy, and had a daughter who had tortura oris, inflammation of the eyes, and ague. So that we are bidden to insist no more about the healthy character of the genius of Shakespeare.

The observation that the families of men of genius have a tendency to die out could be better considered under the broader statement that aristocracies and families living in luxurious social conditions do not habitually keep up their numbers.

Mr. Nisbet's book is written for the general reader, but his subject will always have a great interest for medical men, who, however, will be cautious in letting their assent wander far beyond the evidence adduced. Perhaps if the author had been more careful in sifting his statements, and had presented his conclusions in less startling terms, his work would have had less attraction for the public.

**The Association of American Physicians.**—The next annual meeting will be held on Tuesday, Wednesday, and the evening of Thursday, May 24th, 25th, and 26th, in the Medical Museum and Library, Washington, D. C., under the presidency of Dr. Henry M. Lyman, of Chicago. The subject selected for discussion is Dysentery. Dr. William T. Councilman, as referee, will consider the etiology and pathology, and Dr. A. Brayton Ball, as co-referee, the symptomatology, complications, and treatment. Besides the president's address, papers are to be read as follows: Dr. Charles Carey, The Production of Tubular Breathing in Consolidation and other Conditions of the Lungs; Dr. Samuel C. Chew (title to be announced); Dr. William C. Dabney, A Contribution to the Study of Hepatic Abscess; Dr. I. N. Danforth, Tube Casts and their Diagnostic Value; Dr. George M. Garland, The Treatment of

\* *The Insanity of Genius and the General Inequality of Human Faculty physiologically considered.* By J. F. Nisbet. New Edition, Ward and Downey, 1891.

Follicular Tonsillitis; Dr. Heneage Gibbes, The Morbid Anatomy of Leprosy; Dr. Hobart A. Ilare, A Collective Investigation in regard to the Value of Quinine in Malarial Hæmaturia or Malarial Hæmoglobinuria; Dr. A. Jacobi (title to be announced); Dr. W. W. Johnston, The Treatment of Acute Dysentery by Antiseptic Colon and Rectal Irrigation; Dr. Thomas S. Latimer, Alcoholism; Dr. Morris J. Lewis, A Study of the Seasonal Relations of Chorea and Rheumatism for a Period of Fifteen Years; Dr. Morris Longstreth (title to be announced); Dr. Francis T. Miles, A Case presenting the Symptoms of Landry's Paralysis, with Recovery; Dr. William Pepper, Report of a Case of Glanders, with Results of Bacteriological Study; Dr. T. Mitchell Prudden (title to be announced); Dr. George M. Sternberg, Practical Results of Bacteriological Researches; Dr. Charles G. Stockton, Misconceptions and Misnomers revealed by Modern Gastric Research; Dr. William H. Thomson, The Significance of Intermision in Functional Nervous Diseases; Dr. Victor C. Vaughan, Certain Toxicogenic Germs found in Drinking-water; Dr. B. F. Westbrook, Studies in Hypnotism; Dr. James C. Wilson, Pulsating Pleural Effusions; and Dr. George Wilkins, The Cold-water Treatment of Typhoid Fever. Members wishing to present papers are requested to send their names, with the title of the papers, to the secretary, Dr. Henry Hun, 33 Elk Street, Albany, N. Y. Papers can be read by title at the meeting and appear in the volume of Transactions. The Constitution of the association (article VI, sections 4 and 5) provides that authors of papers, and referees and co-referees, who open a discussion, shall not occupy more than thirty minutes each; and in the discussion following, the remarks of each speaker shall be limited to ten minutes. The referees, co-referees, and authors of papers shall send abstracts of their papers to the council for distribution to the members previous to the meeting. This provision, however, does not preclude a fuller or more detailed presentation of the subject in the articles prepared for the Transactions, but the limits of time prescribed for the reading of the papers will be enforced.

**Mortality in Cities in the United States.**—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for March 4th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—												
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varicella.	Warts.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.		
New York, N. Y. ....	Feb. 27.	1,515,301	910	110	..	3	..	..	..	4	12	29	31	10	1	2
Philadelphia, Pa. ....	Feb. 20.	1,046,964	537	63	..	..	..	..	..	..	15	12	42	1	1	1
Brooklyn, N. Y. ....	Feb. 20.	806,443	399	41	..	..	..	..	..	..	4	28	22	1	1	1
Brooklyn, N. Y. ....	Feb. 20.	806,243	402	45	..	..	..	..	..	..	1	27	19	3	..	..
St. Louis, Mo. ....	Feb. 27.	451,770	181	..	..	..	..	..	..	..	..	..	1	9	2	..
Baltimore, Md. ....	Feb. 27.	434,439	183	18	..	..	..	..	..	..	2	11	8	..	..	..
San Francisco, Cal. ....	Feb. 20.	238,397	136	20	..	..	..	..	..	..	1	..	6	1	1	1
Cincinnati, Ohio. ....	Feb. 26.	296,908	148	18	..	..	..	..	..	..	1	..	11	..	..	..
Cleveland, Ohio. ....	Feb. 20.	261,353	86	6	..	..	..	..	..	..	..	..	1	5	..	..
Cleveland, Ohio. ....	Feb. 27.	261,353	162	15	..	..	..	..	..	..	..	..	1	5	..	..
Pittsburgh, Pa. ....	Feb. 20.	238,617	127	9	..	..	..	..	..	..	8	1	8	..	2	..
Washington, D. C. ....	Feb. 20.	230,392	118	18	..	..	..	..	..	..	2	1	2	..	..	..
Washington, D. C. ....	Feb. 27.	230,392	..	17	..	..	..	..	..	..	1	..	5	..	2	..
Milwaukee, Wis. ....	Feb. 20.	214,468	95	8	..	..	..	..	..	..	1	2	13	..	1	..
Milwaukee, Wis. ....	Feb. 27.	204,468	98	13	..	..	..	..	..	..	1	3	10	1	..	..
Minneapolis, Minn. ....	Feb. 27.	164,738	57	..	..	..	..	..	..	..	..	..	..	..	..	..
Providence, R. I. ....	Feb. 27.	132,116	65	..	..	..	..	..	..	..	2	2	1	..	..	..
Indianapolis, Ind. ....	Feb. 27.	105,436	38	9	..	..	..	..	..	..	..	..	5	..	..	..
Toledo, Ohio. ....	Feb. 26.	81,434	27	..	..	..	..	..	..	..	..	..	1	2	..	1
Nashville, Tenn. ....	Feb. 27.	76,168	43	8	..	..	..	..	..	..	..	..	..	..	..	..
Portland, Me. ....	Feb. 27.	36,425	16	..	..	..	..	..	..	..	..	..	..	..	..	..
Binghamton, N. Y. ....	Feb. 27.	35,005	14	..	..	..	..	..	..	..	..	..	3	..	..	..
Mobile, Ala. ....	Feb. 27.	31,076	14	1	..	..	..	..	..	..	..	..	..	..	..	..
Galveston, Texas. ....	Feb. 19.	29,084	10	4	..	..	..	..	..	..	..	..	..	..	..	..

**The Treatment of Chorea with Exalgine.**—According to the *Semaine médicale*, Dr. H. Löwenthal, of Berlin, in a recent paper gave the details of thirty-five cases of chorea treated with exalgine. The results were very encouraging. The dose employed was three grains, repeated three to five times a day; the duration of treatment varied, according to the gravity of the case, from eight days to four months. The results were obtained the most rapidly where the treatment was begun at the onset of the disorder. In some of the cases considerable amelioration was established after twelve doses (36 grains) of exalgine had been given, but in the majority double this number of doses was

necessary before improvement was manifested. One child, of eight years, was completely cured after twelve doses of 3 grains each. The greatest quantity of the drug employed was in a severe case, in which about 1,700 grains were given in the course of more than three months. In cases where the choreic movements were very violent the condition of the patient was aggravated, in spite of the exalgine, for the first two weeks of treatment, to be ameliorated afterward, slowly, but progressively, until they were arrested. In addition to its action on the muscular movements, the medicament influenced also very favorably certain other nervous phenomena, such as the mental excitement, feebleness of memory, salivation, articular pains, and formication in the fingers and arms. These symptoms improved very rapidly during the first week of treatment. The drug was often well supported, but frequently, after its prolonged use, ringing in the ears, nausea, cephalalgia, and vertigo were complained of. In four cases there appeared a generalized icterus. None of these phenomena were ever of a serious nature, and they required no treatment other than the temporary suspension of the use of the drug. After their disappearance the exalgine was again given without the reappearance of the unpleasant symptoms. In conclusion, M. Löwenthal expresses the opinion that exalgine should be placed among the antichoreic remedies.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

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*All communications intended for the editor should be addressed to him in care of the publishers.*

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Original Communications.

CYST OF THE MIDDLE TURBINATED BONE.\*

BY CHARLES H. KNIGHT, M. D.,  
NEW YORK.

THE middle turbinated body may become of pathological importance in various ways. Aside from malignant disease and syphilis, which are prone to attack this structure in common with other intranasal tissues, the lesions of this body with which we usually meet may be divided into two classes—those involving its mucous membrane, and those affecting its bony framework. The former are more frequent and are more remediable, since osseous changes are always associated with an advanced degree of disease of the mucous membrane.

The object of the present paper is to add to the literature of a very interesting pathological change in the bony framework of the middle turbinated body, which, notwithstanding its frequency, has had but little notice. Many years ago one of my associates at the Manhattan Eye and Ear Hospital called my attention to a singular condition of a middle turbinated body which he had just removed with a cold-wire snare. We found that the loop had cut through a mass of polypoid tissue attached to a bony shell, presenting a depression in which the tip of the little finger could readily be placed. The bone was for the most part extremely thin, so that in the process of cutting through the mass the existence of osseous tissue was not recognized. The mucous membrane externally, which had not undergone polypoid degeneration, was in a state of decided atrophy. The interior of the cyst was lined by a pale, thin membrane. No attempt was then made to examine the tissues microscopically. Since that time numerous similar instances have come under my observation, and my friend Dr. W. H. Park has been kind enough to make sections and give me the results shown by the microscope. For the photographic reproductions I am indebted to my assistant, Dr. W. P. Brandegee. The illustrations show a side-view



FIG. 1.—Cyst of right middle turbinated bone. External surface.

FIG. 2.—Cyst of right middle turbinated bone. Interior.

and a view of the interior of one of the largest of these cysts with which I have met.† The patient from whom it was obtained was a middle-aged woman, whose right nostril was completely occluded by a mass which could easily be seen without a speculum when the tip of the nose was

raised, and which at first glance appeared to be a large myxoma. But on palpation it was found to be hard and resistant, and there was no sign of a polypoid condition of the mucous membrane. On the contrary, the soft parts were atrophied. The septum was somewhat deviated to the left, and there was some hyperplasia of the mucous membrane in the left naris without apparent bony change.

The subjective symptoms complained of were impeded nasal breathing, impaired sense of smell, and persistent headache. The voice had a slightly nasal quality and there was considerable annoyance from post-nasal discharge. The obstructed nostril was freed by means of the cold-wire snare and cutting forceps. The portion removed with the snare and shown in the photographs measures an inch and a quarter in its antero-posterior diameter, half an inch vertically, and half an inch laterally. The greatest depth of the cyst through which the wire passed was five eighths of an inch. The part removed with the snare represents only about two thirds of the entire cyst. The remnant was removed with cutting forceps so as to relieve all pressure and obstruction and permit free drainage. The patient experienced great relief from the operation, which was done under cocaine, and was followed by no unfavorable developments.

The clinical history in cases of this kind must of course vary with the degree of enlargement. In nearly every case the symptoms most prominent are those referable to pressure from the distending cyst, such as hemicrania and neuralgias of the fifth pair. These reflex neuroses were especially marked in cases described by Glassmacher,\* McBride,† and others. The most serious complication likely to arise, and one more apt to occur if myxomata coexist, is empyema of one or more of the adjacent sinuses, obstruction of the *ostium maxillare* being a frequent cause of antral disease. It is a remarkable fact that this cystic transformation but seldom involves the inferior turbinated. I have myself never seen it except in the middle. A single case has been reported by Schaeffer‡ in which the inferior turbinated was affected, and Bayer has reported a case in which the superior turbinated was involved. It is also noticeable that in a certain proportion of cases the condition is associated with well-defined myxomata or polypoid degeneration. In my experience more than half the cases presented this feature, and in every case there was more or less atrophy of the mucous membrane. Children seem to be exempt. None of my own patients was under twenty years of age, most of them were past middle life, and the majority were females. This condition requires to be distinguished from osteoma, myxoma, and mucocele of the ethmoidal cells. But little difficulty should be found in reaching a correct conclusion if we carefully observe the origin and situation of the tumor, its immobility, its hardness and at the same time its fragility, and possibly its translucency (Zwillinger). Osteomata are harder and do not permit of penetration by means of the exploring needle, and, moreover, are said to

\* Read before the American Laryngological Association at its thirteenth annual congress.

† (Zueckerandl, whom nothing in nasal pathology seems to have escaped, shows a typical example of this deformity in his classical work, *Normale und patholog. Anatomie der Nasenhöhle*, Tafel 2, Fig. 6.)

\* *Berl. klin. Woch.*, No. 36, 1884, p. 571.

† *Brit. Med. Jour.*, 1888, p. 1116.

‡ *Chir. Erfahrungen in der Rhinol. und Laryngol.*, Wiesbaden, 1885.

be movable at their inception. Myxomata are freely movable, are soft and yielding, and are generally multiple. Mucocoele of the ethmoidal cells is a rare condition, presenting many of the features of ordinary myxoma, and could hardly be mistaken for a bony tumor.

The method of preparing the specimen for microscopic examination was as follows: The cyst was kept for eighteen days in a saturated solution of picric acid, and was then washed out in alcohol. It was then placed in absolute alcohol for twenty-four hours, then transferred to equal parts of absolute alcohol and ether, in which it was retained another day, and finally was immersed for twenty-four hours in a solution of celloidin in absolute alcohol and

cells, and quite vascular. This structure is rather more dense in the immediate neighborhood of the bone. The thickness of the bone varies greatly in different regions, and distributed along its inner surface may be seen a row of osteoblasts. Lining the bone is a layer of loose œdematous connective tissue resembling myxomatous tissue. Finally, a complete row of columnar ciliated epithelium lines the inner wall of the cyst.

Two theories have been advanced in explanation of this condition. The first is that it is a result of a rarefying osteitis, similar to that occurring in the long bones. The second theory, recently sustained by Greville Macdonald, supposes the lesion to have its origin in an osteophytic

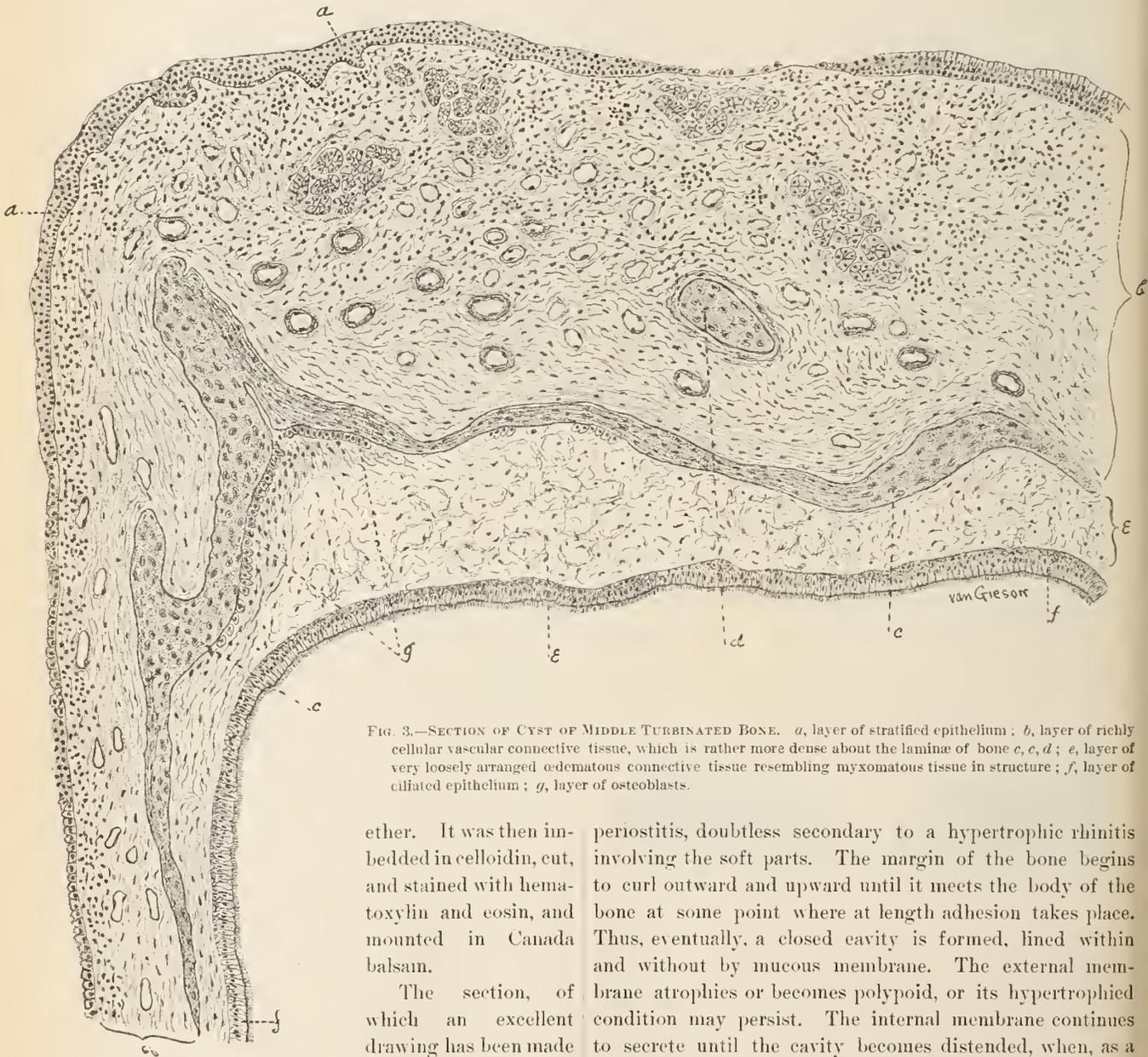


FIG. 3.—SECTION OF CYST OF MIDDLE TURBINATED BONE. *a*, layer of stratified epithelium; *b*, layer of richly cellular vascular connective tissue, which is rather more dense about the laminae of bone *c, c, d*; *e*, layer of very loosely arranged œdematous connective tissue resembling myxomatous tissue in structure; *f*, layer of ciliated epithelium; *g*, layer of osteoblasts.

ether. It was then imbedded in celloidin, cut, and stained with hematoxylin and eosin, and mounted in Canada balsam.

The section, of which an excellent drawing has been made by Dr. Van Gieson,

consists of one half of a small and probably recent cyst, which has been cut vertically at a right angle to its long axis. Examined from without inward, we find externally a layer of stratified epithelium, then a layer of connective tissue of considerable thickness, rich in

periostitis, doubtless secondary to a hypertrophic rhinitis involving the soft parts. The margin of the bone begins to curl outward and upward until it meets the body of the bone at some point where at length adhesion takes place. Thus, eventually, a closed cavity is formed, lined within and without by mucous membrane. The external membrane atrophies or becomes polypoid, or its hypertrophied condition may persist. The internal membrane continues to secrete until the cavity becomes distended, when, as a result of pressure, the glandular elements undergo absorption and the membrane becomes very much attenuated. In some cases the lining membrane will be found to have become polypoid and granulating, giving rise to the formation of pus, perhaps in sufficient quantity to simulate abscess. Macdonald, in an article on Cyst and Abscess of the

Middle Turbinate Bone (*Lancet*, London, June 20, 1891), remarks that abscess "may possibly originate in a cyst produced by retained secretion." The contents of these cysts vary in character. The name given them by French and German writers implies that they contain air, which is doubtless generally the case. But it is equally true that they sometimes contain fluid, mucous or purulent, as the case may be. Unless one could remove a cyst unbroken, which I never have succeeded in doing, it would be somewhat difficult to determine the quality and quantity of its contents. The manipulations attending its removal must of necessity provoke secretion and obscure its source. In some cases the cyst is multilocular, or its cavity is traversed by numerous bands of bony or membranous tissue. Bayer (*Rev. mens. de laryngologie*, etc., June 1, 1885) minutely describes a multilocular cyst of the right middle turbinated bone which he punctured with the galvano-cautery. The tumor occluded the naris and displaced the septum. It finally disappeared, and the parts regained their normal contour in the course of two months, after repeated applications of the galvano-cautery and the use of injections of chloride of zinc and phenic acid. A remarkable feature of this case was a recurrence of cystic degeneration involving not only the middle but the superior turbinated as well. In the largest of the specimens exhibited and shown in the photographs, the wall of the cyst is quite thick on one side and honeycombed. Elsewhere it is thin as tissue paper. It is difficult to conceive that the appearance depicted in this particular specimen could have been developed in the manner suggested by the second theory. On the other hand, I have met with several cases in which the cyst was as yet incomplete and apparently in course of formation by this process of curvation. The existence of columnar epithelium provided with cilia still further supports, and indeed may be said to prove, the second theory. At the same time other conditions can be satisfactorily explained only by assuming an inflammatory process in the bone itself.

The indications for treatment are clear enough, and may be enumerated as follows:

1. Interference with nasal respiration.
2. Prevention of nasal drainage.
3. Reflex neuroses.
4. Anosmia.
5. Impaired quality of voice.

Unless the cyst is so large as to cause pressure or impede nasal breathing, it is seldom necessary to interfere. The bone is usually so thin that it may easily be crushed with forceps if desirable, and redundant tissue may be removed with cutting forceps. In large cysts, especially if associated with polypoid growths, the cold-wire snare will be found to be most serviceable. Schmiegelow,\* who has carefully described this condition under the name "*transformation kystopneumatique*," prefers to puncture the cyst with the galvano-cautery and remove its walls to the necessary extent with cutting forceps and scissors. A similar method is advocated by Zwillinger,† who reports two cases,

and who claims to detect the presence of the cyst by transillumination and puncture. In my experience a diagnosis is usually possible without resorting to either of these methods, and the advantage of the galvano-cautery over other procedures as a mode of treatment is not apparent. The pain of the operation, in spite of the free use of cocaine, is sometimes considerable, and subsequent reflex neuralgias are not infrequent. Hæmorrhage is seldom excessive, and in several of my cases it was surprisingly scanty.

20 WEST THIRTY-FIRST STREET.

## THE REMOVAL OF NECROTIC AND CARIOUS BONE WITH HYDROCHLORIC ACID AND PEPSIN.\*

BY ROBERT T. MORRIS, M. D.

SOMETIMES it is desirable to remove dead bone without subjecting a weak patient to a dangerous or deforming operation. Attempts have been made with some success at clearing out this bone by a process of decalcification, but there are two chief reasons why failures have resulted as a rule. In the first place, it was discovered that superficial layers of dead bone were decalcified easily enough, but the acids did not reach deeply through the mass, especially if portions were infiltrated with caseous or fatty *débris*. In the second place, cellulitis was pretty apt to develop during the course of treatment. After much experimentation I have finally adopted a method of work which seems to be complete. An opening is made through soft parts by the most direct route to the seat of dead bone, and if sinuses are present they are all led into the one large sinus if possible. The large direct sinus is kept open with antiseptic gauze and the wound allowed to remain quiet until granulations have formed.

Granulation tissue contains no lymphatics, and absorption of septic materials through it is so slow that we have a very good protection against cellulitis. The next step consists in injecting into the sinus a two- or three-per-cent. solution of hydrochloric acid in distilled water. If the patient is confined to bed, the injections can be made at intervals of two hours during the day; but if it is best to keep the patient up and about, the acid solution is thrown into the sinus only at bed-time. In either case the patient is to assume a position favorable for the retention of the fluid. Decalcification takes place rapidly in exposed layers of dead bone, and then comes the necessity for another and very important step in the process. At intervals of about two days an acidulated pepsin solution is thrown into the sinus (I use distilled water, f ʒ iv; hydrochloric acid, ʒ xvj; Fairchild's pepsin, ʒ ss.), and this will digest out decalcified bone and caseous or fatty *débris* in about two hours, leaving clean dead bone exposed for a repetition of the procedure. The treatment is continued until the sinus closes from the bottom, showing that the dead bone is all out.

Even in distinctly tuberculous cases the sinuses will

\* *Rev. de laryngologie*, etc., May 15, 1890.

† *Wiener klin. Wochenschrift*, No. 19, 1891.

\* Read before the Southern Surgical and Gynecological Association, November 12, 1891.

close if apparatus for immobilizing diseased parts and tonic constitutional treatment are employed, as they should be in conjunction with our efforts at removing the dead bone.

If suppuration is free in any cavity in which we are at work, it is well to make a routine practice of washing out the cavity with peroxide of hydrogen before each injection.

It is a popular impression in the profession that living bone is not attacked by dilute mineral acids, but, as it makes a good deal of difference whether the impression is correct or not, I experimented as follows: A portion of the keratinoid layer was removed from the carapace of a turtle (*Nanemys guttatus*), and the animal was then placed tail downward in a glass of five-per-cent. hydrochloric-acid solution. In the same glass I placed also a segment snipped from the plastron of the turtle, and a transverse section of an old dried humerus of a man. The piece of humerus was completely decalcified in six hours, the segment from the plastron was soft in about twenty hours, and the carapace of living bone was decalcified at the exposed part in thirty hours. I was then curious to know what effect the acid had had upon the blood-vessels of the decalcified bone, and Dr. Smith, of the laboratory of the Post-graduate Medical School, made for me several sections of the carapace which included both decalcified and healthy bone. Investigation showed that all of the blood-vessels were destroyed wherever the bone was softened, and the action of the acid had extended farther up along the larger blood-vessels than elsewhere. In the accompanying photomicrographs the dark

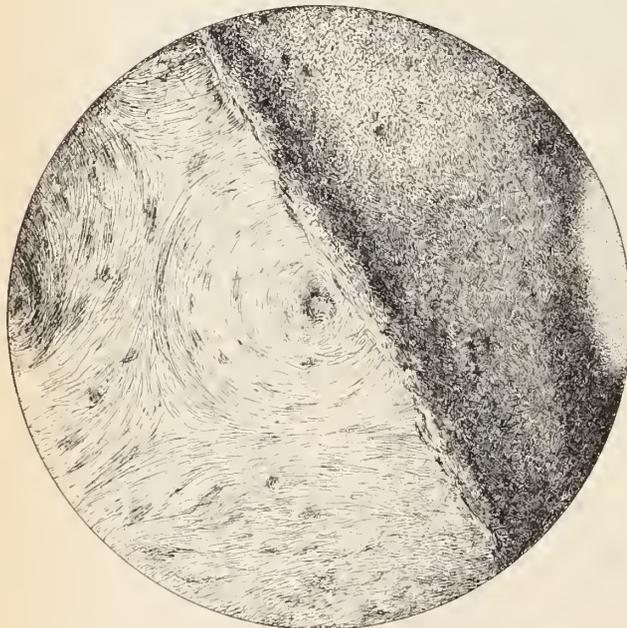


FIG. 1.

portions represent decalcified bone stained with carmin, and in the lighter portions the structure of the normal bone cells is readily distinguished. In Fig. 2 can be seen the line of extension of decalcification along three blood-vessels.

The difference in time between decalcification of the dead bone (six hours) and of living bone (thirty hours) is significant, a five-per-cent. solution of hydrochloric acid having been used.

If we use a two- or three-per-cent. solution of hydrochloric acid, a wall of lymph and of granulation tissue is



FIG. 2.

thrown out upon the surface of living bone for protection, and only dead bone is attacked. This at least has been my observation in several cases in which the results of treatment could be easily watched.

The details of treatment in some of the cases would be very interesting, but if the paper were lengthened to accommodate them my main points would be apt to hide.

## SUPERFICIAL PAPILLOMA OF THE OVARY.

WITH REPORT OF A CASE.

By STEWART PATON, M. D.

SINCE Proschaska reported his first case the literature relating to superficial papillomata of the ovaries has steadily increased. A few years ago it was very small, but the reason for this somewhat rapid increase is not difficult of explanation. The pathologist is particularly interested in the development of these tumors, for structurally they may be considered as on the border-line between benign and malignant growths, and therefore the question of their innocence or their varying degrees of malignancy and the possibility of recurrence after removal is of especial import to the surgeon. The term malignant as applied to this class of tumors is certainly an unfortunate misnomer, as it is misleading. Unquestionably these tumors recur. Starting from the ovary, growths may occur on the uterus, tubes, broad ligaments, bladder, and the various reflections of peritoneum, but recurrence takes place by direct implantation and not by metastasis. I have carefully searched all records for evidence of metastasis occurring with papillomata, but have failed to find any reliable evidence to this effect. Certain forms of truly malignant growths, such as the cauliflower-like forms of carcinomatous tumors, may and have been mistaken on superficial examination for papil-

lomatous excrescences—"les excroissances dendritiques"—and only the microscope can distinguish them. There is no more clinical evidence for calling papillomata malignant than there is for placing myxo-adenoma of the ovary in the class of malignant neoplasms.

Unquestionably papillomata have a decided tendency to become malignant if their growth is uninterfered with for years, but cases which have been under observation for a considerable period, such as Doran's case, seven years, or those of Marchand and Coblenz, have never shown any tendency to recur after removal. In one case recorded by Marchand there was, in addition to the papilloma of the ovary, a coexistent carcinomatous mass on the omentum. Both tumors were removed, but the carcinoma subsequently recurred. The record of the microscopical examination of the ovarian tumor is incomplete and I should be inclined to regard it as a carcinomatous growth and probably an illustration of that class of cases already alluded to where the gross similarities are so marked that a purely malignant tumor has been mistaken for a benign growth. This view is evidently corroborated by the fact that there was "a well-defined carcinomatous growth on the omentum." Apart from this negative evidence that ovarian papillomata are not truly malignant growths, we have somewhat more positive evidence in the histogenesis of these tumors. Under the microscope the dissimilarity between the mode of development of papillomata and that of the embryonic carcinomata and sarcomata is very striking. In any carefully prepared series of sections of the former we can see in the disposition of the blood-vessels in relation to the surrounding cells a dependence of the new tissue upon definite vascular channels for blood-supply. To use a simile for clearness, the new tissue is not cut off from a basis of food supply. Contrast with this the process of tissue formation in any malignant growth of the ovary or of any other organ. The cell infiltration is characteristic. Each cell may be looked upon as a distinct entity, and the process of their development is discrete as considered in its relation to the whole tumor. Nothing is more distinctive of malignancy, nothing is more trenchantly defined than the absence of this cell autonomy in the growth of papillomata. The new tissue is formed in intimate dependence upon the

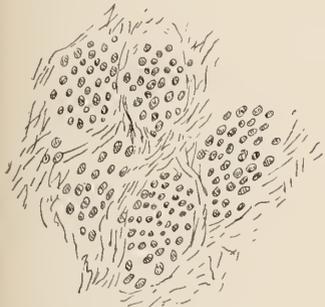


FIG. 1.—Cancer of the ovary.

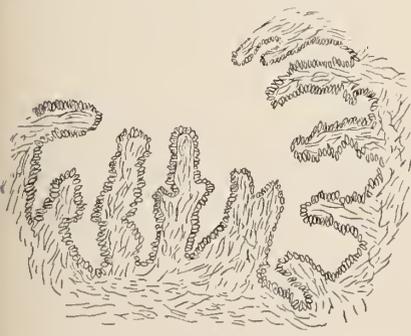


FIG. 2.—Papilloma of the ovary.

vascular supply; there is no cellular invasion, no metastatic diffusion, at least no case reported where the observations are free from question regarding their accuracy. Regarding papillomata as highly organized benign neoplasms, I have been unable to find a single case in which there has been a succession or recurrence of the growth in a more lowly organized but malignant type.

The importance of this is great, not as a proof that these growths would not have a malignant tendency if left untouched, but rather as an encouragement to the surgeon in attempting their removal. Recent observations point to something more even than the non-succession of malignancy. In the list of recorded cases where the peritoneal cavity has been thoroughly washed and drained there has been no recurrence of the papilloma, showing that the development of the implantations which occur in the majority of cases, and which it is often impossible to remove, has been successfully interrupted. It is particularly interesting to note that in the cases where recurrence after removal has been noted no mention is made of the fact that the abdominal cavity was drained after removal of the tumor. Naturally any implantations which existed at the time of removal and were overlooked develop, and consequently the records of such cases are practically worthless. I have been unable to find the record of any recurrence *in situ*. The removal with subsequent drainage of the peritoneal cavity undoubtedly prevents recurrence, at least as far as present records can determine the question for us. Drainage is all-important. It is often impossible to tell whether implantations have taken place, and if they have, of course, mere removal of the primary growth is not sufficient. If implantations have been left undisturbed, the thorough washing out of the peritoneal cavity apparently prevents the development of offshoots from the original tumor. Considering the great difficulty of completely removing papillomata, owing to their almost brittle character, the importance of always thoroughly washing out the abdominal cavity with distilled water and the employment of drainage-tubes can not be too strongly emphasized. In view of the rapid development of papillomata and the long continuance of symptoms, in some cases extending over a period of several years, we can not fail to note, even in the cases of longest standing, the absence of anything like an attendant cachexia. This is a point of minor importance, but still is worthy of attention. Apart from the local abdominal disturbances, such as ascites, pressure symptoms, menstrual disturbances, some pain, and the inconvenience afforded by the pressure of the tumor, patients suffer comparatively little. The symptoms are local. Too much stress must not be laid on this, however, for the absence of cachexia is often noteworthy in malignant cases. It is in the study of the histogenesis of these tumors and the correlative consideration of their clinical history and symptoms that we find considerable evidence of their primarily benign character. Striking confirmation of this is apparent in the following case, for the record of which I am indebted to Dr. T. Gaillard Thomas:

The patient was twenty-nine years of age; had been married six years. Had had one child, three years before; no miscarriage. She complained of dysmenorrhœa for several years prior

to becoming pregnant; since birth of child menstruation has been regular. On November 10, 1890, without any known cause, had an attack of subacute peritonitis, which lasted for two weeks. After the cessation of pain ascites rapidly developed. Since then the patient has been tapped thirteen times, and each time ten to thirty pints of clear serum were removed. Since the first appearance of the ascites the patient's general health has not suffered. Her appetite was unimpaired and her general strength was good. On October 9th the abdomen was opened and twenty pints of clear serum were removed; then with considerable difficulty a papillomatous mass, including both ovaries and the left tube, was torn loose from its attachments in Douglas's pouch. On superficial examination the mass was plainly papillomatous. Both ovaries were slightly enlarged. Their surfaces were covered with pedunculated outgrowths with pointed or rounded ends. The microscopical examination showed very clearly what has already been indicated in speaking of the histogenesis of these tumors, the absence of cellular invasion, and the evident dependence of the new-formed tissue upon definite vascular supply. Incidentally we may note the papillomatous mass connected with the right tube, as in the case reported by Doleris. The clinical symptoms of the case are interesting and show some points of importance in aiding in diagnosis.

As in this case, the majority of cases begin with symptoms resembling those of subacute peritonitis. These subside, then generally there is a rapid development of ascites with few other symptoms, the patient's general health being only very slightly impaired. As regards age, an examination of the records shows that no age is exempt; further than this, it is not safe to draw inferences, for the records of cases are yet too small in number.

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*Centralbl. f. Gynäkologie*, xi, p. 409.  
 596 LEXINGTON AVENUE.

## A REPORT OF CASES OF GLAUCOMA OF DIFFERENT VARIETIES, ILLUSTRATING SOME OF THE USUAL MEANS PRACTICED FOR THEIR RELIEF.\*

BY OREN D. POMEROY, M. D.,  
 NEW YORK.

CASE I.—Miss McG., aged twenty five, had acute inflammatory glaucoma of the right eye of ten days' duration. The eyeball was very hard, much congested, and so painful that she had not been able to sleep for more than a week. Iridectomy was promptly done under ether. Complete relief was at once obtained from all the symptoms. The vision was not much lowered, but it quickly returned to the normal.

CASE II.—Mrs. R. M., aged forty-eight, received a penetrating wound in the right cornea from a carpet tack. The lens was penetrated and soon became so swollen as to fill the anterior chamber. Increased tension of the eyeball and great pain resulted.

This lens matter was extracted through a corneal incision and the patient was at once relieved.

Both eyes were bandaged after the operation.

Four days subsequent to this the left eye was observed to have defective sight, she being able only to count fingers at four feet.

The corneal epithelium was somewhat hazy and the eyeball too hard.

It being evening, an iridectomy was done by lamp-light without difficulty.

The patient at once completely recovered, the vision and increased tension being restored to the normal.

CASE III.—Robert R., aged forty-one, was struck on the left eye by a piece of iron rust from a hammer; this lodged in the cornea and was removed by a fellow-workman. The eye was very painful, but the removal did not relieve the pain; the patient still continued to work.

The accident occurred three weeks previous to this observation. Four days subsequent to his first visit to the hospital he was again struck on the same eye by a piece of emery; this was at once removed, but intense pain still continued. Atropine was found to aggravate the pain; warm water was used to bathe the eye. In a day or two the eyeball had increased tension, the cornea was hazy and anæsthetic, the anterior chamber was shallow, and the pupil was widely dilated. There was considerable circumcorneal injection. The vision was =  $\frac{5}{6}$ .

Eserine solution was instilled and on the same day the pain disappeared, the pupil promptly contracted, the cornea began to clear, and the vision at once became doubled.

Improvement continued for a few days, but on March 25th it was thought proper to perform a sclerotomy, which was accordingly done. Eserine was continued.

On April 7th the tension was normal and the vision =  $\frac{2}{12}$ , whereas on March 9th it was only =  $\frac{5}{6}$ .

CASE IV.—Marg. M., aged sixty. Ten years since an iridectomy was done on the left eye.

Two weeks ago a severe pain appeared in the right eye, which has continued to the present time (July 10, 1891). There is intense ciliary congestion, steamy cornea, and shallow anterior chamber. The intra-ocular tension is increased. The nerve can not be seen. She counts fingers at six inches. Eserine was ordered to be instilled three times daily. In three days the pupil had contracted and the tension was diminished. Continued eserine and a leech to inner canthus, the latter repeated on the next day, which afforded some relief. July 18th, the tension being increased, injections of pilocarpine were used, leech repeated, and eserine continued. July 24th the tension is normal, pupil smaller. Eserine was continued. On July 28th the patient was discharged. It seems to the writer that the pilocarpine exerted an important influence upon the patient. Subsequent vision was not recorded.

CASE V.—Mrs. M., aged sixty-eight, had had attacks of inflammatory glaucoma in both eyes, with all the symptoms of the disease for several years. After three years the left eye became sightless and very hard. During the attacks of pain, relief, more or less complete, resulted from paracenteses of the corneæ, especially of the right. At the last bad attack of the right eye, the cornea becoming so opaque that little sight remained, iridectomy was reluctantly consented to and was done under ether on both eyes. The right recovered promptly and vision reached  $\frac{2}{12}$  and so continued for ten years, until her death. The left eye continued painful after the iridectomy for two weeks, when it was removed and found to contain an enormous blood clot. It is worthy of remark that the repeated paracenteses, at least a dozen, contributed greatly to the relief of pain during the exacerbations.

\* Read before the Medical Society of the State of New York at its eighty-sixth annual meeting.

CASE VI.—Henry M., aged sixty-four, has had chronic inflammatory glaucoma in each eye since a year. The tension is increased in both eyes. He counts fingers at three feet with either eye. The visual fields are much narrowed. Optic nerves are cupped with beaked vessels. Eyes moderately painful. An iridectomy was done on both eyes without affecting the tension. In four weeks sclerotomy was done, which restored the tension at once to the normal. The vision and the visual fields were unaffected.

CASE VII.—Miss S., aged forty-six years, has signs of chronic inflammatory glaucoma in the left eye dating back three months. The cornea is slightly hazy; the pupil somewhat dilated; the nerve shows glaucomatous excavation. The field is somewhat limited, and the tension is increased.

There is some circumcorneal injection, with moderate pain, which, however, is not constant. The vision =  $\frac{20}{155}$ . The other eye is normal and emmetropic.

Iridectomy was done under ether. The pain was relieved and the tension restored to the normal, but no other effect was produced.

This was one of two cases of glaucoma where the cornea was penetrated, in doing the iridectomy, with great difficulty.

CASE VIII.—Hannah W., aged sixty-five years, was awakened in the morning, about three months since, with a severe pain in the left eye; there was also some pain in the right eye. There was failure of sight in both eyes, but more so in the left.

On entering the hospital the vision of the left eye was =  $\frac{20}{200}$ . The right eye was =  $\frac{20}{200}$ . Both eyes were hypermetropic. The left has been painful since first being attacked.

The anterior chamber was shallow, and the pupil was somewhat dilated and sluggish. There was incipient cataract. The optic nerve showed signs of atrophy. There were flame-shaped hæmorrhages in the retina.

There was concentric limitation of both visual fields. Neither nerve showed glaucomatous excavation. The tension in the left eye was much increased; the right less so.

On June 16th sclerotomy was done on the left eye. It was feared that an iridectomy might induce an intra-ocular hæmorrhage.

After withdrawing the narrow cataract knife everything was as usual for a few seconds, when suddenly the anterior chamber was obliterated, and the iris prolapsed at either angle of the incision. These prolapses were removed by the scissors. Intra-ocular hæmorrhage was the natural explanation of this phenomenon. There was now only weak perception of light.

The operation resulted in quieting the pain and reducing the tension to the normal. Ten days subsequently there was pain in both eyes, and a one-grain solution of eserine was used in each four times a day. This pain continued for a week.

After its subsidence the patient was sent home, but was directed to report at the daily clinics.

Twelve days afterward (July 19, 1891) there was slight increase of tension and a little pain. On December 3d returned. She has had occasional pain in both eyes, but it has been relieved by a one-per-cent. solution of cocaine. The vision of the right eye =  $\frac{20}{200}$ ; that of the left is equal to counting fingers at six inches.

April 25, 1891.—The right eye is painful and has increased tension. A one-grain solution of eserine quickly relieved the pain and increased tension.

During the last six months the increased tension and the pain have been kept down by the eserine. The left eye has now no perception of light.

CASE IX.—Frank L. P., aged thirty-two years, applied for treatment on November 1, 1891, stating that for a year he had had dimness of vision in the right eye. There was some pain

and a feeling of soreness in the eye when excessively used. The vision =  $\frac{1}{2}$  with -1.50 D. The vision of the left =  $\frac{20}{20}$  with the same correction. A posterior polar cataract in the right eye caused a scotoma of from 10° to 20° in diameter. The field was concentrically limited to from 45° to 80°. The iris was sluggish. The tension was increased. A one-grain solution of eserine was used three times a day. Oleate of mercury was used with a view to constitutional effects. On November 14th the tension was normal and the patient was discharged.

On December 5th the tension was increased and there was some pain, but the vision =  $\frac{20}{20}$ . Paracentesis of the cornea was done with temporary improvement. By the 15th the symptoms had disappeared.

In a few days, however, there was increased tension and pain, and an iridectomy was done. In ten days all the symptoms had again disappeared.

On the 29th there was some intolerance of light, with conjunctival injection, increased tension, and some pain.

Eserine was instilled three times daily, with hypodermic injections of pilocarpine. The latter proving inoperative, the salicylate of sodium was administered in sufficient doses to cause free diaphoresis.

On January 27th all symptoms relieved.

On May 29th there was pain and augmented tension in the left eye, which had existed for three weeks.

Iridectomy was done at once, and completely relieved the symptoms.

Since this date he has returned, with increased tension in the right eye and some pain, which has been relieved by eserine.

CASE X.—Miss H., aged thirty-two, applied to me on September 19, 1890, with the right cornea so opaque as to only allow of perception of light. The projection showed perception of light 15° on the nasal side and 60° on the opposite side. There was some circumcorneal injection. In the upper portion of the iris, between the pupil and the periphery, was a small circular opening (coloboma). The tension was slightly increased and there was some pain. During two weeks a two-grain solution of eserine was instilled from two to six times daily. During two weeks the tension was normal or slightly increased. Paracentesis of the cornea was then done with temporary benefit. After one month a sclerotomy was done, which lowered the tension to the normal for three weeks. The cornea had cleared sufficiently for the patient to count fingers at sixteen inches. The nerve was now visible and found to show glaucomatous excavation. After three weeks the tension was increased, and eserine sufficed to reduce it to the normal, although it required to be used five or six times daily.

Six weeks from the performance of the sclerotomy, iridectomy was done. Since this time there has been only occasionally an increased tension, when eserine has reduced it to the normal. She then returned to her vocation of school-teaching, which she has continued to the present. I saw her in February, 1891, and the vision =  $\frac{20}{200}$  —. It seems to the writer very infrequent for the vision to increase from perception of light to  $\frac{20}{200}$  — in a case of chronic inflammatory glaucoma.

CASE XI.—N. W. A., aged fifty-five, applied to me on May 18, 1891. He had been rheumatic for several months. During six weeks he had had glaucomatous symptoms in the left eye. The eyeball showed considerable circumcorneal injection, with moderate pain and greatly augmented tension. Iridectomy was done at once.

Eserine was used. On the 23d the tension was normal, the injection of the eyeball much diminished, and the pain had disappeared. On entering the hospital there was only perception

of light on the nasal side, and on September 2d he could count fingers at six feet on the nasal side.

The vision of the right eye =  $\frac{2}{20}$ . On September 15th the tension was increased in the *right* eye. Eserine was ordered for both eyes.

October 24th.—Tension normal in both eyes, and vision perfect in the right eye; eserine still used in both eyes. The optic discs resemble those of glaucoma in the atrophic appearances, with the atrophic ring of glaucoma, but there is no abrupt peripheral excavation, except in the left there are a few bent vessels.

The patient is still under observation, and occasionally requires eserine to relieve pain and increased tension.

CASE XII.—Mrs. M. R., aged sixty, has had periodic pains in both eyes since three months, the right eye becoming first affected, and accompanied by periodic obscuration of vision. The nerves look atrophic, but not especially glaucomatous. The tension is increased in both eyes. The fields are somewhat limited.

The vision of the right =  $\frac{1}{60}$ , and the left =  $\frac{2}{100}$ .

February 3d.—A sclerotomy was done on the right eye. Eserine was used.

14th.—Tension normal, no pain.

18th.—Sclerotomy was done on the left eye.

March 4th.—The vision of the right eye =  $\frac{2}{60}$ , of the left eye =  $\frac{2}{100}$ .

11th.—Pain and increased tension in the left eye, which soon gave way to eserine.

April 8th.—There was pain and increased tension in the left eye, and an iridectomy was at once done, which completely relieved the symptoms. The vision in the right eye =  $\frac{2}{60}$ , and in the left =  $\frac{2}{60}$ ; whereas on entering, the right eye was =  $\frac{1}{60}$ , and the left was  $\frac{2}{100}$ .

CASE XIII.—Mrs. S. A. G., aged sixty-four, was admitted to the hospital on May 15, 1884, with severe pain in the right eye, which had been constant since three weeks. The left eye had more recently become painful. The sight was rapidly lowering. The pupil of the right eye was widely dilated and oval. Discs of both eyes atrophic, but having few glaucomatous characteristics. Both eyeballs injected. The vision of the right eye was perception of large objects; of the left, counted fingers at three inches on the nasal side. Iridectomy was done on both eyes on the day of admission.

Eight days afterward the tension was normal in the right eye, but increased in the left eye. There was no perception of light in the left, but the right eye counted fingers at two feet. There were hemorrhages into the anterior chamber of each eye. On the 29th the left eye counted fingers at fifteen feet, and the right at six inches. Discharged June 23d.

Dr. Reed Burns, of Honesdale, Pa., who referred her to me, writes that the vision of the left eye =  $\frac{6}{60}$ ; and again on July 16th, that the left eye is doing well but that the right is painful and becoming cataractous. The patient returned April 3, 1885, with the right pupil occluded, and calcareous changes in the cornea, with a red and painful globe. The left lens was becoming cataractous. The right eyeball was at once enucleated. The cataract in the left was not thought to be due to the iridectomy.

CASE XIV.—Washington L., aged forty-six. Ten years since he received a wound in the left eye from a bit of iron, which necessitated enucleation of the globe. Eight months ago the right eye exhibited symptoms of glaucoma. On entering the hospital the tension of the eyeball was increased, and the nerve showed glaucomatous cupping. The vision =  $\frac{6}{60}$ . Eserine was used with temporary benefit, but one week after admission it was found necessary to do an iridectomy. Eserine

was still continued. In one week the tension was normal, there was no more pain, the redness had nearly disappeared from the eyeball, and the vision =  $\frac{20}{20}$  +.

CASE XV.—Maggie W., aged twenty-two. This patient has had trachoma in both eyes for three years, and during the last month there has been great pain in the right eye and temple. The cornea is hazy and anæsthetic, the anterior chamber is shallow, and the eyeball too hard. Iridectomy was at once done, eserine being used. The tension was soon reduced to the normal and the pain was relieved. The patient counted fingers at one foot, whereas before the operation she counted fingers at four feet.

CASE XVI.—Joseph D., aged forty-three, has had gradual loss of vision since six months, without pain. The right eye was first affected, and is now the worse of the two. Both discs are deeply cupped. The pupils are moderately dilated, and the anterior chambers are shallow. The right eye has faint perception of light, and the left counts fingers at two feet. The field is limited and extends from 30° to 45° around the posterior pole. The tension is increased in each eye. A one-grain solution of eserine was used three times daily. In a week after the patient's entering the hospital Dr. Hepburn did a sclerotomy on the left eye, eserine being used in both eyes. Fourteen days afterward the tension was normal in each eye. On the next day sclerotomy was done on the right eye. Eserine was used in both eyes. Perception of light in the right eye was much improved. In the left eye the *field is nearly normal* and the vision =  $\frac{6}{60}$ .

September 16th.—The right eye counted fingers at eighteen inches.

30th.—There was increased tension in the left eye and eserine was used.

October 22d.—She was discharged with vision improved, but the field in the left had diminished to 70° by 20°, being about three times the original size.

CASE XVII.—Matthew R. R., aged fifty-four, has had symptoms of glaucoma simplex, dating back four years. There has been no pain. There has been occasionally a halo about the gas light. The fields are limited to about 20° in each eye. The tension was slightly increased and the pupils moderately dilated. The discs show glaucomatous excavation and appear atrophic. The vision =  $\frac{2}{100}$ . Iridectomy was done on both eyes at one sitting. The tension was reduced to the normal, but there was no change in the vision. Five years afterward there was no change.

CASE XVIII.—Mrs. T., aged fifty-seven, applied for treatment July 23, 1889. Six months since, she had a severe pain in the right eye and temple, lasting a day or two. Since this time she has had pain in the eye most of the time, except occasional intervals of four or five days. One month since, she noticed that the sight was lost and there was no perception of light. There was increased tension and glaucomatous excavation of the nerve. In the left eye the vision =  $\frac{2}{100}$ , the tension was slightly increased, and the nerve seemed to be physiologically excavated. Eserine was used in the right eye six times daily, and in two days the pupil was much contracted and the tension reduced to the normal. Did not return.

CASE XIX.—Mrs. B., aged forty-two, was first seen January 29, 1890. At the age of fourteen a door fell upon her head, wounding the left eye, and causing hemorrhage from the nose and ears. She has seen badly out of this eye ever since, but worse within two years. Since six months she has only perception of light. There are numerous punctate opacities of the cornea; the pupil is dilated, but responds slightly to light; there are lenticular opacities and floating bodies in the vitreous. The projection is imperfect; the nerve is so atrophic as to be

indistinctly located, but there is no excavation. The tension is slightly increased. The eye feels uncomfortable, but not positively painful. Eserine was used three times a day. The pupil promptly contracted and the tension soon became normal. The eserine caused some pain, and was discontinued for a short time.

December 20, 1891.—The patient again presented herself, saying that she had used the eserine daily ever since the last record.

The eye shows normal tension, is not painful, and is doing well. On November 2, 1891, the tension was increased, but the eye was in fairly good condition. Eserine has been used occasionally up to the present time and the eye is comfortable.

CASE XX.—Mrs. W. C., aged sixty, eight years since had rheumatism, which was accompanied by intense pain in the right eye. In a few days the sight of this eye was abolished. Since that time there have been occasional attacks of pain. Five years ago the sight of the left eye was foggy, but there was no pain. Three weeks ago it began to pain her, and the sight grew worse. The pupil is dilated and the anterior chamber is shallow; there is no sight. The right eye has a seral staphyloma, with a similar condition otherwise as in the left. Sclerotomy was at once done on the right eye and iridectomy on the left. In three weeks the patient was discharged, having no pain and with normal tension.

In all, there were twenty cases and thirty-two eyes.

Of these, there were four cases of *acute inflammatory glaucoma*, one eye only being affected.

Of *chronic inflammatory glaucoma* there were twelve cases and seventeen eyes. Of *glaucoma simplex* there were two cases and four eyes. There was one case and one eye with *hemorrhagic glaucoma*. There were four cases of *glaucoma absolutum*, with five eyes affected.

Of the cases of *acute inflammatory glaucoma*, Case I was completely relieved by iridectomy; the same of Case II. Case III was treated by eserine before and after sclerotomy, with vision improved from  $\frac{5}{c}$  to  $\frac{20}{xxx}$ . Case IV was relieved by eserine, leeches, and pilocarpine injections; vision not tested.

Of the cases of *chronic inflammatory glaucoma*, the right eye of Case V was completely relieved by iridectomy (vision  $\frac{20}{xxx}$  from counting fingers). The glaucoma was kept in abeyance for two years by occasional paracentesis of the cornea.

In Case VI iridectomy failed to relieve tension in each eye, and sclerotomy succeeded. In Case VII iridectomy relieved pain and tension, but did not affect the sight. The cornea was punctured by the keratome with great difficulty, although the instrument was in perfect order.

In Case VIII, right eye, pain and increased tension was relieved by eserine for more than a year; vision =  $\frac{20}{xxx}$  from first to the present time.

In Case IX both eyes were affected, on which paracentesis, sclerotomy, and iridectomy were done; eserine was used most of the time, even after the iridectomy, the last treatment being pilocarpine and salicylate of sodium.

In Case X the patient was treated with benefit by eserine, paracentesis, sclerotomy, and iridectomy.

Eserine was found to be of service even after the performance of iridectomy.

In Case XI, left eye, the sight was improved by iridec-

omy and eserine, from perception of light to counting fingers at six feet.

In Case XII neither nerve was excavated, but both were atrophic; sclerotomy permanently benefited the right eye, but iridectomy was needed in the left.

In Case XIII iridectomy was of temporary benefit to both eyes, but ultimately the left was enucleated and the right became cataractous.

In Case XIV the left eye was relieved by iridectomy and eserine. In Case XV iridectomy relieved tension, but lowered vision.

In Case XVI, of *glaucoma simplex*, sclerotomy and eserine relieved tension in each eye, improved the right eye from perception of light to counting fingers at eighteen inches, and in the left from fingers at two feet to  $\frac{20}{c}$ .

In Case XVII iridectomy relieved tension, but had no effect on the vision.

In *glaucoma absolutum* in the right eye of Case XVIII, the augmented tension was relieved by eserine.

In Case XIX, in the left eye, eserine has relieved augmented tension for two years, and so far has rendered an operation unnecessary.

In Case XX, increased tension in the right eye with some pain has been relieved by sclerotomy, and the left eye has been relieved by iridectomy. In the left eye of Case V iridectomy induced intra-ocular hemorrhage which necessitated enucleation.

*Eserine* was usually used in solutions of one grain to the ounce, but sometimes in two grain solutions, and as often, in some cases, as six times daily, without in a single instance causing iritis, and only occasionally inducing pain.

It has been found useful in acute inflammatory glaucoma, and in most of the cases of chronic inflammatory glaucoma, even before, during, or after operations.

In *glaucoma absolutum* it has succeeded often in relieving pain and augmented tension, and indefinitely warding off operations.

Paracentesis of the cornea has met with some success in temporarily relieving pain or increased tension in all forms of glaucoma, and seems to be free from danger.

## INTRACRANIAL NEURECTOMY OF THE SECOND AND THIRD DIVISIONS OF THE FIFTH NERVE.

A NEW METHOD.\*

BY FRANK HARTLEY, M. D.

In my experience, Mr. President, one of the most difficult instances in which the surgeon is called upon to decide upon the feasibility of further operative interference exists in recurrences of pain following neurectomies or neurotomies for persistent neuralgia. It is not always possible to determine whether the seat of pain is situated beyond the seat of the previous operation, whether a new painful branch still uncut sends by irradiation the feeling of pain in the

\* Read before the New York Surgical Society, January 13, 1892.

nerves operated on, or whether pressure or enlargement of the proximal end of the nerve is the cause of the recurrence.

With such uncertainty we can not be reasonably certain of a good prognosis until all branches of the trunk in which pain is present are cut.

In many of the operations for the relief of prosopalgia involving the second and third divisions of the fifth nerve, the difficult technique, the small field of operation, the arteries requiring ligature to preserve a clear field for the neurectomy, are important considerations. Especially is this the case where previous neurectomies have been done in the field of the operation. The history of the case which I wish to present this evening is as follows:

J. D., aged forty-six years, married, England, salesman, admitted to Roosevelt Hospital on August 8, 1891. The patient's father died of pleurisy; in other respects his family history is negative.

*Personal History.*—Patient denies rheumatism and syphilis. He has had malarial disease, but in other respects has been perfectly healthy.

In December, 1882, he was seized with a sharp neuralgic pain, at first referred to a spot about two inches to the left of the symphysis menti. This pain radiated over the whole left side of the face and head, involving the temporal region as far as the temporal ridge, and the left side of the tongue and mouth over the upper and lower jaws. The left orbit was involved in this attack.

This attack lasted eighteen hours, and, after an interval of four days during which time momentary attacks of pain were present in the same region, it reappeared. The second attack was more severe, and lasted two or three days. For the next two years he had constant pain over this region and was treated medicinally with aconite and morphine.

In September, 1884, the infra-orbital nerve, with Meckel's ganglion, was removed.

From the scars left, one would judge that either Wagner's or Chavasse's operation was performed at this time.

For four or five weeks he had partial relief. The constant pain disappeared, but the spasmodic twitchings continued. It soon reappeared, however, and the patient was again treated with aconite and morphine.

He had at this time thirty-one teeth drawn, thinking that the origin of the pain was located in them.

After eighteen months (1886), section of the inferior dental nerve was made by the same surgeon. The scars would lead one to think that Velpeau's operation was performed at this time.

On recovering from the ether he had an attack lasting seventeen days. From that time to the present he has had no change in his condition. The pain has been constant, except for an occasional period of one or two days. The contractions in the muscles of the face amount to forty in about thirty minutes.

Owing to the previous operations and the involvement of the lingual and auriculo-temporal nerves, I decided to attack the nerve at a point where I could divide the second and third divisions of the fifth nerve completely by one operation. The operation intended was to attack the nerve on the inner surface of the skull outside the dura mater, to isolate the second and third branches completely, to divide and resect as long a portion as possible. The advantages thought to exist in this method over Pancoast's, or its modifications by Krönlein, Credé, and Salzer, or Lücke's operation, were the easy access to the nerve, the comparatively large field for work, the rapidity with which the operation could be done, and the small amount of hæmorrhage.

The disadvantage was the inability to resect as long a piece as could be done in some of the other methods. This disadvantage I am certain can be overcome in the future when the knowledge of the degree of adhesion of the fifth nerve and dura mater is better appreciated. It is not difficult to go beyond the Gasserian ganglion.

This I did not appreciate fully before doing the operation on August 15, 1891. The operation performed was one in which an omega-shaped incision was made, having its base at the zygoma and measuring a distance marked by a line drawn from the external angular process of the frontal bone to the tragus of the ear.

The curved and rounded portion of this incision reached as high as the supratemporal ridge, the diameter of said circle being three inches. The skin and deeper tissues were cut in the shape of the Greek capital letter omega, a method of incision I first saw recommended by Uhle two or three years ago. This incision was carried down to the periosteum of the skull in all portions of the incision, except in the straight part at the base; the tissues were then retracted and the periosteum divided upon the bone in the same direction and as far as the straight part at the base.

With a chisel a groove was cut in the bone corresponding to the divided periosteum. This groove went to the vitreous plate, except at the upper angle over the rounded portion where it included the vitreous plate.

A periosteum elevator was here inserted and used as a lever to snap the bone on a line between the ends of the circular portion of the incision. In this way the breakage occurs along the lower portion of the wound, and a flap, consisting of skin, muscle, periosteum, and bone is thrown down, exposing the dura mater over a circular area of three inches in diameter. The middle meningeal artery was then tied, the dura mater was then separated from the bone, and the floor of the middle fossa of the skull was exposed. Broad retractors were used to raise the dura mater with the brain and to expose the foramen rotundum and the foramen ovale. The hæmorrhage was stopped by sponge pressure. The exposure of the first, second, and third divisions of the fifth nerve, together with the carotid artery and cavernous sinns, was exceedingly good.

The second and third divisions were isolated at the foramen rotundum and the foramen ovale, and, by slight pressure upon the dura mater, it could be stripped from the nerves to beyond the Gasserian ganglion. These were divided with a tenotome at the foramen rotundum and the foramen ovale, and that part between these and a point beyond the Gasserian ganglion was excised. As this amount of nerve is not very great, the ends of the nerves were pushed through the two foramina so as, if possible, to interfere with any reunion. In the retraction of the dura mater, owing to imperfect instruments, the third, fourth, and sixth nerves were somewhat injured. As no bleeding was present, the brain was allowed to fill the fossa. The flap—consisting of bone, periosteum, muscle, and skin—was replaced. The irregular edge of the vitreous plate which remained attached to the bone not involved in the flap acted as a shelf on which the flap rested and prevented its falling in upon the dura mater. The periosteum was stitched, the muscle sutured in place, and the skin sewn with silk. One drainage-tube was inserted at the lower angle; an antiseptic dressing was applied. Time of operation, one hour and forty minutes; the patient was carried to the ward in good condition. Following the operation, August 16th, ptosis of the left upper lid appeared, together with double vision and inability to move the eye. The patient was entirely free from pain and continued to do well for one week.

August 23d.—To-day a slight dermatitis appeared over the

area of operation, which is treated with ichthyol (ten per cent.) and bichloride irrigation.

On August 24th Dr. W. Vought examined the patient for me, and reported as follows: "The area of anæsthesia may be seen upon the shaded portion of the drawing. The other areas were the left side of the mucous membrane of the mouth over the upper and lower jaws, of the soft palate, of the anterior two thirds of the left side of the tongue, of the left conjunctiva and cornea, and of the left nostril. Muscular paralysis, complete, of the left buccinator, the pterygoids, and the left occipito-frontalis (frontal portion); almost complete, of all the external muscles of the eye. Ptosis; pupil normal. Nerves divided:



the second and third divisions of the fifth nerve, the branch of the seventh to the occipito-frontalis; injured, the third, fourth, and sixth nerves. The ophthalmoplegia externa I should give a fair prognosis for spontaneous recovery, as you will see by examining the patient that slight movement of all the eye muscles is present, which leads me to think the nerves have not been divided, but merely

severely injured. The ptosis could be corrected at any time."

*August 30th.*—Patient is to-day discharged cured and returned to the Vanderbilt Clinic, Nervous Department.

*September 30th.*—Patient has recovered from his paresis in the third nerve; the double vision, ptosis, and inability to use the third nerve have entirely disappeared. The paralysis of the pterygoids, temporal, and masseter muscles produced by the division of the motor portion of the fifth seems to have incommoded him to a very slight extent. The false teeth worn in the lower jaw before the operation fit quite accurately their opponents in the upper. Protraction and retraction of the lower jaw seem to be diminished, but elevation and depression of the lower jaw seem good. As the patient has chewed since 1882 all his food on the side opposite to the present paralysis, he has not been distressed by the division of the motor portion of the fifth.

The patient informs me that he is at present entirely free from pain and has gained in weight sixteen pounds.

I wish to say in conclusion that this method of reaching the base of the skull I have employed in the posterior fossa in a case of suppurative meningitis following otitis media. Though the case had a fatal issue, the exposure of the posterior fossa was good.

*January 13, 1892.*

**The Navy Register for 1892.**—The recently published Register of the Navy shows the following changes in the medical corps: The retirement of Medical Directors J. Y. Taylor and T. J. Turner resulted in the promotion of Medical Inspectors G. S. Beardsley and Henry M. Wells. These promotions and the retirement of Medical Inspector Theoron Woolverton have given a "step" to Surgeons Edward Kershner, J. R. Tryon, and W. H. Jones.

## A TOOTH-PLATE LODGED IN THE LOWER ŒSOPHAGUS MORE THAN A YEAR.

REMOVED BY EXTERNAL ŒSOPHAGOTOMY.\*

BY ROBERT ABBE, M. D.,  
SURGEON TO ST. LUKE'S HOSPITAL.

IN June last a man of thirty-five came under my care with a history of œsophageal stricture. He was emaciated and looked like a patient in the third stage of phthisis. He had been running down in health during the previous year, and of late had lost a pound daily. Attempts at swallowing produced severe coughing and gagging. A few spoonfuls of fluid could be got down at a time, but even that usually caused him to choke. More often a considerable part of what he swallowed regurgitated in a few minutes. He had been for three weeks under medical care in the hospital when he was transferred to my service. Not even the smallest œsophageal bougie could be got past the stricture, which was four inches below the cricoid. As this was an unusual site for a malignant growth, which it was thought to be, I asked the man if he had ever swallowed anything which might have stuck in his throat. He said "No." But on the following day he said that since I had asked him he remembered that on Decoration day the previous year he was intoxicated, and on coming to himself the next day found that he had lost his teeth and had a new set made at once. Some little trouble in swallowing made him visit a physician a day or two afterward, and during the next two months he visited two or three physicians, and finally entered a Philadelphia hospital. On all these occasions he expressed the fear that he might have swallowed the teeth, but, after repeated examinations with soft bougies, and being always told that nothing could be felt, he dismissed the matter from his mind, and was treated during the remainder of the year as a dyspeptic or consumptive.

Pain was never a prominent symptom, but the hard gagging, choking, and regurgitation of food, together with cough and progressive emaciation, made up the sum of his symptoms.

On hearing that he had possibly swallowed a hard substance, I at once passed into the throat a *metal* bougie à boule, and was gratified to feel the sharp click of the tooth-plate, which the soft gum-elastic bougies had never disclosed.

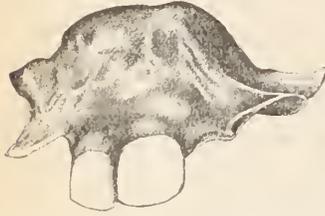
I regard that point as one of much importance in examinations of the œsophagus for foreign bodies. I was wholly unable to pass even the smallest bougie of any description beyond the obstruction. The bougie à boule was arrested between nine and ten inches from the incisor teeth.

On the following day I operated with the assistance of Dr. Murray.

Under anæsthesia the throat was palpated, to locate if possible the site of the obstruction, but nothing was to be felt. The usual three-inch incision was made as low as possible on the left side at the edge of the sterno-mastoid muscle. The omo-hyoid was divided and the superior thyreoid artery. The lobe of the thyreoid gland was found wrapped round the œsophagus quite well toward its posterior surface, and caused some delay in getting at the latter. Its arborescent surface vessels made a good guide to its recognition, as distinguished from the œsophagus, which was hidden from view by the thyreoid lateral lobe. A large, easily bent block-tin bougie was used through the mouth to make the œsophagus prominent. The latter I incised vertically for an inch and a quarter, and through this gap my finger felt the plate *an inch and a half below the suprasternal notch*. Loops of silk through the cut edges of the œsophagus held them

\* Read before the New York Surgical Society.

apart without damage during the extraction. A long curved dressing forceps soon removed it, with the aid of one finger of the other hand, which had to loosen each imbedded hooked end of the tooth-plate several times during its withdrawal.



The plate lay crossways with its concavity upward, the false teeth pointing forward. The œsophagus was

dilated into a fusiform pouch in which the plate could move. A large stomach tube was readily passed into the stomach after its removal.

Believing, as I said five years since before this society, that immediate suturing of the œsophagus was practicable and would give less trouble afterward, I used fine catgut to make continuous suture of the submucous and muscular coats of this tube; the external wound was tamponed lightly with iodoform gauze.

For the first day afterward nutrient enemata were given. During the second day sterilized milk was given through a small soft-rubber tube slipped well down the œsophagus.

The patient was greatly annoyed by copious secretions of laryngeal and salivary fluid.

During the third day a quart of sterilized milk was allowed the patient to swallow; nutrient enemata were also continued. The iodoform gauze tampon was replaced by a small drain tube.

For ten days boiled fluids were allowed to be drunk. The œsophagus incision healed primarily, and not a drop of fluid appeared in the neck.

The external part of the wound healed by granulation.

Soft solids were allowed on the eleventh day.

On the fifteenth day he was discharged, with the wound healed. He had gained steadily in weight, and was taking a full-sized œsophageal bougie.

Two months later the average-sized bougie was occasionally passed and he was improving.

## ON THE REDUCTION OF FEVER, PARTICULARLY IN TYPHOID.

### THE COMPARATIVE VALUE OF ANTIPYRETICS AND THE COLD-WATER TREATMENT.

BY LOUISE G. RABINOVITCH, B. S. (PARIS). M. D.

LATE RESIDENT PHYSICIAN, PHILADELPHIA HOSPITAL;  
ASSISTANT PHYSICIAN, INSANE ASYLUM, BLACKWELL'S ISLAND, N. Y.

It is hardly necessary to remind one of the differences of opinion as to the cause of fever. Most eminent authors differ as to whether it is due to increased production or decreased dissipation of heat. Any one who asks the question what fever is due to will find ample field for theorizing by reading MacAlister's comparison of fever as quoted by Dr. Isaac Ott in his work on *Modern Antipyretics*, which reads thus:

Suppose a tall vessel containing water, the level of the water representing temperature. Let two pipes be connected with this vessel, one conveying water, the other carrying it off. Let the inlet and exit tubes be each provided with a stop-cock, and let the two stop-cocks be connected by a rigid link which insures that they always turn together and by the same amount. If, to start with, the inflow and outflow are equal, then, however I move the linked stop-cocks, the height of the water will be the same. Now remove the rigid link, and connect the stop-cocks

by a spiral spring. If you move the inflow stop-cock so as to increase the inflow, the outflow one will not at once follow, and the balance being broken, the level of water will rise. But shortly the elasticity of the spring comes into activity, the outflow is equal to the inflow, and the rise will cease, but the new high level will be maintained. Every movement of either stop-cock will affect the level, which will fluctuate accordingly, but its height at any moment will not be an index of the amount of inflow at that time. The inflow may be slight while the level is high. If, now, you substitute heat production for inflow and heat dissipation for outflow, the rigid link will represent the healthy thermotaxic mechanism; then when this is weakened or relaxed or broken the steadiness of the normal level is impossible.

Dr. Isaac Ott, in his work on *Modern Antipyretics*, and Dr. William A. Carter, in his prize essay on *Heat Production and Heat Dissipation in the Normal and Febrile States*, have proved abundantly that temperature, heat production and heat dissipation are independent of each other, and that all are governed by special centers in the nervous system. Dr. Ott gives very convincing graphic tracings of his experiments, showing a case of induced septic fever where the heat production reaches its height some hours before the temperature curve, and the curve of heat dissipation is "lagging," as he styles it, behind that of heat production, although it follows it in its ascent. Another case was that where, after a starvation period, a high temperature took place while both heat production and dissipation had fallen below the normal. A third case was one of malarial disease, showing that heat production was at its height during the chill, that heat dissipation was not so great as at other times, and that after the fever had reached its height the previous rise was succeeded by an enormous fall of heat production; and it illustrated well how high temperature was not an index of the height of heat production. Heat dissipation is at its maximum during the stage of defervescence. He concludes by stating that the basal thermotaxic centers are the most important factors in the temperature phenomena of fever, and by his experiments urges the inference that the thermogenic, thermotaxic, and thermolytic centers are reflex in their activity.

In face of the enthusiasm of some physicians as to the use of the cold-bath treatment for reducing temperature, it is very convenient to stand by this statement. By reason of the intimate connection of the heat centers with the peripheral nerves, as has ably been shown in Dr. Ott's last work, the tonic influence of the water is conveyed to the thermic centers, which become again enabled to govern the body heat, whatever was the cause of disturbance of harmony between those centers.

Dr. Mary Putnam Jacobi reports a severe case of typhoid fever (*Times and Register*, 1890, p. 34) which was treated by cold baths. After the second day of treatment and the tenth day of the disease, the temperature reached its maximum, 106.2° F., and never reached that again; from 105° F. it was reduced to 98.8 by a cold bath, and it never reached any alarming degree till recovery took place, the latter having come at an earlier period than is usual even in a mild case.

The cold-bath treatment is contrafebrile and not antipy-

retic, Dr. Jacobi says, and she remarks that it is difficult to see, without serious reason, why the beneficial effect is brought about by diminishing the temperature  $2^{\circ}$  or  $3^{\circ}$  F. when the latter result always implies performance of work in and by the nervous system, which is already overtaxed by work. The question is very interesting. Perhaps it can be answered, if, as represented above, the thermogenic, thermotaxic, and thermolytic centers are intimately related in their action with the peripheral nerves. From Dr. Ott's standpoint, fever is due to lack of harmony between these centers, whatever may cause it. Fever does not necessarily imply either increased heat-production or diminished heat-dissipation, and it may manifest itself when both the latter are below the normal. Water acts as a sedative on those centers through the peripheral nerves, restoration of harmony between them follows, and pyrexia is reduced without involving the nervous system in the work for new production of heat.

To come nearer the subject of the cold-water treatment, Brandt advocates free nutritious feeding of the patient subjected to his method of treatment, in order to enable him to sustain the enormous drain of his vital forces; with this, and by strictly carrying out the rules which he gives for bathing a typhoid case, recovery must ensue.

Dr. L. Bouveret (*Lyon méd.*, 1891, lvi, 531, 565; lvii, 113) treated two hundred typhoid cases by Brandt's method, and says that it is his experience any antipyretic agents used with the cold-water treatment protracted the course of the disease. In one set of a hundred cases he had 7.5 per cent. of deaths, and in another hundred cases only 3 per cent., though some cases were of severe type. He corroborates Brandt's statement by saying that if a young patient dies of typhoid fever there was probably an imperfect point in the treatment; the patient was not treated by cold baths, was not bathed from the beginning, or was not bathed after Brandt's method.

Dr. J. E. Graham (*Canad. Pract.*, Toronto, 1891, xvi, 53-61) collected a large number of statistics on the subject and thinks that high temperature can always be controlled by cold sponging, and agrees with Dr. H. C. Wood that cold baths are much safer than are antipyretic drugs.

Antipyretic drugs in typhoid fever always remind the writer of this paper of a very severe case of typhoid fever in a girl, twelve years of age, who was admitted to the medical wards of Philadelphia Hospital.

She was nursing her mother in typhoid fever, and was taken ill with the same. She was cared for by a trained nurse at home. The temperature during her first day of illness (the day when she complained to the nurse of feeling sick) was  $103.8^{\circ}$ ; pulse, 100; respiration, 24. The temperature, pulse, and respiration were increasing progressively during the seven days of her illness at home. On admission to the hospital, her appearance was that of the severest type of typhoid fever. Temperature,  $104.4^{\circ}$ ; pulse, 102; respiration, 26. She was stupid and at times in active delirium. This condition continued throughout the period of her illness, and the temperature, pulse, and respiration were increasing progressively, with some fluctuations only, which were due to frequent doses of acetanilide (two grains at a time), or occasional sponging. There were no typhoid spots, and she had a soft, blowing, mitral regurgitant murmur.

From the seventh to the fifteenth day of her illness the temperature was between  $105^{\circ}$  and  $102^{\circ}$  F., with two exceptions ( $101.8^{\circ}$ ); on the fifteenth day reached  $99.8^{\circ}$  F., remained so for two hours, and ascended to  $103.4^{\circ}$ ; from the fifteenth to the eighteenth day remained between  $101^{\circ}$  and  $104^{\circ}$ ; fluctuated between  $100^{\circ}$  and  $105^{\circ}$  F. till the thirty-first day of her illness, when she died. The fluctuations were invariably caused by the frequent and repeated use of two-grain doses of acetanilide, which always reduced the temperature about  $2^{\circ}$  F., but the reduction was always of very short duration. The pulse was between 96 and 148, respiration between 24 and 60 a minute, throughout the course of the disease.

Several days after admission peculiar spots made their appearance on the body, apparently due to capillary embolæ. This view was held by all of the physicians who saw the case, and with the presence of the soft mitral regurgitation it was thought to be a case of typhoid complicated by septic endocarditis, the latter being the cause of the capillary emboli. On the twenty-ninth day of the disease the girl had a profuse intestinal hæmorrhage, she became more delirious than before, the hæmorrhages which followed were very large, from one to two pints at a time and too often repeated by day and night till the thirty-first day of the disease to give her a chance to recover.

The post-mortem examination revealed the most intensely engorged, infiltrated, and ulcerated lower bowel that the writer ever saw in the course of several hundred autopsies. There was no endocarditis, and no other pathological condition except profound anæmia of all the tissues and a very small cicatrix in a pulmonary apex.

Acetanilide affects the heart by depressing it profoundly; it causes cyanosis, and increases arterial tension. When a heart is beating at a rate of from 96 to 148 per minute it has already an immense amount of work to do. To depress such a heart and to increase the arterial tension seems really poor therapy. Had we used cold-water treatment the child would undoubtedly have made a good recovery.

In the subsequent cases of typhoid fever the writer never used antipyrine or acetanilide as an antipyretic. Cold water, either in the form of irrigation, cold pack, sponge bath, or plunge bath, was the stand-by as an antithermic. While in charge of the men's medical wards at Philadelphia Hospital the writer had under her care nine typhoid patients which included her own and Dr. S. M. Taylor's, who was sick at the same time. Three of them had pneumonia, and one left pleurisy with effusion, which extended to the third rib, and pericarditis with effusion; the heart was displaced almost entirely to the right, and for three days the cardiac sounds could not be heard, although the pulse was perceptible.

This case was of special interest. It was that of a young man, twenty-one years of age, tall and robust in appearance. He became delirious and violent and attempted to jump out of the window; his friends thought he was insane and sent for the ambulance. The physician diagnosed the case at once as one of typhoid and assigned him to the medical wards. On admission, he was in profound stupor and had a high temperature and rapid pulse and respirations. The plunge bath could not conveniently be used, but we gave him cold-water treatment by either irrigating him, keeping him in a wet pack, or sponging him almost every hour. Aside from the above-mentioned severe complications, he had intestinal hæmorrhages and double acute otitis media with perforation of both drums. He did well under the

atment. The effusion in the left chest and pericardium gradually disappeared, and he made a good recovery in a much shorter time than he would have under acetanilide treatment.

The three patients that had pneumonia were treated liberally by the cold water in whatever form it was most convenient regardless of that complication, and in no case was a cold bath administered without reducing the temperature at least two degrees. The patients always felt better, and usually enjoyed a long and refreshing sleep after it. All of the nine cases yielded well to the treatment, and at no time was there room for regret as to the use of the cold water.

In 1871 Dr. Wilson Fox (London) used the plunge bath liberally for reducing high rheumatic fever. He narrates two cases—one of a woman whose highest temperature was 109.1° F. and who had pericarditis as a complication; another, one of a man, whose highest temperature was 107.3° F. and who had double pneumonia, double pleurisy with effusion, and pericarditis with effusion. In this latter case the cold applications were at one time used continuously for eight days, and both cases made a good recovery. Dr. Wilson Fox remarks that the pulmonary and cardiac complications tend to resolution under this treatment.

There is a very excellent article On the Treatment of Typhoid Fever by Prolonged Immersion in Water (*Lancet*, 1890, pp. 633, 690), by Dr. James Barr. He has bathtubs in his hospital specially arranged so that the patient can remain in the bath for days, not to be removed until the temperature is reduced to the desired degree—100° to 99° F. He has treated all his cases by this method since accommodations were made for it, and records most fortunate results. The high temperature is broken up at an earlier time than with any other treatment; complications—such as intestinal ulceration, hæmorrhages, diarrhœa, etc.—make their invasion far less frequently than under any other treatment, and pulmonary and cardiac complications yield well to the same water treatment. The death-rate is much below that of ordinary antipyretic treatment.

The highest temperature the writer of this paper ever had to deal with was 109° F. It was in a case of puerperal septicæmia. The woman was delivered outside of the hospital, and, on her admission, pieces of membrane and placenta came out after the routine intra-uterine douche which is usually administered to women who come to the hospital after having been confined at home. It was a very alarming case. Quinine, acetanilide, antipyrine, cold sponging, and intra-uterine douches were used, but it never occurred to us to put the patient in a cold plunge bath, as she was a puerperal and not a medical patient. After a protracted illness the patient recovered; but any patient with marked fever that comes under my treatment hereafter, especially with a temperature of 109° F., whether of puerperal, rheumatic, or typhoid nature, will be put into a cold plunge bath.

Only recently I had a severe case of typhoid fever complicated by pneumonia and acute nephritis, the highest temperature reached being 106° F. Two grains of acetanilide were given in the morning; the patient became cyanosed, and her pulse was almost imperceptible for the following twelve hours.

A fatal case of acetanilide poisoning in typhoid fever is reported by Dr. Granville Macgowan (*Southern California Practitioner*, 1890, p. 379), and he now condemns entirely the use of antipyretic drugs in typhoid fever.

To conclude, the following tables may be found of interest:

*Vogl's Tables of 8,325 Cases, as quoted by Dr. Simon Baruch (Jour. of the Am. Med. Assoc., 1891, xvi, 369).*

	Combined treatment.	Pure bath treatment.
Mortality.....	6.7 per ct.	2.7 per ct.
Average hospital stay.....	40 days.	47.3 days.
Percentage of complications.....	102	65.2
Average daily number of stools for each person.	19	0.7

The following table is given by Dr. J. C. Wilson, of Philadelphia (*Medical News*, vol. lvii, 1890, p. 588), the cases of which treated at the German Hospital were his own:

Hospital.	Year.	Number of cases.	Average number of days in hospital.	Number of deaths.	Percent. of deaths.	Treatment.
Pennsylvania.	1889	31	38	5	16.1	Expectant.
Pennsylvania.	1890	46	37	6	13.4	Symptomatic.
Episcopal....	1889	69	44	9	13.04	Intestinal antiseptics.
Episcopal....	1890	40	51	5	12.5	Mixed internal and external antipyretics; no baths.
St. Agnes....	1889	19	36	2	10.5	Expectant-symptomatic.
St. Agnes....	1890	15	34	4	26.6	
German.....	1890	50	36.9	1	2	Ten of these were treated with carbolized iodine, and 40 strictly by cold baths.
German.....	1889	41	36.5	4	9.75	Expectant-symptomatic.

## A CASE OF CONGESTION OF THE LUNGS.

TREATMENT BY PHLEBOTOMY.

By H. W. VAN ALLEN, M. D.,  
SPRINGFIELD, MASS.

As the time of congestion of the lungs, pneumonia, and pleurisy is upon us, I am constrained to report the following case, especially for the benefit of the younger portion of the profession, some of whom, Hare justly fears, "would hardly know how to bleed if called to do so at a crisis." The case occurred at the Springfield Hospital during my service as house physician, and is reported that it may be an aid in bringing the profession to a more kindly feeling toward venesection:

A. A., aged nineteen years, single, Canadian, a laborer, of good previous health, employed at the hospital. He was thoroughly drenched in a rain storm during the evening of January 18, 1891. I saw him at 11 P. M., when he complained of nothing. At 7 A. M. the next day I was called to see him where he had been found in bed, gasping for breath, by another employee. He was removed to one of the wards for examination and treatment. His efforts were given so entirely to respiration that the subjective examination was limited. It was as follows: Severe pain over the heart, constant and cutting in character; cough absent; no expectoration. He said he had had a chill at

3 A. M. Objective examination: Temperature, 98.2° F.; pulse, 76, full and bounding in character; respirations, 52 a minute; nervous system unaffected. Examination of the chest: (a) Inspection: Form, normal; respiratory movements very labored and shallow and at times of the Cheyne-Stokes character; the apex-beat of the heart was in its normal place and very strong; the veins in the neck were pulsating. (b) Palpation: Vocal fremitus normal. (c) Percussion: No dullness; at least the same on each side. (d) Auscultation: Subcrepitant râles, especially over the left chest; vocal resonance normal.

Examination of the abdomen was negative.

The patient grew worse rapidly. In an hour the respirations at one time would reach 76 a minute and at others would cease entirely, so that it was needful to stroke the chest with a wet towel and use artificial respiration. Death seemed almost unavoidable. It was decided to do phlebotomy, and this was done by the attending physician, Dr. C. P. Hooker. The relief from the abstraction of four ounces of blood was almost immediate, as the patient thought he was entirely cured. He laughed with the attendants and complained of being hungry. Later, as his heart showed some signs of weakness, he was ordered ten grains of ammonium carbonate at hour intervals, but it was soon discontinued. The paroxysms of dyspnoea increased again in severity and frequency until it became needful to abstract four ounces more of blood, with a repetition of the former result. Later there was a return of the dyspnoea with lessened severity. Hypodermic injections of an eighth of a grain of morphine with one two-hundredth of a grain of atropine were given with good results. These were continued during the night.

During the next two days the dyspnoea gradually decreased. All physical explorations of chest were negative, and at no time did his temperature rise to 100° or his pulse to 90. A two-by-three-inch blister had been drawn over the heart.

On January 21st the patient began to expectorate large quantities of thin, bloody fluid. From this time he made an uninterrupted recovery, and was able to resume his usual occupation in a week from his time of admission.

**An International Periodical Congress of Gynecology and Obstetrics.**—The Belgian Society of Gynecology and Obstetrics, under the patronage of the Belgian Government, has taken the initiative in organizing the International Periodical Congress of Gynecology and Obstetrics, the first session of which will be held in Brussels, September 14 to 19 inclusive, 1892. Three leading questions will be offered for discussion: Pelvic Suppurations ("Referee," Dr. Paul Segond, of Paris); Extra-uterine Pregnancy ("Referee," Dr. A. Martin, of Berlin); and Placenta Prævia ("Referee," Dr. D. Berry Hart, of Edinburgh).

All communications pertaining to this congress should be mailed directly to the American secretary, Dr. F. Henrotin, 353 La Salle Avenue, Chicago, who will promptly furnish all information. All notifications to be forwarded should be received by August 1st.

**The Eleventh International Medical Congress.**—The congress that is to meet in Rome in 1893 has undergone preliminary organization by the election of Professor Guido Baccelli as president and Professor Edoardo Maragliano as secretary general. Communications, if not personal to the president, should be addressed to Professor E. Maragliano, Istituto di Clinica Medica, Ospedale Panmatone, Genoa, Italy. As at present arranged, the congress is to meet in September.

**Changes of Address.**—Dr. Robert H. M. Dawbarn, to No. 105 West Seventy-fourth Street; Dr. F. J. Leviscur, to No. 640 Madison Avenue; Dr. Max Rosenthal, to No. 130 East Eighty-second Street; Dr. Sebastian J. Wimmer, to No. 129 West Sixty-first Street.

**The Conviction of an Unlicensed Practitioner.**—Recorder Smyth has sentenced one Max S. Guggenheim to suffer two hundred days' imprisonment and to pay a fine of \$150 for practicing medicine without a license or a diploma.

THE

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## A BILL TO PREVENT THE ADULTERATION OF FOOD AND DRUGS.

THE United States Senate has just passed a law providing for the organization of a food section of the chemical division of the Department of Agriculture, having for its duty the analysis of foods and drugs offered for sale in any State or Territory other than that in which they are produced. The bill prohibits the introduction into any State or Territory from any other State or Territory or foreign country of any article of food or any drug that is adulterated or incorrectly branded; and violation of this provision is a misdemeanor punishable by a fine not exceeding two hundred dollars for the first offense and three hundred dollars for each subsequent offense, and by a year's imprisonment.

The term food is defined as including all articles, whether simple or compound, used as food or drink by man. The term drug includes all medicines for internal or external use; and they are considered to be adulterated when they differ from the standard of strength, purity, or quality recognized in the United States Pharmacopœia or other standard works, or when they are sold in imitation of or under the specific name of another article, or when they are mixed, colored, powdered, or stained so as to deceive the purchaser, or when poisonous or injurious ingredients have been added to them, or when, in the case of foods, the article consists in whole or in part of a diseased, filthy, decomposed, or putrid animal or vegetable substance, or of any portion of an animal that is unfit for food.

If the label or brand on the package containing the food or drug plainly indicates that it is a mixture, compound, combination, or blend, or if it is unavoidably mixed with some extraneous substance in the process of collection or preparation, or if a substance is added so as to fit the article for carriage or consumption, and not to increase the bulk fraudulently, it shall not be deemed to be adulterated.

The law further provides that the manufacturer or seller of any drug or article of food must furnish samples to the agents of the Secretary of Agriculture, and refusal to do this is punishable by a fine; also that these persons shall, in the case of adulteration, in addition to the fine, pay all the costs of inspection and analysis.

While this act will probably be opposed by those who deprecate the assumption of prerogatives of the States by the National Government, still it need not interfere with the exercise of police power by any State having existing laws relating to the adulteration of food and drugs. But, as so many of our States have no laws on this subject, and as the enactment of such laws is opposed by interested persons, and fails in con-

sequence of their opposition, the community at large must welcome this measure as calculated to further the welfare of its citizens.

#### WILL-TRAINING AS A THERAPEUTIC MEASURE.

EDUCATION as a preventive and cure of disease is a subject of special interest and wide import. To the strong education is a fortune; to the weak it is a necessity, like bread and air. Without it the weak easily become the vicious, the unbalanced, and sometimes the insane. The training of the will is the vital part of education. It has already effected remarkable results among the mentally deficient and among the insane. The work begun at the Bicêtre in Paris by the late Dr. Edward Seguin for the amelioration of idiotic children is now carried on with success by Bourneville and Sollier.

Teaching the insane is also an idea by no means new. From the Utica Asylum Dr. Brigham wrote of its great advantages in 1844, and classes were started there, but were shortly afterward abandoned. Similar brief experiments were tried by Dr. Earle and Dr. Kirkbride. In Dublin, however, superior energy and zeal, or some fortuitous circumstance, made it possible for Dr. Lalor to elaborate and carry out a scheme of education for the insane that for over thirty years has been attended with the happiest results. A paper in *The Popular Science Monthly* for September, by Dr. Charles W. Pilgrim, gives an account of the Richmond District Lunatic Asylum, the scene of Dr. Lalor's former labors, where nearly every patient, except those incapacitated in the hospital department, is engaged either in school or in industrial exercises, and about a fifth take part in both. The object of the school, as formulated by Dr. Lalor, is, first, to provide occupation for a large class who would otherwise be unemployed; secondly, to vary the occupation of the patients; thirdly, to apply a system of education to the relief of mental disorders; and, fourthly, to promote the happiness and welfare of all the inmates. Object-teaching prevails among the more stupid ones; reading, writing, arithmetic, and geography among those more advanced. Music occupies a most important place in this system. When the patient's attention can not be gained in any other way, it is possible to get him interested in the singing-class and afterward in other classes. Singing is accompanied by instrumental music, and even the theory of music is not neglected. Music naturally leads to drilling and marching. By placing the less active patients here and there in the line, even the most inert can be induced to take part in the exercises, and thus obtain an amount of physical training that it would be difficult to give them in any other way.

In this Irish asylum Dr. Pilgrim reports signs of activity everywhere, and a gratifying absence of the gloomy monotony that so often pervades asylum life. Here lives and flourishes a rational plan for the education, training, and uplifting of the insane, and for their health and happiness.

Three years ago, in the Utica Asylum, the earlier experiment of instruction was renewed. It is now in successful operation on a somewhat limited scale. Two patients who

could not read and write before becoming insane, learned to do both before returning home. One woman is the terror of the ward until ten o'clock in the morning, when she goes quietly to school, and for two hours is the most docile and interested pupil of all. Only fear of being kept away from classes makes her at all controllable at any other time. Is it unreasonable to hope that the day is not far distant when, in every well-organized hospital for the insane, a school will be considered one of the essential features in ministering to the mind diseased, since the training of the will is of first importance in all diseases of personality, in all conditions characterized by instability of the nervous system? This is a matter in which the life is more than meat, the body than raiment, and the human mind than any huge stone building, whatever its grandeur and architectural beauty. In the prevention and cure of disease education is the physician's most powerful ally, and one of the many duties of the modern doctor is to indicate the kind of mental and moral training best suited to individual needs.

#### LEPROSY IN BOGOTÁ.

From British consular reports some interesting information has been published regarding the prevalence of leprosy in the United States of Colombia. Although the first introduction of the disease probably dates back two hundred years, there has been no very rapid spread until within the last two decades. A medical monthly published at Bogotá by Dr. Pio Rengifo contains an estimate that of the one million population of the States of Santander and Boyaca, about one tenth, which would be a hundred thousand persons, are lepers. The lazarettos of these sections contain not far from 30,000 patients, according to the statement of a medical officer having charge of one of the largest of them. No actual enumeration has been made, and the reticence observed by the affected and their friends would militate against a systematic census, although there is very little dread among the people regarding the contagious aspect of the disease. The influence of the climate over it is stated to be peculiarly potent at certain localities having an elevation of 1,400 feet above tide-water. One such place, having a mean temperature of 82° F., is specified in the district of Tocaima, about fifty miles southwest from Bogotá, at a place called Agua de Dios. There is an asylum for lepers at that place, and there is a tradition extending back over a hundred years to the effect that the climate can stay the progress of leprosy. It has been asserted that lepers who went to that resort in good season, and remained there, have seldom died of leprosy, but from other causes. There are sulphur springs at the place which are resorted to by others than the lepers, but the latter do not use them. The different classes mingle together without restriction, and marriage of the leprous with the non-leprous is not uncommon. The offspring of these marriages generally show the effects by inheriting the disease or contracting it in childhood. Children of tender years are to be seen with well-marked leprous manifestations. The death-rate among the lepers is believed to be higher than among others.

Their stamina seems to be so far reduced that they fall easy victims to fevers, dysentery, and pulmonary troubles, although, if these diseases are eluded, the leprosy alone will spare them for a long term of years. One leper is said to have spent nearly forty years in the locality above named, and for the past eighteen years to have had very little pain or annoyance from his malady. As a rule, the people are callous and careless about the spread of the trouble, and seem to be averse to giving any attention to its repression. A species of fatalism seems to rule their thought, so that restraint and preventive legislation are not to be looked for among them.

#### GOUT OF THE PENIS.

SIR DYCE DUCKWORTH gave the clinical history of a case of gout of the penis before the Clinical Society of London on January 8th, as reported in the *Lancet*.

A man, forty-two years of age, a glass-cutter, was admitted into the hospital with gouty arthritis of several joints and moderate pyrexia. For about twenty years he had led a sedentary life and drank a quart of beer daily. Sixteen years before, he had had lead colic. He occasionally had suffered from attacks of articular gout, a disease which he had inherited from his father.

Five days before his admission into the hospital he was awakened by sudden pain in the right wrist and the right great toe joint. On the following day he awoke with pain in the penis and firm erection of the organ, which persisted. Three days later the left great toe joint was attacked with gout. The various thoracic and abdominal organs were found healthy. The urine was acid, of the specific gravity of 1.022, with no albumin. The penis was erect and tense, painful, and turgid. No points of hardness were found in its course. The testes were natural. There was no pain or swelling in the perinæum. The temperature varied from 99° to 102° F. Aperients and salines with colchicum were administered, and the patient was put on light diet. The priapism persisted uninfluenced by internal treatment, sedative suppositories, or lead and opium applied locally. A cage had to be placed over the abdomen to prevent contact of the penis with the bedclothes. Micturition was painful and the urine had to be drawn with soft catheters. From time to time fresh attacks occurred in various joints, but the priapism continued for twenty-one days without intermission, and then gradually subsided with the general amendment of all the symptoms.

The noteworthy points in this extremely rare case are the gouty inheritance, the sedentary habits, with exposure to lead poisoning, and the habitual drinking of beer.

#### MINOR PARAGRAPHS.

##### THE INCOMPLETE REMOVAL OF DISEASED OVARIES.

In the *British Medical Journal* for December 19th a brief note is given concerning conservative operations on the ovaries. At a meeting of the Surgical Society of Paris, Dr. Rontier stated his opposition to Pozzi's method of partial removal of

serelo-cystic ovaries. Conservative surgery, he holds, is inexpedient when the ovary is sclerosed, whether the tube is healthy or not. Pathological anatomy shows that in ovaries, under these conditions, all the ova have a tendency toward cystic degeneration. The stump left with a portion of the ovary on it is liable to a return of the disease, with all the attendant sufferings for the relief of which the original operation was undertaken. At the same time, the patient is just as surely sentenced to sterility as though the operation had been radical. The failure of the conservative operation has many times been due to an imperfect removal of one of the ovaries. Unsatisfactory results also have been due to the intentional non-removal of the Fallopian tube. The author has had experiences of this kind. In one case of hæmorrhagic metritis failure had followed the use of the eurette. He then removed the ovaries, leaving a healthy tube. But all the troubles returned and remained until the radical procedure of vaginal hysterectomy was performed. In two other cases, in women having retroflexion and metritis, the curette was successful in curing the flooding, but not the pain; hysteropexy was performed, but there were left unrecovered the almost healthy appendages on one side. A few months later he was compelled to do a vaginal hysterectomy. For these reasons Rontier has been led to abandon the temporizing policy of incomplete removal of the uterine annexa, even when they are in a sound condition, in the belief that he will thus often save time, trouble, and suffering to his patients. In the discussion following the paper, Pozzi replied that it was by no means certain that a woman would be sterile after the conservative operations on the ovary of the kind he had recommended.

##### THE KNEE-JERK IN THE CONDITION OF SUPERVENOSITY.

In a preliminary note in a recent number of the *British Medical Journal*, Dr. J. Hughlings Jackson reports the absence of the knee-jerk in some cases of emphysema with bronchitis in which the blood had become very venous, and also in a case of diphtheria in which tracheotomy was performed for dyspnoea producing cyanosis. When the cyanosis disappeared the knee-jerk could be elicited. At his suggestion Dr. R. Russell asphyxiated dogs by clamping the trachea, and found that the knee-jerk became exaggerated until knee-clonus was produced, but that in the third stage of asphyxia no reaction could be obtained. As asphyxia diminishes, and in an extreme degree annuls, the excitability of the motor cortex, the preliminary exaggeration of the jerk was probably due to loss of cerebral control over lumbar centers, which subsequently succumbed to the poisonous influence of supervenous blood. It is worth while, in all cases of apoplexy or coma, to note the degree of supervenosity, and to investigate, in regard to it, the state of the patients as to tendon reactions and superficial reflexes.

##### EPIDEMICS AND THE CONVULSIONS OF NATURE.

In *Le Progrès médical* for February 27th we find a paragraph recounting that an English gentleman, Mr. Harries, recently read before the Meteorological Society of the United Kingdom a paper on influenza in which he stated that epidemics of that disease generally coincided with volcanic eruptions, and suggested that volcanic dust from the depths of the earth, being suspended in the air after the eruption of a volcano, was the principal factor in the propagation of infectious diseases. The recent prevalence of influenza Mr. Harries is said to have attributed to an eruption of Krakatoa, in the Straits of Sunda, in 1883. If the date is given correctly, it must be remarked that a long period elapsed before the volcanic dust did its work. The general question of

the connection of epidemics with violent meteorological phenomena is not a new one, as those who feel an interest in it may learn—and at the same time be made acquainted with many curious facts and theories—by consulting a work on Epidemics written many years ago by our great lexicographer, Dr. Noah Webster.

A CURIOUS INJURY BY A STROKE OF LIGHTNING.

THERE is an account in the *Archives of Otology* for January of a case in which a man was struck by lightning on the left side of the head. It passed down the ear and along the neck and breast to the right arm, where it burned through the flesh, leaving the bone exposed, and then passed out into the metal work of the buggy in which he was seated. Some days afterward he applied to Dr. Clark for relief from an otorrhœa which had supervened, when it was found that the external ear and the meatus were burned superficially and the tympanic membrane ruptured, either by the direct stroke of the lightning or by the cauterization of the surface of the meatus, followed by supuration which afterward penetrated the middle ear. From the history and the appearances present the former hypothesis was considered the more probable.

THE CEREBRAL CORTEX AS A DRUG.

THE *Wiener klinische Wochenschrift* for February 25th contains an abstract of a communication made at a meeting of the Paris Academy of Medicine, held on February 16th, by Dr. Constantin Paul, from a report published in *La Semaine médicale*, 1892, No. 9. Dr. Paul spoke of decided benefit in cases of neurasthenic chlorosis, typical neurasthenia, persistent slowness of the pulse, and tabes dorsalis as the result of subcutaneous injections, of five cubic centimetres each, of a sterilized ten-per-cent. solution of the gray matter of the sheep's brain in the lumbar region. No untoward results are mentioned as having occurred even after numerous injections.

ASAFOETIDA AS A REMEDY FOR HABITUAL ABORTION.

THE *Centralblatt für Gynäkologie* for March 5th contains a summary of an article by Dr. Guido Turazza, of Padua, who gives his own testimony, together with that of several other Italian physicians, in favor of the efficacy of asafœtida as a preventive of abortion. A pill containing about a grain and a half of the drug is given once in two days at first, and gradually at longer intervals until finally one is given only every tenth day. The author regards asafœtida as a good remedy in the nervous derangements of women, and remarks incidentally that it has the advantage of regulating the action of the bowels.

CORNUTINE AS A PELVIC HEMOSTATIC.

IN the *Centralblatt für Chirurgie* for March 5th we find a brief abstract of an article by Dr. A. Meisels, published in the *Pester medicinisch-chirurgische Presse*, 1891, No. 39, on the use of cornutine in cases of hæmorrhage from the urinary and genital tracts, given in the amount of fifteen one-hundredths of a grain daily. The results are said to have been excellent.

FOOTBALL CASUALTIES.

THE *Lancet* continues to catalogue the results of rough play at football in England. In one of its latest issues five cases of injury are mentioned, in three of which death resulted. Rupture of the kidney and laceration of the intestines were among

the causes of death, as determined by inquest. One youth was dead within twenty-four hours after the receipt of his injuries.

ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 15, 1892:

DISEASES.	Week ending Mar. 8.		Week ending Mar. 15.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	20	3	4	12
Typhoid fever.....	8	4	7	2
Scarlet fever.....	219	38	231	31
Cerebro-spinal meningitis.....	2	4	0	0
Measles.....	337	21	328	20
Diphtheria.....	119	43	98	32
Small-pox.....	6	1	1	1
Erysipelas.....	0	0	0	0
Varicella.....	12	0	0	0
Pertussis.....	1	0	0	0
Mumps.....	2	0	0	0

**The New York Academy of Medicine.**—The order for the meeting of Thursday evening, the 17th inst., was a discussion on The Varieties of Pneumonia and their Treatment.

At the next meeting of the Section in Ophthalmology, on Monday evening, the 21st inst., a paper on Unilateral Albuminuric Retinitis and its Significance is to be read by Dr. W. B. Marple, and one entitled Remarks on the Pathology of Albuminuric Retinitis, by Dr. John E. Weeks.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 23d inst., Dr. Charles A. Powers will show a modified oral speculum, Dr. Beverley Robinson will read a paper on Diseases of the Upper Air Passages during and resulting from Influenza, and there will be a continued discussion on Hypertrophied Tonsils, with special reference to Methods of Treatment and the Question of Hæmorrhage after Excision.

At the next meeting of the Section in Obstetrics and Gynæcology, on Thursday evening, the 24th inst., Dr. F. Förster will read a paper entitled Clinical and Microscopical Analysis of Twenty-five Extirpated Ovaries, with special reference to Hæmatoma, and Dr. S. Marx will present one entitled A Case of Accidental Hæmorrhage during Labor, with Remarks.

**A Protest against the Baby Students' Relief Bill.**—At the regular meeting of the Section in Public Health and Legal Medicine of the New York Academy of Medicine, on Wednesday, March 16th, the following protest was unanimously adopted:

The Section in Public Health of the New York Academy of Medicine, whose membership comprises several hundred physicians of New York and Kings Counties, hereby earnestly protests against the passage of Assembly bill No. 513.

Its enactment would not only enable several hundred medical students to become licensed practitioners without passing the State medical examination, but also allow these students to be graduated after only two years of college study, instead of the three years' course prescribed by law. The members of this Section deem any such attempt opposed to enlightened public policy, which properly demands a guarantee from the State that a legalized practitioner of medicine shall be a competent one.

No lowering of the present standard of requirements for a license to practice medicine can be permitted without menacing the health of the people. Inasmuch as two graduating classes are already exempted (1891 and 1892), we believe no injustice is imposed upon the class of 1893 by requiring of its members the test of their qualifications required by the law of 1890, for every member of this class was matriculated with the full knowledge and expectation that he would have to pass these examinations.

In view of these facts, the honorable members of the Legislature from New York and Brooklyn are urged to oppose with vigor the passage of this proposed amendment.

**The Hospital Graduates' Club.**—At the next meeting, on Thursday, the 24th inst., Dr. W. E. Lambert will read a paper on Retinoscopy as a Method of estimating Astigmatism.

**The Brooklyn Surgical Society.**—The special order for the meeting of Thursday evening, the 17th inst., was the reading of a paper entitled A Report of Two Cases of Carcinoma of the Bladder, by Dr. H. W. Rand.

**The Medical Society of the State of North Carolina** will hold its thirty-ninth annual meeting in Wilmington on the 17th, 18th, and 19th of May. A debate on Puerperal Eclampsia will be opened by Dr. Frank W. Brown. After April 1st the address of the secretary, Dr. J. M. Hays, now living at Oxford, N. C., will be No. 826 Fourteenth Street, N. W., Washington, D. C.

**The German Poliklinik.**—Dr. Carl Beck has established a special department for surgical diseases of the neck.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from February 6 to February 12, 1892:*

WALES, PHILIP G., First Lieutenant and Assistant Surgeon, is relieved from further duty at Fort Apache, Arizona, and will report in person to the commanding officer, Fort Bowie, Arizona Territory, for duty at that station, relieving First Lieutenant William N. Suter, Assistant Surgeon.

SUTER, WILLIAM N., First Lieutenant and Assistant Surgeon, is granted leave of absence for four months, from March 22, 1892.

WOODHULL, ALFRED A., Major and Surgeon, having completed the duties assigned him by Par. 4, S. O. 303, A. G. O., December 30, 1891, will proceed from New York city to Hot Springs, Ark., and take station thereat as surgeon in charge of the Army and Navy General Hospital.

A board of medical officers, to consist of HUNTINGTON, DAVID L., Major and Surgeon; TERRILL, HENRY S., Captain and Assistant Surgeon; KILBOURNE, HENRY S., Captain and Assistant Surgeon; FISHER, WALTER W. R., Captain and Assistant Surgeon, is constituted to meet in New York city on the 1st day of April, 1892, or as soon thereafter as practicable, for the examination of candidates for admission to the Medical Corps of the Army.

By direction of the President, the retirement from active service this date, by operation of law, of NORRIS, BASIL, Colonel and Surgeon, is announced. War Department, Washington, March 9, 1892.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending March 12, 1892:*

BRATHWAITE, F. B., Assistant Surgeon. Detached from Hospital, Chelsea, and ordered to the U. S. Steamer Fern.

GATES, M. F., Assistant Surgeon. Detached from the U. S. Steamer Fern and granted two months' leave.

LAMOTTE, HENRY, Assistant Surgeon. Ordered to the U. S. Receiving Ship Vermont, at New York.

VON WEDEKIND, L. L., Assistant Surgeon. Detached from the U. S. Steamer Vermont and granted three months' leave.

KERSHNER, E., Medical Inspector. Orders to the U. S. Steamer San Francisco revoked.

VAN REYPEN, WILLIAM K., Medical Inspector. Detached as Assistant to Bureau of Medicine and Surgery and ordered to the U. S. Steamer San Francisco.

GATEWOOD, J. D., Passed Assistant Surgeon. Ordered to the U. S. Steamer Dolphin.

STITT, E. R., Assistant Surgeon. Ordered to the Naval Hospital, Philadelphia, Pa.

#### Society Meetings for the Coming Week:

MONDAY, *March 21st:* New York County Medical Association; New York Academy of Medicine (Section in Ophthalmology and Otolaryngology); Hartford, Conn., Medical Society; Chicago Medical Society

TUESDAY, *March 22d:* New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society;

Buffalo Obstetrical Society; Medical Society of the County of Lewis (quarterly), N. Y.

WEDNESDAY, *March 23d:* New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Medical Society of the County of Albany; Philadelphia County Medical Society.

THURSDAY, *March 24th:* New York Academy of Medicine (Section in Obstetrics and Gynæcology); New York Orthopaedic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

FRIDAY, *March 25th:* Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, *March 26th:* New York Medical and Surgical Society (private).

## Letters to the Editor.

### THE SPREAD OF SYPHILIS BY CIGARS.

23 WEST FIFTY-THIRD STREET, *March 7, 1892.*

*To the Editor of the New York Medical Journal:*

SIR: The two following cases may not be fitted to adorn a tale, but they certainly point a moral:

A cigar-finisher, aged nineteen, came to me on January 12th of this year with the following history: In the beginning of December of last year she noticed a swelling of the upper lip; a small lump appeared, which has continued to grow until it has attained its present size. About January 1st she noticed some blotches on the face and body, but these, she affirms, have disappeared. She gives an indefinite history of sore throat a month ago. She has grown thin and pale, and lost strength and appetite. She states that her friend, a girl who finishes cigars upon the machine next to hers, had a similar lump upon her lip three months ago, but is now well. She thinks she must have acquired some disease from her friend, since she used the same cup with her to drink tea at lunch. *Status præsens:* A pale and anæmic girl, undersized and rather stupid, has a typical hard chancre upon the upper lip, in the middle line; a general macular syphiloderm in full bloom on the face and body; diffuse specific pharyngitis; marked adenopathy; and moist papules on the labia and in the vagina, with a profuse discharge.

She has worked steadily up to the present time. She "finishes" the cigars made by a machine, biting off the ends of the wrappers and using her saliva to shape the tips. She maintains that it is absolutely necessary to finish them in that way; that even if a knife were used to cut off the redundant wrapper, the tip of the cigar must be shaped with the finger moistened at the lips. She has heard something of an order forbidding the biting off of the ends; but she states that every finisher in the factory—one of the largest in the city—does exactly the same as she does. She refused to believe in the contagiousness of her malady. She remained under treatment but a short time, and then withdrew from observation.

After much effort I finally saw her friend, who gave the following history: She was eighteen years old. On October 2d of last year a pimple appeared upon her lower lip, which grew to be as large as a nut. She gives a full history of syphilis—a general macular eruption, adenopathy, defluvium capillorum, rheumatic pains, pharyngitis, etc.

*Status præsens,* February 3, 1892: A tall, well-developed girl; stains left by roscola still visible on the chest and arms; adenopathy marked; large mucous patches on the tongue; on

the lower lip, a little to the right of the middle line, a small, pea-sized, distinctly indurated nodule.

She has been working steadily. She invariably finishes off the ends of the cigars with saliva, and says the practice is universal, as it would take too long to use knife and paste.

She has been under medical treatment, but professes not to have been warned of the nature of her malady. In fact, she refuses to believe that it is syphilis. She remained under treatment only a few days.

I certainly think that these are cases which are within the sphere of action of our public health authorities. I am not aware that any epidemics of syphilis have been distinctly traced to the use of cigars. It is possible that the tobacco leaf and tobacco juice in the mouth may render the contagious element innocuous. But it is also possible that the long period of incubation of syphilis has rendered it impossible to trace a source of contagion so unnoticeable. It remains a fact that upon every single cigar tip of the thousands finished by these two operatives there was probably deposited a portion of the virus of the disease. Moreover, the practice of using the teeth and saliva in the manufacture of an article which is destined to be taken into the mouth is not without serious objections entirely apart from considerations of disease.

It will probably be impossible in the future, as it has been in the past, to stop this unclean and dangerous method of cigar-making by pressure put on the operatives themselves. The saving time and trouble is so great as to outweigh every other consideration. All the influence of the French authorities could not induce the glass-blowers of that country to use the *embout*, or detachable mouth-piece, in their work, though the journeymen recognized its advantages; and Chassagny himself finally acknowledged with sorrow the absence of any practical result from his labors. But it is possible, I believe, to put the responsibility on the employers. They and their foremen must be aware of the methods used by their hands, and a sufficient penalty would, I am sure, secure an immediate reform. I commend the subject to the consideration of the Board of Health, and would suggest to smokers the use of cigar-holders in the interests of cleanliness, if of nothing else.

W. S. GOTTHEIL, M. D.

#### THE PRESERVATION OF HYPODERMIC-SYRINGE NEEDLES.

NORTH MANCHESTER, IND., February 29, 1892.

To the Editor of the *New York Medical Journal*:

SIR: Having noticed in various medical journals different plans of preserving hypodermic needles from rust or at least from occlusion, I have thought that a means that has been in use by myself for the last twelve or fifteen months might be of use to the profession generally. Accidentally I found that, if the needle head was filled with unguentum petrolei and then screwed on to the barrel, the needle would be filled with the ointment and perfectly preserved for an unlimited time. All that is necessary to do when you want to use the needle is to fill the barrel with water and force out the contents of the needle, or, in case you should forget to do so or are in a hurry, you may disregard the needle-filling and proceed with the injection, as no harm can come from the subcutaneous injection of so small an amount of ointment. I have used this method of preservation for small and large needles, have no use for the little brass plungers that accompany the needles, and have saved a great deal of time, possibly two or three lives, and quite a considerable amount of bad humor. If some one would construct a small bottle with a screw cap to which a small spoon was attached for filling the needle-head, to accompany hypodermic syringes, the outfit would be complete.

T. A. LANCASTER, M. D.

## Proceedings of Societies.

### AMERICAN LARYNGOLOGICAL ASSOCIATION.

*Thirteenth Annual Congress, held at Washington, on Tuesday, Wednesday, and Thursday, September 22, 23, and 24, 1891.*

The President, Dr. W. C. GLASGOW, of St. Louis, in the Chair.

(Continued from page 193.)

**Cyst of the Middle Turbinate Bone.**—Dr. C. H. KNIGHT of New York, read a paper with this title. (See page 309.)

Dr. WRIGHT: I am very much interested in the paper and specimens. Some years ago, after I had removed a bony growth from the middle turbinated bone, as a matter of routine, I decalcified it and made a number of sections of it. I was very much surprised to find that it had really contained a cyst; the contents were unfortunately not noted. The walls were entirely bony, and were covered with remains of a grunous material from the altered fluids. I could not distinguish an epithelial lining to the cavity; nothing but bone-cells. Shortly after, I read Schmiegelow's paper upon this subject; his explanation was that they are congenital. I wrote to Schmiegelow and inquired if he had found epithelium in these cysts, and he replied that he always had found epithelium in them. I had thought that possibly it was due to ordinary osteitis, causing hypertrophy, and then rarefying osteitis occurred with the formation of cysts; but, of course, if epithelium exists, the question is settled.

Dr. CASSELBERRY: Some years ago I made reference to a case of nasal myxoma which had apparently undergone calcareous degeneration. It was hollow, and formed of egg shell like substance, lined within by myxomatous tissue and without by the same, and also mucous membrane. It was so large as to totally occlude the nostril and push the septum far to the other side. It could not be removed entire, as it was brittle; it occupied the position of the middle turbinated body. After hearing this paper, I think that the explanation given of the mode of formation of cysts is probable, and that my case was originally an outgrowth of the middle turbinated body, followed by hypertrophy, and finally formation of a cyst.

Dr. KNIGHT: One of the most interesting points in cases of this kind is the character of the membrane lining the cyst. As represented in the drawing and as seen in the section under the microscope, it consists of columnar ciliated epithelium. As time passes and the lining membrane undergoes degenerative changes the cilia disappear, and in cysts of long duration we should not expect to find the epithelium preserved. The congenital theory sustained by Schmiegelow—which is substantially identical with the idea of Zuckerkandl—that the ethmoid cells may extend into the body of the bone, seems to me untenable for the reason that the lesion is not met with clinically in early life.

**A Case of Intrinsic Epithelioma of the Larynx.**—Dr. MORRIS J. ASCH, of New York, read a paper thus entitled. (See page 232.)

Dr. WRIGHT: I am especially interested in this case, because several months before the patient went to Dr. Asch he came to my office with his son. I can fully confirm the statement, made in the record, of the irritability of his larynx. It was only at a second sitting that I was able to see over the epiglottis at all. At that time there was very little to recognize; the larynx was simply covered with mucus, looking like chronic laryngitis. I told his son that in a man of his age, who had never had laryngeal trouble before, the outcome might be very serious.

Dr. ASCH: In addition to what I have said, I would like to

lay stress on the ease of performing tracheotomy with the aid of cocaine. The injection of a few drops of a two-per-cent. solution along the line of the proposed incision makes the operation absolutely painless. Another very interesting point in the case is that, a few weeks after the operation, the patient was attacked with a peculiar form of dyspnoea, coming on in spasmodic attacks. It was a spasmodic attack of this kind which occurred while he was on the boat where it was impossible to get medical assistance, together with weakness following an attack of the grip, that caused his death.

Dr. JARVIS: I should like to ask Dr. Asch why a secondary operation involving the larynx was not indicated in his case for the relief of the spasmodic attacks? Could he not have dissected out the carcinoma by performing thyrotomy?

Dr. ASCH: I suppose Dr. Jarvis refers to such an operation as Lennox Browne reports, where he opened the larynx and dissected out the cancer. In my case this could not be done, because in so old a patient the cartilage is too much ossified to permit of such an operation.

**A Case of Thyrotomy in a Child Eighteen Months of Age.**—Dr. CLINTON WAGNER, of New York, read a paper with this title. (See page 512, vol. liv.)

Dr. CLARENCE C. RICE: It would be exceedingly satisfactory, in the cases referred to in this very interesting paper, if the diagnosis could always be made before the operation is performed. I recall a case somewhat similar to the one reported, although the child was older (between three and four years of age), where I was able to make a diagnosis by the combined use of chloroform and cocaine. It is very difficult under ordinary circumstances to make a laryngoscopic examination in young children, and impossible to make the diagnosis of laryngeal obstruction without such examination. Before doing an external laryngeal section it is important to know the character of the occlusion, its location, size, etc. In making the laryngeal examination, the plan followed was to paint the posterior wall of the pharynx and fauces with a two-per-cent. cocaine solution, and to spray the larynx with the same; then I gave the child a few inhalations of chloroform while it was held upright in the arms of its father, and in this way I was able to make a satisfactory examination with the laryngeal mirror and to discover the multiple papilloma attached to the sides of the larynx, which were removed by endolaryngeal methods. In another case of apparent laryngeal obstruction in a child, seen within a few days, I was not able to make a satisfactory examination, and I intend using cocaine and chloroform in the manner described on my return. I think that by this method, which requires care and patience, we can make the exact diagnosis and can remove a growth or foreign body from the larynx in a case where a general surgeon would perform laryngotomy. In a case of a girl, five years old, in which I had the assistance of Dr. Joseph O'Dwyer, of New York, we removed several papillomatous growths from the larynx by the following method: The larynx was so thoroughly closed by these growths it was found necessary to introduce a tube and allow the patient to recover respiration before giving the anæsthetic. After slight anæsthesia was produced the tube was removed, the forceps was quickly introduced into the larynx, and as much of the growth as possible was removed before it again became necessary to introduce the O'Dwyer tube. The bleeding caused by the introduction of the forceps increased the dyspnoea. Both the forceps and the tube were carried into the larynx three times before enough of these numerous growths could be removed to allow the child to breathe without the tube. The growths returned, and a thyrotomy was eventually done. Two points I wish to make: (1) It is possible to make an examination in young children by the combined use of cocaine and chloroform, and (2) by the aid of

intubation we can introduce forceps into the occluded larynx of a child, and perhaps remove obstructions without opening the larynx.

Dr. J. C. MULHALL: There is one instrument much used by general surgeons which laryngologists should more frequently use; I refer to the index finger. The finger with its nail attached forms an instrument which may be very successful in removing papillomatous growths from the larynx. There is no difficulty whatever in reaching the larynx in young children, and with the aid of chloroform there should be no trouble in making the diagnosis. In one case that I recall I was enabled to effect a removal and a cure by the use of the finger-nail alone.

Dr. E. FLETCHER INGALLS: In examining young children, if the tongue is drawn well forward by a tongue depressor, like that devised by Mount Bleyer, we are often enabled to make a diagnosis by inspection. When the papilloma projects above the vocal cords it can often be detected by the finger. As the larynx is relatively high in children it can be reached without difficulty. I have several times detected papillomata in this way.

Dr. WAGNER: With regard to the use of ether or chloroform in these cases, I would say that for my own part I am afraid to give ether merely for diagnostic purposes, because of the danger of death by asphyxia. In three of the cases of children upon whom I operated I was compelled to perform rapid tracheotomy in order to avoid death on the table from asphyxia produced by the ether.

With regard to the use of cocaine in these cases, I might mention that my three cases previously reported occurred before the discovery of the drug. In one of them, that of a boy five years of age, I was enabled to make a thorough examination with the laryngoscope, and discovered a large papilloma, but in addition to the growth there was a membranous web stretching from cord to cord and probably more directly concerned in causing the dyspnoea than the growth; it was not possible to remove this membrane by the mouth.

In the case that forms the subject of my paper I think death from spasm of the glottis would have taken place had an attempt been made to make an examination with the mirror, either with or without cocaine.

(To be continued.)

## Reports on the Progress of Medicine.

### PÆDIATRICS.

By FLOYD M. CRANDALL, M. D.

**Common Errors and Fallacies in the Treatment of Children.**—Dr. Cheadle contributes an exceedingly interesting paper upon this subject to the *Practitioner* for July. One of the most common and dangerous errors is the belief so prevalent, both among physicians and the people at large, that a moderate amount of diarrhoea is beneficial. Upon this assumption a looseness of the bowels is often allowed to run unchecked until it has assumed dangerous proportions. It is not true that diarrhoea is a safeguard against convulsions. It is precisely those children whose vitality has been drained by diarrhoea and vomiting who are most liable to them. Young children bear purging badly, and the younger the child the greater the importance of getting a diarrhoea quickly under control. Nothing should be given as food that is not sterilized, and either predigested or easily digested. The author believes that opium is essential in severe cases even in young children, and that it is an error to withhold it. In later stages he believes the most efficient remedies bismuth in full doses and opium in small doses.

Night terrors is a most troublesome and at times alarming disorder, occurring, as a rule, between the second and sixth year. It usually occurs in delicate, sensitive, neurotic children. The direct source of irritation is frequently undue stimulation of the brain, as by exciting stories, rough and unkind treatment, overstudy, or some serious accident. By far the most common cause is constipation, often slight but persistent, the passages being hard, dry, and often light-colored. The point of error in the management of these cases is the use of mere sedative treatment. The neurotic element alone is recognized, and bromides are prescribed, often with good effects for a time. Unless the cause of irritation be discovered and removed, the bromides alone, while most valuable if properly used, will give but temporary relief.

Among the drugs most heedlessly used at the present day are antipyretics such as aconite, antipyrine, and acetanilide. Pyrexia is not the cause or essence of disease, but a symptom. The temptation, however, to reduce temperature when elevated above the normal is very strong, especially when it can be accomplished by the simple administration of a drug. It must be remembered that these are powerful agents having, in addition to their antipyretic power, other active properties. They are all powerful cardiac depressants. In most diseases marked by high temperature danger is to be apprehended from heart failure, not from pyrexia. That a high degree of fever is an element of danger can not be denied, but in no case is it the sole danger. This is true of pneumonia to a marked degree, and the results of antipyretic treatment in that disease have not been satisfactory. Children especially do not bear vigorous antipyretic treatment as well as adults. It is futile to attempt to cure the disorder that gives rise to a febrile state by the mere forcing down of temperature, and it is often extremely dangerous.

The cruel and useless practice of swabbing out the throat in diphtheria has nearly died out; but this method of applying astringents, antiseptics, and solvents still survives. After long observation of the effects of various methods of local treatment, the author has no hesitation in condemning as injurious the system of brushing out the throat. It is easy to do serious harm to the throat by such treatment and by abrading healthy surfaces to cause an extension of the membrane. It usually involves a severe struggle. The terror, excitement, heart strain, and physical exhaustion are most unfavorable conditions in a disease which tends to death by asthenia.

Other errors are the oppressive poulticing of the chest in pneumonia, which obstructs respiratory movement and tends to increase the body heat; the administration of emetics in diphtheritic croup, which is less effectual for good than for depressing the patient; their frequent repetition in bronchitis and whooping-cough, when there is no extreme mucous obstruction of the air passages to justify it; and the too free purging of rhaebitic children suffering from convulsions, under the belief that irritant matter in the alimentary canal is the sole cause of evil.

**Hydrocele in Infants.**—Sejournet (*Rev. mens. des mal. de l'enf.*, August, 1890) employs the term hydrocele in this paper because it suggests the idea of a collection of serous fluid in the tunica vaginalis, but, as it also implies the idea of being chronic, it is not as appropriate. As it appears in infants it is usually due to the extension of a cutaneous erythema. This red eruption about the buttocks is very common, and usually results from disordered digestion, the toxic materials contained in the fæces being the active cause. The author has seen this eruption advance gradually to the urethra, which it has evidently invaded, as shown by the pain and cries of the child during urination. This has been followed by tumefaction of the spermatic cord, and this in turn by hydrocele. He believes that all cases of acquired hydrocele follow this course. This disease is most common from fifteen days to six weeks after birth. It is always confined to one side, and has a peculiar tense but elastic feel, and is transparent by the light test. It is not a chronic affection, but passes away in from two to six weeks in most cases. It may remain after the erythema has been cured, and in rare instances becomes chronic, having all the characteristics of the disease as it appears in the adult. When it appears without a preceding erythema, as the author admits that it may, it is far more prone to become chronic. In treatment, the chief point is the improvement of the digestion by every possible means. Indigestion should, as far as possible,

be removed, and diarrhoea should be checked by restoring the digestive power. Erythema should be treated by the application of suitable powders or ointments. The hydrocele should be treated by astringent applications or by an iodide-of-potassium ointment.

**Prolapse of the Rectum in Children.**—Logan (*Liverpool Medical-Chirurgical Journal*, July, 1891) advises that the bowel before being returned should be washed with a strong solution of alum or dusted with tannic acid. In extreme cases reduction is difficult, but may be aided by the passage of a small rectal bougie. An anæsthetic may be required. The actual cautery is very effectual, or nitrate of silver may be applied in longitudinal lines, but in some cases wedge-shaped pieces of mucous membrane may have to be removed. For retaining the bowel in position the author employs a perforated celluloid tube four inches long and three eighths of an inch in diameter. It is retained in position by a flange at its lower end. In mild cases a pad and T-bandage may be applied with advantage.

**The Idiocy of Myxœdema.**—Bourneville contributes a series of interesting articles upon this subject to *Le Progrès médical*, vol. xii, Nos. 26 to 34, an abstract of which appears in the *Medical Chronicle* for December, 1891. The disease is known as cretinoid idiocy, cretinoid pachydermia, and sporadic cretinism. It is usually due to congenital absence of the thyroid gland. The exact relation of heredity in its production is uncertain. Alcoholism seems to have some influence, and it has been attributed by Down to intoxication of one or both parents at the time of conception. Tuberculosis and cancer would also seem to have an influence in the production of the disease. Insanity, hysteria, apoplexy, and migraine are often seen in the relatives of these patients. Females are more subject to the disease than males. The symptoms are rarely present until infancy is past.

These patients all bear a striking resemblance to one another, the symptoms being nearly identical in all cases. The intellectual development is interfered with and also that of the body, which shows profound alterations in the nutritive functions. The head is large behind, but low, narrow, and compressed in front, while the anterior fontanelle may persist for thirty years. The lower lip is everted, the mouth large, the tongue thick and protruding, the nose flattened, the cheeks swollen, the teeth imperfect, the chin small, the ears thickened. The neck is thick and short, with no trace of the thyroid gland. The belief that the primary cause of the disease lies in the absence of the thyroid gland is confirmed by the autopsy of myxœdematous adults in whom serious lesions of that organ are found; by the appearance of the symptoms of pachydermatous cachexy in individuals whose thyroid gland has been removed by operation; by the appearance of myxœdema in monkeys after thyroidectomy, according to Horsley's experiment; and by the absence of the disease if, during the operation of thyroidectomy in monkeys, a small portion of sheep's thyroid is implanted in the peritonæum, according to Schiff's experiment.

It is important to distinguish the idiocy of myxœdema from cretinism. In the following particulars they are similar: The face and body are hairless, the nose is flat, the lips are thick, the mouth is always gaping, the tongue is large and protruding, and the thorax is deformed. Both are thick-set and heavy and subject to rickets and scrofula.

In the idiocy of myxœdema the head is long, flattened from the forehead to the vertex, wide at the base, and square. The hair is coarse, rough, long, of brown or reddish color, with partial baldness. In cretinism the head is flattened from before backward, wide at the base, contracted at the vault, with no occipital protuberance. The hair is thick and abundant, and neither baldness nor white hair is ever found. In idiocy there is spurious œdema of the eyelids, cheeks, and ears. The ears are projecting and yellowish. There is no strabismus, retinal sensitiveness, or blepharitis. In cretinism there is true œdema of the lids with blepharitis. Strabismus is common and the retina is insensitive. In idiocy the saliva dribbles in infancy only, the lower lip is sometimes pendulous, and mastication is difficult. In cretinism the lower lip is pendulous, the saliva constantly dribbles from the mouth, and mastication is impossible. In this form of idiocy pseudo-lipomatous tumors are found in the supraclavicular regions, axilla, and sometimes in other regions. The neck is thick and short with no goitre; the breasts are absent and small. In cretinism there is goitre, but no

pseudo-lipomata. The neck is thick and short, and in true cretins the breasts are small, but in semi-cretins large and pendulous. In idiocy the genital organs are usually atrophied. In cretins they are rudimentary, but in semi-cretins often enormous. In idiocy the extremities are large, thick, and deformed. In cretins they are disproportionate, being either very short or very long, with deformed joints. The hands are large and thick, the feet large and flat with the toes overlapping one another. In idiocy the special senses are normal; the appetite is moderate with choice of food; the habits are cleanly. In cretinism the special senses are blunted, the appetite is voracious with no choice of food; the habits are filthy. Idiots of this class are modest; there is no onanism. The same is true of cretins, but in semi-cretins the direct opposite is seen. In idiots the movements are slow and the walk is difficult, but may be prolonged. Cretins are semi-paralytic and unable to walk. In idiots the vocabulary is limited as a rule, but is sometimes free. The voice is harsh and characteristic. Cretins are often mutes and never have a full vocabulary. The voice is normal.

The life of the idiots of myxœdema is short, but the condition is capable of amelioration. Treatment should be by tonic drugs and by all the pedagogical means usually employed in the education of idiots.

**A Case of Bromoform Poisoning.**—Sachs (*Contrib. f. klin. Med.*, Aug. 8, 1891) reports the case of a child, four years old, who took a gramme and a half of bromoform, the dose as prescribed being three drops. The child soon went into a state of collapse, the face being cyanotic, the extremities cold, and the pupils dilated. He was placed in a tepid bath and treated by injections of ether and rapidly recovered.

**A Case of Santonin Poisoning.**—J. A. Smith (*British Medical Journal*, June 6, 1891) reports a case of poisoning by a dose of three grains of santonin in a girl of three years and a half. The temperature was normal, the pulse 80, heart and lung sounds normal, pupils equal and slightly dilated, there being no diarrhœa, prostration, or eruption. She was said to have been delirious, but no true delirium could be noted. The majority of articles about the room were said by the child to be green like grass. While this was the predominant color, other colors were seen, but always false. Red appeared green; her mother's eyes, which were blue, were also called green. White was changed to yellow. Incontinence of urine occurred, the urine itself being of an intense saffron color, staining everything with which it came in contact. The symptoms subsided after a lapse of twelve hours.

**Vulvo-vaginal Inflammation in Children.**—Comby (*Bullet. et mêm. de la Soc. méd. des hôpît. de Paris*, July 23), in an excellent paper upon this subject, expresses the belief that the disease is rarely venereal in its origin. He reports one hundred and fifty-one cases, in eighty-four of which the patients were between the ages of two and ten years. The author has seen it in infants, but it is far more common in childhood and usually appears in the children of the poor, who occupy the same bed as older persons. While not gonorrhœal in character, it is in many instances contagious, and may result from a simple leucorrhœa. As the author has no belief in the gonococcus as a specific germ, this statement must perhaps be taken with reservation. The method of infection is readily explained in most cases. Clothing, handkerchiefs, and sponges soiled by leucorrhœal discharges of older persons may come in contact with the vulva of the child, especially when they occupy the same room or bed.

Besides the ordinary acute inflammation, the author has seen an aphthous variety associated with certain eruptions, especially chicken-pox and impetigo. In anæmic or strumous children it may assume a chronic form. It is also in some cases traumatic in its origin, and may be caused by irritation or injuries.

Of these varieties, the typical contagious form is the most persistent and least liable to disappear spontaneously. The treatment should be local and should consist of thorough cleansing of the parts twice a day with a warm solution of bichloride of mercury (1 in 2,000). A boric-acid solution, of the strength of four per cent., may also be used. The parts are then to be dried and dusted with salol and absorbent wool applied.

If the vagina is involved, a slender bougie or pencil composed of salol and cacao butter should be carefully passed through the hymeneal orifice. If the disease has assumed the chronic form, cod-liver oil and syrup of the iodide of iron should be prescribed.

**Intubation in Croup.**—Escherich (*Wien. klin. Woch.*, No. 7, No. 8, 1891), in considering the merits of tracheotomy and intubation, reaches the following conclusions:

1. Intubation can not in all cases replace tracheotomy.
2. Gross statistics do not properly show the actual value of intubation. Each case should be considered with regard to its peculiarities and the location of the disease.
3. The advantage of intubation is the ease and rapidity with which it may be performed, no anæsthetic and but few instruments being required, and no wound being left which will require treatment when the tube is removed.
4. The disadvantages are the ulcerations of the mucous membrane which are occasionally formed, the difficulties in feeding, the difficulty of removal of secretions and membranes, and the less perfect aeration of the lungs.

5. Tracheotomy is preferable to intubation when the membrane is extending rapidly into the bronchial tubes, or when the diphtheria is of an especially septic type. The same is true in weak children with slight respiratory power.

6. When the disease does not present special septic characters and the membrane is limited to the larynx, intubation should be performed.

7. After four or five days, if feeding becomes difficult and the membrane is extending into the bronchial tubes, the tube should be removed and tracheotomy should be performed.

**Jaundice in Children accompanied by Temporary Enlargement of the Liver.**—Enlargement of the liver is not generally regarded as of common occurrence in connection with simple jaundice. It is expressly stated by some authors that such enlargement does not occur. That this statement is erroneous is proved by twelve cases reported by Dr. Carpenter and Dr. Syers in the *Lancet* of September 12th. The authors believe that the condition, though frequently not recognized, is comparatively common. Several cases are reported in detail, all being unquestionably examples of simple catarrhal jaundice. They were all of the same character. Jaundice appeared in previously healthy children, lasted a few weeks and passed off, the liver in each case being more or less enlarged. In only a few had the enlargement wholly disappeared when the patient was lost sight of. In one instance the increase in size took place while the child was under observation. On September 23d the edge of the liver was felt an inch and a sixth below the costal margin and gradually descended until on October 31st it was two inches and a half below the ribs. These cases, unfortunately, throw no light on the causation of jaundice, neither is it apparent why the liver should be enlarged.

**The Treatment of Infantile Syphilis by the Subcutaneous Injection of Mercurial Salts.**—Moncorvo and Ferreira (*Revue mens. des mal. de l'enfance*, July, 1891) report a large number of cases of syphilis in young children treated by hypodermic injections of various salts of mercury. Of the soluble salts, corrosive sublimate is the best tolerated and most efficient. It is not proposed as the treatment for every case, but it offers a method to which we may turn with confidence if other methods fail. The following conclusions are drawn:

1. The value of the hypodermic method of treatment must be admitted.
2. Of the various salts, the corrosive chloride gave the best results as used with forty-seven children who received two hundred and fifty-nine injections.
3. The tolerance of this salt by very young children is perfect, and the effects are marked.
4. The injections should always be made with the most scrupulous antiseptic precautions. They may in some instances be repeated every four days.
5. The results obtained by means of mercurial injections are generally favorable, and the efficiency of the process does not seem to be inferior to that of other methods of administration.
6. The cutaneous lesions are more quickly influenced than the glandular.
7. As a rule, mercurials by hypodermic injection are well tolerated by young children, there being little tendency to salivation, stomatitis, and intestinal symptoms.

**Eucalyptus in the Treatment of Scarlet Fever.**—Bond (*Lancet*, June 6, 1891) reports forty-seven cases treated by oil of eucalyptus, both internally and as a spray or lotion for the throat. In view of certain glowing reports that have recently been made, the conclusions of the author are interesting. As a curative agent he believes it possesses no value, having no power to mitigate the severity or modify the course of the disease, and failing to prevent serious complications and sequelæ.

**Induration of the Sterno-mastoid in New-born Children.**—Dr. W. R. Parker, in the *British Medical Journal* of June 20, 1891, reports two cases which seem worthy of record on account of the infrequency of the complaint, its omission from most text-books on obstetrics, and its liability to be mistaken for inflammation of glands of the neck. The first patient was delivered artificially, some force being necessary in extracting the head. It was a dorso-anterior breech presentation. Twenty-six days afterward the child presented a marked induration about the middle of the right sterno-mastoid, drawing the chin over to the left shoulder. A few weeks' treatment with gentle frictions with a simple liniment resulted in a complete cure.

In the second case much force was also used in delivering the head, the breech being the presenting part. Twenty days afterward induration of the right sterno-mastoid appeared, sufficient to draw the head well over to the left shoulder. Six weeks' treatment was required for its removal.

In both cases there was doubtless sufficient force used in delivery to tear some fibers of the sterno-mastoid, causing inflammatory effusion and subsequently cicatricial contraction. In neither case was there the slightest suspicion of syphilis or other constitutional taint.

**Rickets in Australia.**—Dr. Muskett, in the *Australasian Medical Gazette* of July 15, 1891, says that in Australia rickets is a not uncommon disease, though it is the prevailing belief that it does not occur there. As the disease is described, the type is mild and the symptoms are not peculiar. It is interesting to observe that the disease is found by one who appreciates the symptoms and looks for them. The conditions favorable for the development of the disease are unquestionably present in Australia, and where such conditions are present the disease will certainly appear. As those conditions increase, as they are evidently doing in Australia, the disease will become more marked in character and more prevalent.

**Encephalocele.**—Broca (*Rev. des malad. de l'enfance*, June, 1891), in a paper upon this subject devoted chiefly to treatment, condemns pressure, puncture, and injections of iodine. Meningitis is the usual result of such operations, and when it does not occur the tumor rarely decreases in size. Incision leads to the danger of draining away of the cerebro-spinal fluid. Excision, with a ligature placed as low down at the base of the tumor as possible, offers the best promise of success. There is but little danger of removing brain substance, for the mass of the tumor is composed of other matter. As yet it is impossible to form an opinion as to the mental capacity of children who have been operated upon by excision.

**Laparotomy in an Infant.**—Schmidt (*Deuts. med. Woch.*, xii, 1891) reports a laparotomy in a child, six months old, for the removal of a tumor. It proved to be a sarcoma of the kidney and was the size of an infant's head. A complete recovery followed in three weeks. In cases of this character examination of the urine often fails to give any assistance in diagnosis. Renal tumors are far less movable than those of the spleen.

**Aprosexia and Headache in School Children.**—Dr. Guye, of Amsterdam, presents another contribution upon this subject in the September number of the *Practitioner*. This term was applied by him several years ago to the condition marked by feebleness of memory, headache, and inability to fix the attention on any abstract subject, seen in certain children suffering from disease of the nose and nasopharynx. Relief of such nasal disease is quickly followed by marked improvement in the mental condition. These children are always mouth-breathers, they have a dull, stupid look, and often suffer from headache, which is usually constant and persistent. The mental condition is explained by the fact that the abnormal growths obstruct the cerebral circulation, especially the lymphatic. Attention is drawn to

the importance of mouth-breathing as a symptom, especially in children who remain backward in intellectual development.

**A Case of Myositis Ossificans.**—Macdonald reports a remarkable case in the *British Medical Journal* of August 29th. The patient was a girl four years old, brought for treatment because of inability to raise the arms from the sides. This was found to be due to a semi-ossified condition of the muscles surrounding the shoulder joints. The muscles of the neck were also becoming ossified, the sterno-mastoid of the right side standing out like a rod of iron. There were also nodes scattered over the head, scapula, spines of the vertebrae, ribs, and sacrum. These nodes appeared and disappeared and seemed to be influenced by treatment and were strongly suggestive of syphilitic taint. But no other evidence of that disease could be obtained either in patient or parents. There was no suspicion of rheumatism. The condition was first observed when the child was two years old.

Treatment seemed to have no effect except upon some of the nodes. An attempt was made to gain more motion by removal of the bony material from the tendons of some of the muscles. Though the incisions healed readily, the results were not satisfactory.

## Miscellany.

**A British View of American Surgery.**—Mr. Rutherford Morison, who says he has recently spent eighteen days in America, has contributed to the March number of the *Edinburgh Medical Journal* an article in which he says:

In crossing the Atlantic I was fortunate in meeting Dr. Draper, physician to Roosevelt Hospital, New York, and Dr. Kelly, gynecologist to the Johns Hopkins Hospital at Baltimore, who were returning after a holiday in Europe. Armed with introductions from these gentlemen, I was enabled in a short time to see a good deal of surgical work, and met with a very agreeable reception. An introduction is, however, not essential. The American surgeon is a good fellow, and it will be a Britisher's own fault if he can not get along with him.

I arrived too late to attend the Washington Medical Congress, where the attendance of several distinguished British surgeons (Professor Chiene among them) at the meetings was much appreciated.

The first hospital I visited was the Roosevelt, in New York, with about 250 beds. This hospital is an excellent one, but cramped for ground space, and not built in accordance with the latest views on hospital construction. It will soon, however—for the building is nearly completed—be possessed of the finest operating theatre in the world, erected at a cost of £80,000. The sum was left by a wealthy benefactor, with the express stipulation that the whole of it should be expended on this object. The area is to be wholly marble, and the difficulty of disposing of so much money is being met satisfactorily by making it quite an extensive building. There are to be isolated ward-rooms at the top; the operating room, porter, and nurse are to have quarters there. Photographic, bacteriological, and pathological rooms are to be provided, and a number of special rooms are to be set apart for instrument sterilizing, and disinfecting apparatus, dressings, and the special appliances for preparing them, and consulting and other rooms for the staff.

In the hospital, among several interesting cases, I noticed a boy who had recovered after an operation for perforating ulcer of the vermiform appendix with general peritonitis. The abdomen had been opened and cleansed and the vermiform appendix removed by Dr. Hartley. This was the only case known to have recovered after such a lesion in New York.

Another youth was recovering after an operation for intestinal obstruction, due to a band and adhesions; and the interesting feature in his case was that a year before he had been laparotomized for tubercular peritonitis.

Dr. McBurney had several cases on which he had performed an operation of his own for the radical cure of hernia. He ligatures the sac at its neck, removes it, slits up the whole length of the canal and

the skin covering it, sutures the upper skin margin to the conjoined tendon, the lower to Poupert's ligament, draws the inverted skin margins toward each other by deep sutures, and packs the resulting ditch with dressing, from the bottom, till the wound is healed. The object is to secure a firm fibrous barrier against the descent of another hernia. The large gash, held by button sutures, looks formidable, but the results are said to be excellent; and I had the opportunity of examining a young man who turned up three months after operation, meanwhile having been at work, and in him the site of operation appeared to be much the strongest and most resistant part of a strong abdominal wall.

The genito-urinary cases are kept in a separate ward, and have male attendants. A considerable number of buboes were under treatment during my visit; and, judging by what I saw, I think it would be fair to assume that bubo in America must be a much more serious disease than with us. It is the rule to dissect out all the infected glands, and to remove all infiltrated skin. The result necessarily is, in some cases, a huge granulating surface in the groin. One man I saw had had the misfortune to have the glands and skin on both sides affected, and when seen by me, had a granulating area on each side quite the size of my outspread hand. The same treatment was adopted in Vienna when I was a student there in 1878.

There were several cases of urethral stricture under treatment, and I was surprised to learn that all strictures are dealt with by internal urethrotomy. Those in the penile portion are cut only; those behind are cut, and in addition the bladder is drained through the perinæum. Dr. McBurney has invented an ingenious instrument for making a small perineal opening just large enough to admit a drainage-tube, instead of the larger incision necessary when the bladder is drained in the ordinary way.

The bougies used in the after-treatment are terrible-looking weapons, and "bougie day" did not appear to be anticipated by the patients with feelings of unmixed satisfaction. Surgical principles are not elastic enough to allow of such a radical difference of opinion and practice as I saw there and see with us. If they are right we are wrong.

I had the opportunity of examining some cases recovered after operations for the removal of malignant growths. The operative treatment adopted is much more radical than is the rule with us—*e. g.*, in an ordinary case of scirrhus of the mamma it is usual to remove a large area of skin covering and surrounding the growth, to take away the pectoralis major, divide the pectoralis minor, and dissect out from the axilla everything except vessels and nerves. The skin gap is filled up by a Thielsch's graft—an excellent method, not sufficiently used here. I had the opportunity of seeing that the usefulness of the arm was but little impaired by the loss of the pectoralis major.

In cancer of the tongue an incision is made through the center of the lower lip, down through the middle line of the chin and neck to the hyoid bone. A second incision crosses this, running along the lower edge of the body of the jaw from one facial artery to the opposite. The flaps so marked out under the chin are reflected, the glands dissected out, and the lingual arteries tied. The lower jaw is now sawn through in the middle line, and the floor of the mouth and tongue removed. In one case, I think a patient of Dr. Halsted's, of Baltimore, the upper part of the larynx and a considerable portion of the pharynx had been removed in addition, and a year after the patient was in excellent condition and free from recurrence.

In all operations the most strict aseptic and antiseptic precautions were used, here as in all other hospitals I visited; the operator, his assistants, and the operation-room nurse, all wore special clothing; but I will enter more fully into detail on this point later in connection with the Johns Hopkins Hospital at Baltimore.

Ether was the invariable anæsthetic. It was administered on a simple stiff cone covered by a towel. At Boston it was given on a large, thick, cone-shaped sponge, without accessories of any sort—a safe, efficacious, cleanly, and simple method. Chloroform is mostly regarded as unsafe, and ether is in general use.

The catgut for ligatures was prepared here in a simple way. It looked well, and was said to be satisfactory when tested clinically and bacteriologically. The gut, bought dry and unprepared, was first put into ether from two to four hours, depending upon its thickness, then into 1-to-1,000 corrosive lotion for the same time, and from this into

alcohol, where it was permanently kept till required for use. All instruments were sterilized before use in a special hot-air or steam sterilizer.

Iliadorn's needle and needle-holder were used for the introduction of sutures, and a needle-holder had two arguments in its favor—first, convenience; and, second, it was more readily and surely sterilized than fingers. A large number of sutures were used in wounds. Tier upon tier of catgut sutures held the deeper structures in apposition until the sides of the wound were so closely opposed that there was no space for and no need of drainage. Cheap sponges, made use of only once, were employed during operation. The dressings were gutta-percha protective dipped in weak corrosive lotion, and torn into small patches, next the wound, and either sterilized gauze and wool, or corrosive gauze and wool heaped outside of this and retained by an ordinary roller bandage.

*Bellevue.*—Bellevue is an old-fashioned large hospital (eight hundred beds), with a medical school in its grounds. There I saw a laparotomy performed by Dr. Polk, gynecologist to the hospital. The operating theatre is a very large one, much resembling the theatre of the old Edinburgh Infirmary in its arrangements and appearance. From one hundred and fifty to two hundred students were present, and waited comparatively quietly for Dr. Polk and the patient.

On Dr. Polk's arrival he was greeted with enthusiastic cheers, for he had just returned from a holiday in Europe. The patient was immediately wheeled in on a couch, under the influence of ether, and her case briefly discussed. She was then stripped and placed on a low, short operating table, only long enough to hold her body. The legs rested on a stool. The operator explained that he had brought her unprepared to show the methods adopted preliminary to operating, and an assistant proceeded to smear the abdomen with an alcoholic solution of soap, and with the vigorous use of a nail-brush and hot water soon produced an abundant lather. The pubis was now shaved with a razor and the lather washed off by pouring a hot solution of corrosive sublimate from a jug over the abdomen. While the abdomen was being attended to by one assistant, a second was cleansing the vulval orifice and interior of the vagina by directing the flow of lotion over and into these parts by his hand and fingers. The cleansing process finished, the patient was entirely covered by antiseptic moist towels, excepting a portion of the abdominal wall of parallelogram shape, reaching from the umbilicus to the pubis. Dr. Polk and his assistants, having thoroughly washed and disinfected, got into their respective places. The former seated himself at the lower end of the table, between the thighs of the patient, with a leg on either side of him, and his abdomen resting against the patient's perinæum. This, he said, was Martin's (Berlin) position, and had many advantages. An assistant stood on each side of the patient ready to help the operator. A variety of matters were discussed and explained during the proceedings, and an occasional halt made when any particular point required emphasizing. The operator, taking a long-bladed bistoury, and commencing the incision just below the umbilicus, with one skillful sweep cut through all the structures at once, down to either fascia transversalis or peritonæum, for the next step was to seize the tissues at the bottom of the wound on either side with two pairs of artery forceps, between which a nick was made, opening the peritonæum. The finger was now introduced and the peritonæum slit up the length of the wound. The uterus and appendages were then drawn forward, the extent of disease, a double hydrosalpinx, ascertained, and the operation completed by the removal of the diseased appendages in the most approved fashion.

I have not yet shaken off a feeling of being in sacred ground when my hand is in the peritoneal cavity, and it was somewhat startling to me to see the unceremonious way in which this operation was performed at Bellevue. The impression conveyed to my mind was that the operation was as exciting to the operator as the operation of trimming the nails is to an ordinary mortal, who is occupied in conversation while doing it, and does not feel the least need of hurrying over the performance.

I have never seen an operation more skillfully performed; but the advantages of the position adopted would have to be very clear before a British surgeon could be persuaded to adopt it. It is not an elegant one.

*The New York Hospital.*—This is a very handsome building, outside

and in. It is built on the pavilion principle, and each individual ward is a model of what a perfect hospital ward should be. Unfortunately, it has been built on a limited space, and is five stories high, with a very limited interval between each block. The consequence is that the natural lighting and ventilation of the lower wards especially is considerably interfered with.

Dr. Weir, one of the surgeons to the hospital, kindly conducted me round, and I had the opportunity, after the visit, of seeing Dr. L. A. Stimson excise the vermiform appendix for perforating ulcer and peritonitis. The patient was a young man of about eighteen, who, six months before, had an attack of perityphlitis, from which he recovered under medical treatment. He was now suffering from a relapse, with urgent symptoms, and though his abdomen was much swollen and tender, a large resisting mass could be felt in his right iliac fossa. An incision about six inches long was made in the right linea semilunaris, and a quantity of fetid pus welled up as soon as the peritonæum was opened. On further opening the peritonæum it was seen that the pus was well localized and shut in by adherent coils of intestine, with the exception of a small place at the upper part, where a communication might possibly exist with the general peritoneal cavity. The pus was very carefully sponged out with small sponges in long forceps, wrung out of 1-to-1,000 corrosive lotion, particular care being taken not to disturb any of the adhesions toward the cavity of the abdomen. The vermiform appendix was then seen projecting from the end of the cæcum into the cavity, like a thick reddened spur, and after tying and dividing its mesentery it was ligatured at its base and removed close to the cæcum. The exposed interior of the divided appendix was then touched with pure carbolic acid, and afterward seared with the point of a thermo-cautery. When all blood and pus had been cleared away by sponging, the pus cavity was gently packed with strips of iodoform gauze all round the stump of the appendix. The wound was sutured and the ends of the gauze strips left projecting through a small gap, to be taken away later, when further adhesion had made it safe to do so.

To see this operation was a great treat. The consummate skill with which it was performed, the careful attention to every detail in the performance, and the scientific way in which possible accidents were provided for, insured success, if success was possible.

The appendix was opened in my presence, and there was, near the end, an ulcer about the size of a threepenny bit, which had perforated near its center at one very minute point.

During my visit I saw at least five cases in which the appendix had been removed for similar conditions. The only deduction I can make is that appendicitis is more common in America than in Europe.

When discussing the condition with Dr. Hartley, surgeon to Bellevue Hospital, I mentioned that in three cases, at least, I had opened a perityphlitic abscess with good result, immediate and remote, so far as I knew. He said the appendix was always removed in America in such conditions when it was possible to find it, as, if it was not, relapse was not infrequent. In proof of his statement he showed me a boy whose appendix had been removed a few days before, and his history was that a few months ago an abscess had been opened after a severe illness, and healed; he got quite well, had a relapse, and had now been admitted a second time with recurrence of similar symptoms, and had his diseased appendix excised.

The *Johns Hopkins Hospital* at Baltimore, on its completion, will be the most perfect large hospital in the world. It will be double its present size, and will then have four hundred beds. Possibly this statement may give the impression that it appears unfinished at present. This is not the case. Everything, so far as it goes, is complete, and everything that medical or surgical brain could wish for and think of is there. The appointments on the staff are the best in all America, for they secure to their fortunate possessors an income of £1,000 a year, with no restrictions whatever. Could any conditions be better calculated to secure for the citizens of Baltimore the best medical services?

Dr. Hurd, superintendent of the hospital, showed me round. He had the whole working of the hospital at his finger ends, and appeared to know all that was going on equally well in every department—medical, surgical, gynecological, pathological, and bacteriological. He knew every instrument, recent and late, and could explain its advantages and disadvantages; every dressing, new and old, he had considered, and

what things were necessary, good, and indifferent in the hospital he was clear in pointing out.

The out-patient department was the most perfect working arrangement I have seen. No time was lost, and with very little trouble a good record of each case was kept.

There is a good opportunity at Baltimore, as at Liverpool, of comparing the circular ward (or more correctly at Baltimore, octagonal) with pavilion wards, as each hospital has wards on both systems. I could get no expression of opinion at either Baltimore or Liverpool as to which was considered best, except that Dr. Hurd told me that patients preferred the circular, as feeling more private, from the central pillar hiding one third of the ward from the remaining two thirds, and that nurses liked the ordinary ward best for the opposite reason—that they could see all that was going on in the ward from any one part of it.

My own feeling—after seeing Antwerp Circular Hospital, Johns Hopkins, and Liverpool—is in favor of the circular ward. After the first strange appearance has worn off, it is not difficult to see that on a limited ground space ventilation can be more efficiently secured, and aspect, of such prime importance in pavilion wards, where those with a northern frontage always appear colder and darker, may in the circular be almost neglected.

The private wards at Johns Hopkins Hospital are so well patronized that last year they produced an income of £8,000 for the hospital.

Nearly all the public hospitals in America have private apartments attached for paying patients, who are taken in at fees ranging from £2 to £10 a week; and private hospitals are much more common than with us, as it is fully recognized that a patient's chance of recovery, especially in surgical cases, is much better in a properly equipped institution than at home.

The pathological and bacteriological laboratories form a part of the building; and though this arrangement was made temporarily, it has been found to work so satisfactorily that it is now agreed that they shall remain permanently.

After going round the hospital with Dr. Hurd, I accompanied Dr. Halsted through the surgical wards. There was a dearth of interesting cases, but what I did see was novel and good.

Dr. Halsted has written on the Treatment of Wounds, with especial reference to the value of Blood-clot in the management of Dead Spaces, and showed me an interesting case bearing on this. A middle-aged man had necrosis of the lower end of the femur, for which he had already undergone three unsuccessful operations in good hospitals during an illness extending over twenty-five years. Dr. Halsted dissected away all sinuses, and thoroughly scraped out a large cavity in the lower end of the femur. Taking the view that this large cavity could not heal, he cut down on the anterior part of the femur, and removed an elongated portion of the middle of the bone, opening up the cavity from the front. He transplanted into the hole a flap of the vastus internus muscle, and this, together with blood-clot, filled the cavity completely. An aseptic dressing completed the proceeding; and at my visit, a few weeks afterward, the leg was healed without a trace of suppuration.

I saw also a novel method for the radical cure of hernia, which was said to be giving excellent results. Dr. Halsted's operation is based on the opinion that the presence of the spermatic cord in the inguinal canal is an important factor in the causation of hernia and the prevention of a radical cure. He consequently makes a new passage for the spermatic cord in the abdominal wall higher up than the internal ring. The incision begins at the anterior superior iliac spine, and ends internal to the inner pillar of the external abdominal ring; dividing skin, external oblique aponeurosis, internal oblique, the part of transversalis muscle exposed, and transversalis fascia, the whole length of the skin incision. The spermatic cord is then separated to the upper level of the internal ring. The sac is isolated and drawn forward with the exposed peritonæum through the wound. The opposed peritoneal surfaces are then brought together along the line of incision by a series of quilted sutures, and the redundant peritonæum and sac clipped away close to the line of sutures. The cord is now brought through between the muscles near the upper end of the wound, and the divided muscles are brought into apposition by a second row of quilted sutures. The aponeurosis of the external oblique may be included in this or separately sutured. Finally, the skin wound is carefully sutured, leaving

the spermatic cord between skin and aponeurosis. No drainage-tube is required.

I next went to Dr. Howard A. Kelly's gynecological clinic, one of the most interesting medical sights in America. Dr. Kelly is a young man—only thirty-five—and has attained his present position solely by his own work and ability, which count, I fancy, more in the New than in the Old country. His results in abdominal operations can scarcely be surpassed, and I was much impressed by the thoroughness of all his work. He has a special theatre and wards of his own, and has described those and his method of working in full in the Johns Hopkins Hospital Reports for 1890. The combination of asepsis and antiseptics described is such as is employed at most of the surgical clinics with a strictness not frequently to be seen in this country, and I have purposely left distinct mention of this important subject till I could do it full justice.

[The author then makes copious extracts from Dr. Kelly's writings, and continues as follows:]

Such are Dr. Kelly's directions, and they give me the impression of carrying out surgical principles, according to our present lights, in a practical manner and one approaching perfection. American surgeons do not forget that all recent advances in wound treatment originated with Sir Joseph Lister, and admit without hesitation that his researches have revolutionized surgery.

They claim that their hospitals and nurses are better than ours, and the first I can not deny. The American nurse, though, is a copy—in costume, manners, everything—of the Nightingale sister, but to my mind there is no nurse so perfect as a good English one.

Before leaving the subject of the Johns Hopkins Hospital it will be well to mention that it has the reputation in America as a training school for nurses, efforts being made by means of lectures to give them a sufficient amount of information. The syllabus of lectures includes elementary anatomy and physiology; hygiene, with special reference to ventilation, heating, and drainage; bacteriology, especially in its application to surgery and medical practice; all the surgery required to insure a certain amount of appreciation of what is being done, and enough of medicine to make the reasons for certain lines of treatment intelligible. A satisfactory examination must be passed on the subjects included in the lectures and on cookery—theoretical and practical—before a certificate of efficiency is given.

Is this too much, or are we doing too little for our nurses? I think the fault is on our side. The nurses are interested in such work for its own sake, and the smattering of knowledge so gained helps them to take a more intelligent interest in surgical methods, and naturally increases their efficiency.

The *City Hospital* at Cincinnati is an old building, but does a great deal of good and useful work. I spent a pleasant and profitable morning with Dr. Conner, surgeon to the hospital, who showed me several simple fractures put up in plaster-of-Paris bandages. Here, as in most American hospitals, it is the rule to put the limb up at once in a plaster bandage over a thick layer of cotton wool. About the end of the first week, all being well, the bandage is taken off, the position of the limb examined, and another bandage firmly applied. This is left on for the remaining five or six weeks of treatment. This practice also obtains in all the German hospitals I have visited, but is adopted only partially in the British Islands. Dr. Conner told me there was now a rage on the radical cure of hernia by different methods, but that he thought possibly ligature of the neck of the sac and its removal were sufficient and as satisfactory in result as more elaborate proceedings.

He also took me to a large Catholic hospital in Cincinnati, with over 200 beds. It is managed by Sisters of Mercy, and there is no resident surgeon. The wards are small—in fact, it is a large ordinary house, the private rooms of which have been converted into small wards. It is remarkably clean and comfortable, and has an air of homeliness about it which is wanting in the ordinary hospital ward. Is this not the model hospital of the future?

In Chicago I saw Dr. Senn, who has recently removed there from Milwaukee. I had no opportunity of seeing him operate, but learned from him in conversation that he had given up the use of dry decaided bone plates, as originally recommended by him, for in one case of

gastro-enterostomy the patient vomited the plates, and in a second case the plates had escaped from the abdominal wound. Both patients recovered, but, in spite of this, he now prefers plates kept in a mixture of equal parts of spirit, glycerin, and water.

*The Massachusetts General Hospital, Boston.*—Owing to the kindness of an old Vienna friend, Dr. Williams, physician to the City Hospital, I spent a most pleasant and profitable morning with the staff, to whom he gave me an introduction. Everything, including hospital, staff, nurses, and all else, is decidedly English at Boston. It seemed none the worse for that.

I first saw Dr. Cabot, surgeon to the hospital, do an ovariectomy. The operation was performed in a special theatre, as all laparotomies are at this hospital, which was quite isolated from the main building, and had special wards in connection with it, much the same as at Johns Hopkins Hospital.

Worsted quilted in gauze bags took part of the share in the sponging, though sponges were used too. The case I saw operated on was a tumor of large size, and several vascular adhesions were torn through, so that some blood necessarily got into the abdomen. The majority of surgeons in this country would have washed out that abdomen and drained it. Dr. Cabot did neither. He, however, sponged it dry and clean before suturing. So far as I could judge, a reaction has commenced in America against drainage and washing in abdominal surgery, as I several times heard both condemned as mischievous.

Dr. Cabot also showed me two hysterectomies for fibroid, clamped outside, convalescent, and a bad case of double pyosalpinx doing well after operation. The results of abdominal surgery in the hospital are excellent, as one can well believe, after seeing the care taken of the patients, and the strict attention to every detail enforced. In this hospital and at the City Hospital the general surgeons do all the operative gynecology, and all over America the general surgeon does a great deal, possibly the greater part, of this work. It is settled on the other side of the Atlantic that abdominal surgery, at all events, is a branch of surgery, not of gynecology.

A case of excision of the ankle of Dr. Cabot's interested me. We would call it erosion or arthrectomy, for the old formal excision is not what was performed. The ankle joint was opened by a semilunar incision on each side, curving round either malleolus and missing all tendons, vessels, and nerves. The astragalus was found diseased, and excised; for, as Dr. Cabot explained to his class, if any disease at all exists in the astragalus the whole bone must be removed, its defective vascular supply making repair difficult. The os calcis was extensively diseased, but the tubercular foci were scraped and gouged out of it with good hopes of success, for its vascular supply is so good as to favor healing. The malleoli were left intact, and it was considered fortunate that this could be allowed, as they form an important buttress and support to the foot. Some loose cartilage was scraped from the ends of the tibia and fibula, and all granulating tissue and infiltrated structure removed. The wound was then filled loosely with iodoform gauze, and dressed in the ordinary way. Excision of joints is somewhat of a specialty at Boston. Dr. Scudder has published some excellent results, but all over America this is a common operation, and leaves an excellent and serviceable foot. Sixteen years ago my brilliant and revered teacher, Dr. Heron Watson, frequently excised the astragalus in such cases; since then I had not seen it done, or heard of it again, till now.

In such a case nine out of ten surgeons in this country would have done Syme's amputation, and I venture to say so in the operating theatre. Imagine my surprise at being told that, if amputation had been necessary, Syme's would not have been the operation selected; that Syme's was perhaps the best operation for a wretchedly poor person; but there were few such, who could not afford a proper artificial limb; and that, where money could be obtained for an artificial substitute, amputation at the lower one third of the leg was the operation of election. This was said by one of the distinguished surgeons of the hospital, and all my remarks, even quotations from Mr. Cathcart, failed to make any impression on his opinion.

Bigelow was a great benefactor to the hospital, and his name appears more than once in going round it. An operating chair in the theatre, devised by him, is a marvel of complicated ingenuity.

Attached to the operating theatre is a room for examining patho-



Original Communications.

A CASE OF SCLERODERMA.

By JOHN DUNN, M. D.,  
RICHMOND, VA.

J. W. H., aged thirty-four, negro, gave the following history: When he was between eleven and twelve years old there appeared on the right ala of his nose a small, hard growth resembling a wart. It began to grow larger and he picked it, and then tried various wart remedies to "carry it away." At times it bled quite profusely when parts of it were scratched off. He then sought a physician, as this growth increased continually. "Blood remedies" of all descriptions were taken internally, until, after years of trial, his physician said "blood remedies were useless." Numberless ointments were used; in spite of these, the affection spread. At times it would disappear partially, only to reappear in the same places. The process remained for years confined to the region about the right ala of the nose, choosing rather to spread to the right than to cross the nose. Finally it attacked the left ala, and thence spread across the left side of the face. When about twenty-two years old the process had extended up the nose as far as the eyelids. Then followed a history of immense swelling of the lids, with discharge from between them. The eyes were very painful. As the lids went down, there remained a sensation as of grit in the eyes. Some sight remained, although, as the irritation was permanent, the sight grew dimmer, and at the end of three or four years he was totally blind. He suffered intensely with his eyes during this period. About four years ago the process had reached his ears. About five years ago it began to "work its way" into the nose and to attack the gums. At no time has the facial affection been painful, nor has there been any itching, except when the diseased surface would break down, and even then the itching was slight. More itching at the corner of the mouth than elsewhere. Occasionally the "eyes" itch. Such is the negro's account of his case, which, though far more accurate than could be given by most of his race, must not be considered as exact, both because of the long years during which it has existed and because the power of exact description in the negro is not over-well developed.

The accompanying cut, from a photograph taken at the time of his coming to the Richmond Eye Clinic in 1891, gives a fair idea of the negro's appearance. The photograph is at fault in many details, which the following description will endeavor to correct: The skin of the face, from about an inch and a half above the eyebrows to two inches below the chin and extending laterally on both sides to the back of the ears, is thickened, infiltrated, and has a hard, elastic feel; in places the infiltration is denser than at others; the skin is immovable over the surface beneath, consequently the expression never changes. The patient is unable to shut his mouth, to such an extent has the infiltration affected the skin of the lips. Most of the surface of the affected area is black and has a shiny look; in parts, however, apparently where there has been at some time more or less irritation with ulceration—perhaps an eczematous condition—the pigment of the skin has to a great measure been destroyed, and the surface here resembles patches of leucoderma, a disease not uncommon in the negro race. The places showing the loss of pigment are two patches extending downward from either corner of the mouth, the probable cause of irritation being the more or less continuous dribbling of saliva from the mouth, and a similar patch below the right nostril, irritation from the nasal

secretion, also the parts of the skin over which the lacrymal secretions flow, just below the "eyes." All of these places are to a certain extent ulcerated, and secrete more or less clear serous matter. The fibers of the orbicularis oris still retain some power, as a slight movement in the lips can be detected when the



FIG. 1.

patient is told to try to shut his mouth. An endeavor to open the mouth wide causes the glands situated along the mucous cutaneous boundary line—and these glands must be greatly developed—to secrete profusely, so that there appear in the upper lip two or three lines of beads of clear mucus, about two mm. apart, the whole length of the upper lip. The same thing occurs in the lower lip, only here there appear three or four irregular lines. These beads of mucus attain the size of a millet seed, and remain, with no inclination to spread over the surface of the lips, for minutes at a time. The lips from time to time crack and bleed, as do the gums of the upper jaw, that part above the eight central teeth. This part of the gums is swollen and hard, and presents the appearance of a disposition to bleed easily. The appearance presented by the gums here is not unlike that seen in a case of hare-lip, where the gums have been exposed for years to the action of the atmosphere and have not received the proper covering and the influence of the mucous moisture, though they are more swollen in this case, and somewhat resemble epulis in its earlier stages. The question arises, then, naturally, whether this condition of the gums has resulted merely from a lack of the protection the upper lip affords, for in the above case the upper lip is so thickened and infiltrated that it is pulled away from this part of the gums and does not furnish them a covering, or are the gums infiltrated by the same process which has attacked the lips? This hypertrophied condition of the gums does not extend beyond the first molar on either side, and is confined to the anterior aspect of the gums. Were this all, it would be fair to suppose that the process had not extended to the gums, but that the swollen condition of the gums was due to exposure and lack of normal moisture. There are found, however, in the region of the rows of glands, just behind the front upper teeth, distinct evidences that some abnormal process has attacked them, for in two or three places

the mucous membrane is drawn together and puckered as if there had been some ulcerative process which, in healing, had drawn the immediately contiguous tissue into itself. The mucous membrane, however, does not here appear to be thickened, nor does this process seem to have extended to the whole of this region. The appearance presented by these drawn spots is very peculiar and unlike anything I have ever seen.

The entrances to the nostrils are very small; it is highly probable that, as the process extends, they will be entirely closed. The entrance to the right nostril is circular and has about the diameter of a lead-pencil; that to the left is also circular, but not more than half the size of that leading into the right nostril. These holes present the appearance of being punched out of the face. Perhaps it would be more correct to say that these holes lead directly into the nose, since the alæ are so infiltrated, thickened, and stiff that all the functions of the nostrils are utterly done away with. The cutaneous and movable cartilaginous part of the septum dividing the nostrils below has been destroyed down to the permanent cartilaginous plate of the true septum, so that the partition between the two nostrils, as seen from below, is not more than the diameter of a lead-pencil in length, and is formed by a part of the cartilage of the true septum. There is, however, no ulceration here. The skin at the angles and sides of the nostrils is so infiltrated as to obliterate all folds at the side of the nostrils and make the whole on a gradual slope with the cheek bones. (This is not well shown in the photograph.) As far as examination of the nose anteriorly can be made, the intranasal cavities appear to be free, and to show no hypertrophies.

The "eyes" present the most remarkable part of the picture. There remains not a vestige of a lower lid on either side, skin and mucous membrane alike having been entirely destroyed. On the right side there remains a part of the upper lid with about half a dozen coarse lashes in a clump near the external angle. The eyeball has disappeared, and where there should be an eye, is only an oblong, fiery-red raw surface. This red surface, except at the outer corner, where it makes a slight furrow, is almost level with the cheek, so that one says: "Were that ulcer to be covered with skin, no one could say there had been an eye here." On the left side the same condition obtains, except that the upper lid remains and the raw surface is much deeper, and there is clearly some mucous membrane which is bound down to the central part of the raw surface. This raw surface, as on the right side, is deepest at the external corner. There remains some little power of motion in the levators, and on the left side it can be plainly seen that the straight muscles of the orbit have not been destroyed, as the patient can at will contract the mucous membrane puckered at the central part of the raw surface. The secretion from these raw surfaces is, for the most part, clear tears, which run in some profusion over the cheeks. This secretion comes chiefly from the external corner, where a probe will show that in either "eye" there exists a fistula leading to the lacrymal gland, which must have remained, in great measure at least, uninjured. At the internal angles of these raw surfaces all evidences of the once existence of lacrymal puncta and canaliculi have been destroyed. The skin in the region of the eyebrows is infiltrated, and the greater portion of the eyebrows has disappeared. The process has extended across the face to the ears, which are only in part infiltrated. The parts thus far attacked are the lobules, which are much thickened, and the outer edges of the lobes. The process has reached the tragus and antitragus, though it has not attacked the canal. The ears show evidences of superficial ulceration of the infiltrated parts, probably due to the pressure to which these parts are subjected when the patient is lying down. There can be but little tendency for the affected parts to break down of themselves, as these

superficial ulcerations heal with rapidity. The skin of the face, as said above, is infiltrated and hard, and in most places has a shiny look, and to the touch resembles rubber. It is not, however, everywhere infiltrated to an equal degree, as there are areas where the infiltration is thicker and denser than at others. About the center of either cheek are several more or less contiguous areas where the skin is so densely infiltrated as to be knotty. These areas are slightly elevated above the adjacent skin, and the total space occupied by them on either side is about a quarter of an inch by an inch and a half. These areas are distinctly nodular. Beneath the angle of the jaw on the right side are two hardened areas which are, most probably, enlarged lymphatics. On the forehead the skin is as yet but slightly attacked, and while the process is the same as that below, the skin has not been infiltrated to the same degree. At almost all points the line of demarkation between the healthy and the infiltrated skin is accurately defined. The affected parts are not painful or sensitive on pressure. During the few weeks the negro remained in Richmond a wash of warm bichloride (1 to 2,000) was kept, for varying intervals during the day, applied to his face. The only noticeable change following this was that the infiltrated skin, especially over the forehead, lost much of its leathery feeling and shiny appearance, and became more or less wrinkled and movable, as though these parts were undergoing an involution to their normal condition. This, however, the negro said it would do from time to time without any treatment, but afterward it would get dense again and spread further. This being the case, it is impossible to say whether the bichloride solution had any real effect upon the process. The change following the use of the solution was, however, a marked one. The teeth are well preserved. The skin covering the other parts of the negro is healthy. Nor does the negro's general health seem to be impaired by this condition. Appetite is good. At one time he was liable to colds in the head, but rarely suffers from them now. Is a married man and has several healthy children, one of whom, a girl about twelve years of age, leads him about from place to place. Examination of the throat shows the tonsils to be greatly hypertrophied, with marked evidences of adenoids of the nasopharynx. The application of the palate retractor shows the posterior nasal picture to be normal, showing that the process had, at least, not extended through the nose so far as to attack the posterior parts of the turbinates or septum, while examination of the nose anteriorly, as said before, makes it doubtful whether the process has at all extended into the nose proper. One of the tonsils was removed pretty thoroughly with a snare. A severe inflammation of the pharynx, pillars, and soft palate of the side from which the tonsil had been removed followed, and with it immense œdema of the uvula. For a few days serious consequences were feared; under treatment, however, the inflammation subsided and the wound healed perfectly. The cause of the inflammation is, probably, to be sought in the negro's being unable to properly expel the accumulated secretions from his mouth, owing to the stiffened condition of the lips and cheeks.

*Remarks.*—While the case has many characteristics which make it, in all probability, a case of scleroderma, there are certain features pertaining to it and to its history which at least suggest a rhinoscleroma. The negro states that a "hard, warty" growth appeared about twenty-two years ago at the external edge of the right nostril; that it remained years in this region, showing little or no tendency to spread beyond it; that in his endeavors to remove it he made it bleed; that this growth then, finally, began to extend up the side of the right nostril and then crossed over and attacked the left nostril. Owing to the length of time

that has elapsed since then it is impossible to determine the nature of this hard localized growth. The nose now shows no evidence of a circumscribed nodular growth, but its skin is equally infiltrated, so that one may not say that one part is more infiltrated than another. It can not now be said whether this originally circumscribed, nodular growth had a tendency *per se* to bleed, or whether this tendency to bleed was developed under the various attempts to cause it to disappear by "wart remedies." The growth, however, was not syphilis, as proved by the treatment to which the negro has been subjected, nor was it epithelioma. Nor does the present condition of the skin at all suggest cicatricial keloid, a condition common enough in the negro race. Whatever the original growth was, it has left no trace of itself behind; but whatever it was, it proved to be the starting point of a sclerodermatic process, which has involved nearly the whole face. The tendency to, at times, partially resolve is characteristic of scleroderma; but I can find no record of a case where this seeming repeated tendency to involution to recovery proves to be followed by an extension of the process even beyond the limits from which the beginning involution began. The fact that it is symmetrical points to scleroderma. What the hardened, circumscribed areas in the cheek mean it is difficult to say. It is possible that at some time there may have been ulcerations in the places now occupied by these nodular areas, the process of healing giving rise to a cicatricial keloid condition; on the other hand, their general appearance is not at all suggestive of keloid as seen in the negro. I cut into one of these areas to see if there was any broken-down tissue beneath. It was firm, elastic under the knife, cutting like scar tissue. Again, if these infiltrated areas represent scar tissue, some process different from simple dermatitis must have existed at these places to have given origin to them, since at the other places—*e. g.*, beneath the corners of the mouth, where there has existed superficial inflammation—no such result has appeared. The process seems to have been unwilling to attack the mucous surfaces, unless the swollen condition of the gums show that it has invaded them. I think it more probable, however, that, as above stated, this condition of the gums has resulted from their exposure. What the small, contracted areas in the mucous membrane behind the upper front teeth mean I do not know. The tissue surrounding them is, however, not infiltrated. A more interesting problem is furnished us in the condition of the eyes. By what process did the lower lids disappear? We have here not to do with a severe case of ectropion, or entropion, or partial destruction of the lower lids, such as might result from an inflammation or a circumscribed abscess, but with a destruction so complete that, from external to internal canthus, not a vestige of them remains. Skin, muscle, and mucous membrane have entirely disappeared. It is as though some one had seized the free edges of the lower lids and pulled them from the cheek as far as possible, and then shaved the lids off close to the cheek. There remains not one shred of scar tissue to show that they disappeared piecemeal. About twelve years ago, says the negro, the process, which had up to that time confined itself to the region of the lower nose and adjacent cheek, spread upward and reached the lids,

following which came an intense inflammation of the eyes, which remained closed by the swelling for some time. Much secretion from between the lids. Then followed diminution of the swelling of the lids, with great pain in the balls, which pain remained until the sight had been entirely destroyed. To one who has seen much of eye troubles among the negro race this bit of history means nothing, or very little, and even less when twelve years have elapsed. Having seen the case only after the destruction of the lower lids had become complete, the manner of their disappearance must remain a conjecture. It may not, however, be uninteresting to look into the cause which might have led to such a condition. The present state of the upper lids, except for the infiltrated condition of the cutaneous surface, is such as might be the result of most any of the severe inflammations of the conjunctiva if continued for a length of time. The history, as given by the negro, suggests purulent ophthalmia, with corneal ulcers, perforation of the ball,



FIG. 2.

following which its gradual destruction. There are no remains of the eyeball in either socket, unless there be a part of the sclerotic, which may be left, as in the left "eye." There are some movements at the center of the inflamed surface, where the eye was, which suggest that the muscles have their insertion there. How did the lower lids disappear? Could the destruction have been begun by an abscess occurring at the time of the ophthalmia, and have been completed in the course of years by the continuous pouring over them of the muco-purulent, and lacrymal secretions? This seems little probable since these same tears and other discharges have not been able to destroy or to do more than produce a slight form of dermatitis of the skin below the orbit, and they have continued ever since the lower lids were destroyed. The eyes were three or four years in "going out," during which period the negro suffered intensely. This is the history of perforations and their results.

In seeking the possible causes of the destruction of the lower lids, the following case from among a collection of

photographs of the rarer affections that came to the Richmond Eye Infirmary presented itself, and a short history of the case may not be out of place here: James A., negro, aged twenty-three, had suffered every spring for several years with some eye trouble the nature of which he could give no better description of than that "the light hurt his eyes"—words used by the average negro to describe any eye affection whatever. (Probably phlyctenular inflammation was the trouble.) In June, 1891, his eyes became much inflamed, and *in a week* both eyes had assumed the appearance shown in Fig. 2, except that the right eye presented a condition exactly similar to that of the left eye in the cut, the less swollen appearance of the right lower lid being due to the fact that a part of the tumor of this lid had been removed by a physician before the negro appeared at the clinic, which he did the latter part of July, 1891. The condition of the eyes then—that is, seven weeks after the trouble began—was as follows: Patient was entirely unable to open either eye; the lower lid of the left eye was a huge smooth, ovoid mass, covered with shining mucous membrane; the cutaneous surface of the lower lid was bent over by the weight of this tumor until it lay in apposition with the skin of the cheek; all endeavors to open the eye resulted in a slight constriction at the base of the tumor, caused by contraction of the orbicularis fibers; this swelling of the lower lid was seemingly a true hypertrophy of the tissues beneath the mucous epithelium, most likely of the adenoid reticulum of the mucous membrane; the secretion from the eye was small in amount in comparison with what might have been expected, and was rather sero-mucous than purulent. The upper lid was apparently elongated, and responded, but in the slightest manner, to the efforts of the levator; and, though its mucous membrane was in an inflamed condition, especially in the *cul-de-sac*, there was no such swelling anywhere as the lower lids showed. The lids of the right eye were in a similar condition, except that, as stated above, a piece had been removed from the mass in the lower lid. Both corneæ were almost completely surrounded with superficial ulcerations, or leucomatous patches, showing that ulcers had once existed. While no perforation of the cornea could be made out, there had been a severe double iritis, with adhesions to the lens. As said above, there was complete eversion of the lower lids, which infiltration or hypertrophy had transformed into helpless masses. When the negro was told to shut his eyes there appeared a constriction at the base of these tumors, due to contraction of the outer fibers of the orbicularis. This condition of the lower lids I have seen in one other case, also in a negro, the trouble being undoubtedly purulent ophthalmia, as was also the case in the subject of the accompanying cut, although the stage of active purulent discharge had passed when he came to the clinic; and it is not improbable that a similar trouble was the cause of the complete destruction of the lids in the case of the negro with scleroderma. The history would, then, be about as follows: Purulent ophthalmia; great infiltration and complete eversion of the lower lids; great stretching of the skin at the place where the cheek and lower lid meet; perhaps stasis of blood-current in the skin here, with ul-

ceration and destruction of the skin along the line of tension. Thus, could the entire lower lid be separated from its attachments, while the condition of the lids would be most unfavorable to any reunion of the parts, afterward slow, continuous ulceration could destroy the lids entirely, especially when already a pathological process existed in their cutaneous covering. The case of James A. has been added here not because it answers entirely to my satisfaction the question of how the lids in this case of scleroderma disappeared, but because it offers a more probable solution than any other that suggests itself.

#### THE RELATION OF DISTURBANCES OF THE MUCOUS MEMBRANE OF THE UPPER AIR PASSAGES TO CONSTITUTIONAL CONDITIONS.\*

By BEVERLEY ROBINSON, M.D.

To establish the connection between constitutional conditions and disturbances of the mucous membrane of the upper air passages is at times a relatively easy matter. In more frequent cases it is difficult to make out clearly the interdependence of the general and local conditions. In a certain proportion of instances, even after the most careful repeated examinations, one can not but remain in great doubt as to whether there be any common causation of the diathetic state and the physical changes observed in the upper portion of the respiratory tract. In order to form just ideas on this subject it is important to investigate without prejudice and to scan every clinical case observed in the most thorough and searching manner. It is also required to attach due weight to the observations of learned men who have preceded us in their practice of the healing art. While this is true, we should not be over-tolerant of opinions held in the past, if later advances in our science and art prove that former beliefs are erroneous, or that clinical data handed down are unreliable by reason of lack of precision in the methods employed.

Still, there are certain judgments which have been tested so frequently and so long that we should be very careful lest we abandon them without sufficient reasons.

These remarks are but a prelude to the statement that the old notion, which was widespread, of a constitutional condition influencing every local state is fast losing ground with the modern practitioner. To my mind, there is little doubt that very many physicians of the present day are inclined to localize most human ailments to the exclusion practically of the diathetic influence. This tendency naturally makes local treatment of primary importance whenever any real disease is present which requires remedial interference. In no special departments of medicine or surgery is my statement truer than it is in those of laryngology and rhinology. Just why this view of our art has arisen may be clearly explained, as it seems to me, by the consideration of a few facts. First, modern thought in laryngology and rhinology, as in every special branch, has forcibly, as it

\* Read before the American Laryngological Association at its thirteenth annual congress.

were, limited the mental horizon of the observer. Such an one can not delve into general medicine. It has become too large and also too changeable. New discoveries and new ways of doing things are being added each day to every department. The busy and successful man—the one upon whose judgment we most rely—can not find time to go outside his special field of work and see and hear things as some others see and hear them. The result is that he is not wholly convinced of the truth of things spoken and written by those about him, as they do not thus come before his mental vision. Besides, whenever the throat specialist finds that in some instances which have come under his care a particular line of treatment has been beneficial, he is apt to assume that he can lay down general laws which should govern the action of others, and he does not allow enough latitude to the various aspects according to which even the simplest case can be regarded. These reflections do not prevent me from fully recognizing the great strides in advance that have been made latterly by the specialists in laryngology. No one is more willing to admit that mechanical ingenuity and operative interference have relieved or cured many patients in whom the outlook without their aid was well-nigh hopeless.

And yet the human body is formed of many different organs whose structures and functions are linked indissolubly to one another, and we can not ignore any one of them as being wholly unimportant in its influence upon the others. So it is that we start out with the thought that the relation of disturbances of the mucous membrane of the upper air passages to constitutional conditions are various and intricate.

Sometimes the mucous membrane itself, by reason of its diseased condition, which has arisen in some accidental or wholly obscure manner, seems to be a focus for diseased germs—the habitat in which they will flourish and propagate readily—finally to end in constitutional disorder of an acute or chronic type. Frequently the diseased constitutional condition precedes, indeed, all physical or rational evidences of local disturbance in the mucous membrane of the upper air passages, and it is only after weeks and months that the general disease is plainly manifest in the alterations of function and structure which are clearly discernible.

The constitutional condition may be one of those in which heredity or contagion plays an essential part as an efficient causative factor, or one in which the habits, mode of life, and surroundings are obviously the powerful agencies at work, or, finally, one in which the mere development of the individual seems to be the seed which will cause the local disturbance to come into being and grow at a certain period of life with more or less certainty. The constitutional conditions we are called upon to consider may be acute or chronic. In the former we find the fevers, and among these the fevers which come to mind most prominently are typhoid fever, the eruptive fevers, and those due to malarial poison. Then we have diseases of a general and acute character, like diphtheria and acute miliary tuberculosis, which unquestionably produce different disturbances of the upper air tract. As I understand the subject

of discussion, however, it was not intended to include in it the affections just mentioned, with, perhaps, the exception of the relation existing between malarial diseases and disturbances of the upper air passages. Doubtless the section had in view chronic tuberculosis, syphilis, scrofula, carcinoma, gout, rheumatism, lithæmia, alcoholism, etc. This list, just as the former one, can be largely added to, but in so doing I should be going beyond the short introductory message that is properly expected from me. No one present, I am sure, can doubt for a moment that the constitutional condition which is shown in general chronic tuberculosis finds for itself a very frequent localization in the upper air passages. Particularly as laryngologists are we called upon to recognize this sad fact in our diagnosis and treatment of intralaryngeal disease.

Whenever laryngeal tuberculosis is distinctly evident, the clear-cut relation between the constitutional condition and the local disturbance is recognized at a glance. By this statement I do not mean to say that it can be known at once how and when the tubercular deposit has taken place in the larynx. I simply wish to affirm that there can be no doubt as to the precise nature of the disease. It can not be confounded with the ordinary chronic catarrhal laryngitis, which exists as a primary affection, or as a sequela of a mild form of acute laryngitis. The ulcerations in the larynx, the history of the patients, and the intrapulmonary condition are all sufficient, as a rule, especially when the disease is at all advanced, to allow us to make the differential diagnosis with perfect ease. If, however, the laryngeal inflammation is relatively slight in an anæmic patient in whom the chest signs are negative and no abrasion of tissue exists locally, it becomes a very delicate matter positively to decide what the exact relation is between the disturbance of the laryngeal mucous membrane and the constitutional condition. The general cachexia and impaired nervous nutrition influence very much the nature and course of the catarrhal inflammation of the larynx, and for a considerable time we are left in doubt as to whether these conditions will be followed or not by the local deposit of tubercle in the vocal organ. It is probable that, whenever the ulcerative or hypertrophied typical condition of the laryngeal structure is reached, it is brought about, in part at least, by the constant irritation which is occasioned by the passage of discharges over the laryngeal mucous membrane and by the efforts made by the patient to get rid of them by expectoration. The additional movements thus occasioned in the larynx unquestionably favor the local deposit of tubercle and the development of more marked laryngeal complications.

As in tubercular disease, so in syphilis, a chronic catarrhal laryngitis is often greatly modified as to its course, its symptoms, and its appearance by the underlying constitutional condition. A syphilitic laryngitis presents, even without ulceration, a deeper, more persistent coloration than that due to simple catarrhal inflammation. Moreover, the painful symptoms accused by the patient are not at all in proportion with the apparent degree of the inflammatory condition. Again, the use of specific treatment with mercury and the iodides benefits the patient so rapidly and

manifestly as to leave no doubt in the mind of the physician as to the distinct causal relation of the syphilitic disease to the disturbance of the laryngeal mucous membrane. In many cases the acknowledgment of the patient in regard to previous syphilitic infection will enable us to reach a decision in some very obscure cases. Of course, if the intralaryngeal congestive condition advances to ulceration, this of itself is sufficient to distinguish it from chronic simple catarrhal laryngitis. The irregular outline, yellowish exudation, and red areola of the syphilitic ulcer are readily distinguished from the ashy-gray hue and raised, thickened, pale borders of phthisical ulcers. Its march is more rapid and its symptoms are less painful. In secondary syphilis especially hyperæmia often attacks the nasal mucous membrane, and in these cases occasions the symptoms of ordinary nasal catarrh. The tendency to the formation of ulcers or mucous patches on the erythematous surface is quite marked, and particularly so among the poor, or with patients who are smokers or take snuff. The syphilitic erythema is sometimes in patches or punctate. It is difficult to differentiate from ordinary catarrhal inflammation of the pituitary membrane, except by the fact that the hue is more dusky and there is less apparent irritation than there would be from a hyperæmia dependent upon a cold. Mucous patches are occasionally seen in the larynx and trachea, but they rarely become extensive in these situations, and disappear after a few weeks of mild treatment. The diffuse connective-tissue hyperplasia, without ulceration, which occurs in the larynx in the tertiary stages of syphilis is accompanied by a dark-colored mucous membrane and a general thickening which affects the soft tissues of this organ.

Among the disturbances of mucous membrane of the upper air passages which are obviously connected with scrofula, an inflammation of a low type is the one most frequently encountered. In this form the exudation is markedly thick and sticky, and the tendency to the formation of dry scabs is most pronounced. Concomitantly we have different eruptions on the skin which manifest the diathetic nature of the lesions. Impetigo of the scalp, face, and eyelids, eczematous eruptions around the ears, in the auditory canals, and upon the upper lip and at the nares, are commonly met with. The bones, periosteum, and synovial membranes may also show evidences of scrofulous development which, taken with the affection of the mucous membrane, leave no doubt as to the nature of the underlying dyscrasia. The more destructive ulcerative lesions of scrofula as affecting the pharynx and larynx are rarely seen in this country as compared with many parts of Europe, and notably with Germany. Unfortunately, we do occasionally meet with them in the throat in the form of those ravaging lupoid conditions which occasion such deformity and interference with normal function. The patients thus affected are often the offspring of intemperate, syphilitic, or phthisical parents. The hereditary influence is, however, not always well marked, and the scrofulous diathesis appears to be acquired by reason of poor food, lack of sunlight, and unhygienic surroundings. The alternation in these cases between a coryza, catarrhal conjunctivitis, otorrhœa, and ulceration of the cornea is fre-

quently one of the most evident marks of the constitutional relation to the disturbance of the mucous membrane of the upper air tract. The inflammations of the larynx and bronchi are frequent and obstinate. Not seldom they extend to the pulmonary alveoli, and tuberculous deposits in the lymphatic ganglia and lung structure are prone to take place sooner or later. The diagnosis of the scrofulous disturbance of the mucous membrane of the upper air tract usually is determined in great part by its low grade of reaction, by its singular obstinacy or duration, and by the peculiar, characteristic changes which appear concomitantly and give evidence of the presence of the constitutional condition. One statement must be graven in the mind of the observer, because in regard to this subject there arise great and lamentable errors—viz.: that those chronically seamed and scarred throats, with distorted pharynx, the result of former destructive ulceration, which are not infrequently met with both in youthful and adult subjects, are not of scrofulous origin, but unquestionably syphilitic in the very large majority of cases. Koch's late discovery of tuberculin appeared at first to be of very great value in making, through injections of it, the differential diagnosis particularly in instances in which a syphilitic history or parentage could not be traced. Unfortunately, it has failed to accomplish this end in just such cases, and we are again obliged to fall back upon the results obtained, when cases are seen soon enough, by pushing the treatment by means of an iodide rapidly increased to large, repeated doses.

Of course, when great ravages are already made we can only hope to prevent further destruction and remedy, it may be, alterations in the voice and difficult deglutition by operative interference. Gout and scrofula often exercise a decided influence on the course and manifestations of syphilis as it appears in disturbances of the mucous membrane of the upper air passages. Whenever gout is present the hyperæmia of the mucous membrane of the upper air tract presents a drier, more glazed appearance than when the syphilis is uncomplicated. When ulcerations form in the nasal passages or in the pharynx they are cured more slowly and show a tendency to return which is quite disheartening at times. Finally, the gouty diathesis tends unquestionably to cause nervous symptoms in syphilis, as shown by pains in the throat upon swallowing or in using the voice, which are not always sufficiently accounted for by the evident lesion which is present. Whenever scrofula complicates syphilis the cicatrices of ulcer in the throat take on a more irregular, puckered, and ridged appearance, and are less smooth, thin, and glistening than those distinctly characteristic of syphilis. No doubt, therefore, in many instances the syphilis is really complicated with scrofula, and the resultant ulcerations have about them all the appearances of struma, not unlike what often occurs in entaneous ulcerations. The type of the syphilis is apt to be more inveterate and often attended by destructive bony lesions. The relation between chronic malarial infection and disturbances of the mucous membrane of the upper air tract has been noted by competent observers for a long period of time. In a paper read before this association in June, 1890, in Boston, I made known my experience in

this connection. Frequently a malarial attack is ushered in, not by chills and fever, but rather by repeated sneezing or an obstinate, paroxysmal cough. Upon inspection with the laryngeal mirror or with the nasal speculum, we may only find the usual catarrhal appearances indicative of an acute laryngitis or rhinitis. When we come to inquire into the history of these patients we shall find that these attacks come on periodically, are followed by fever and chills at times, resist ordinary remedies for cold, and are brought into subjection after a short treatment with quinine or Warburg's tincture. Frequently the spleen is enlarged, and occasionally pigmentary deposits or different forms of the *Hæmatozoon malarie* are found in the blood upon careful microscopic examination. In view of these facts, I believe that we can scarcely doubt the relation which exists between the blood dyscrasia and local attacks of the disease on mucous membrane of the upper air tract. Many cases of spasmodic asthma, apparently of the nature of a bronchitic asthma under the immediate dependence of an inflammatory condition of the bronchial tubes, have been signally relieved by anti-malarial agents used remedially, when cauterization of the nasal membrane and sawing the septum had obviously been of little or no benefit. In any case to-day of obscure disturbance of the mucous membrane of the nose, throat, larynx, or bronchi, with a history of possible malarial exposure, and after eliminating other complicating conditions, it is wise to think of blood poisoning from *Hæmatozoon malarie* as being the efficient cause of the morbid symptoms. Judicious treatment, after proper physical and blood examinations have been made, will frequently confirm an uncertain diagnosis in just such cases. It is also true that quinine and Warburg's extract will occasionally fail to be curative in these attacks after a time, and we shall be of greater service to these patients by prescribing for them phosphorus and strychnine in moderate, long-continued doses.

The relation of carcinoma to one of the disturbances of the mucous membrane of the upper air passages has been shown in a detailed and graphic manner before this association last year. It would seem as if in the earlier stages at least of malignant disease of the larynx, some value should be attached to the infiltration of the soft tissues which interferes notably with the movements of the vocal cord on one side, to the existence of a ring of reddened infiltrated tissue around the new growth, and to the cloudy area in the vicinity of the growth which can be demonstrated by the use of transillumination. Of course the lancinating pains, swelling and induration of the glands near the cornua of the hyoid bone, the character of the secretion, and well-defined deformity will be of much value, whenever they are present, in fixing a diagnosis. The appearances of the growth and the general history of the case are often helpful. The absence or presence of syphilis or tuberclosis and the effects at times of more or less prolonged antisiphilitic treatment aid our judgment frequently as to the nature of the case with which we have to do. In like manner the microscopical examination of a portion of the tumor removed before or after death is occasionally of the highest diagnostic importance.

No doubt one of the determining factors in producing malignant disease in the larynx is the frequent occurrence of inflammatory conditions in this organ. The constant use of the voice seems to become a source of local irritation in many instances, and thus the professions of singer, teacher, public speaker, all appear to promote the local deposit of cancerous tissue. The constant inhalation of irritating vapors and dust is also a predisposing cause in occasioning a local hyperæmia which so frequently precedes or accompanies the presence of malignant growths. Apart from all local changes, however, there is always apparently in operation the underlying constitutional dyscrasia which gives the specific character to the morbid lesions. We all know that when the chylipoietic system is out of order or performing its functions imperfectly, repeated and often obstinate pharyngeal and laryngeal irritations are apt to occur. It is only by due attention to this knowledge and by proper direction of treatment in view of it, that we are able to effect cures in cases otherwise intractable.

Chronic alcoholism is often made evident by the congested, excessively irritable pharynx or larynx, and a diagnosis otherwise obscure is thus sometimes readily made. An annoying naso-pharyngeal catarrh, with marked enlargement of the tonsils, is occasionally very distinct proof of the process of second dentition in the young lad or girl. A disordered emotional temperament or a well-marked neurasthenic state is not seldom the underlying cause of recurrent attacks of coryza which have defeated our best-directed efforts at successful local treatment. Luxurious habits and surroundings, sedentary occupations with accompanying chronic dyspepsia and constipated bowels, will sometimes produce irritability of the reflex centers of nose and throat which can only be cured by the exposures of an outdoor life and their accompanying hardships. While this is true, it is also a fact that once the catarrhal inflammation of the upper air passages has taken place, it frequently aggravates very much the pre-existing dyspepsia and the adjoined lithæmic state. Indeed, it is no uncommon thing to hear a patient say that it is the violent hawking and constant spitting from which he suffers every morning on rising that unsettles his stomach at that time, and may continue to cause inappetence or disgust for food during several hours of the day. It is an observed fact, not very infrequent, that patients who have never previously suffered in the smallest degree from any evidence whatever of one of the recognized forms of dyspepsia have developed this condition in a distinct form subsequent to the appearance of a catarrhal inflammation of the nose, naso-pharynx, or the pharynx and larynx. It is probable in such cases that some of the secreted mucus from these organs works its way down the back of the throat and is swallowed, thus starting gastric disturbance. It is also clear that the current of inspired air, or rather the air which is swallowed after passing over masses of mucus or muco-pus, more or less in a state of putrefaction, must be very injurious to the healthy functions of the stomach, or stomach and bowels. It is well known that the "condition of suboxidation and overcharging of the blood and excretions with excretory matter in a state of faulty elaboration" is but too prone to occasion disturb-

ances of the mucous membrane of the upper air passages. The patchy congestion of the pharynx, the epiglottis, ary-epiglottic folds, and ventricular bands is often indicative of this condition. The throat is extremely irritable and the patient suffers from a harsh, dry cough. There is often marked dysphagia referred to the sides of the larynx. Appropriate general medication and hygiene generally bring these attacks to a close in a short time, and thus the therapeutics of the case seems to establish the correctness of the relation between the constitutional condition and the local manifestations.

#### THE SYMPTOMS AND PATHOLOGICAL CHANGES IN THE UPPER AIR PASSAGES IN INFLUENZA.\*

By J. SOLIS-COHEN, M. D.

In presenting a summary of the symptoms and pathological changes in the upper air passages in influenza, let me at once refer to the remarkable paper presented to us in 1889 by our present president, in which he seemed to have recognized a precursor of the recent pandemic in a series of cases which had come under his observation for the previous three or four years. If we carefully peruse this paper and compare it with half a hundred or more of the reports of ordinary and exceptional lesions which have been noted during the pandemic of 1889-'90 in the most diverse portions of the globe, we can not fail to be impressed with the accuracy displayed in Dr. Glasgow's observations. A few such confirmative records will be referred to in foot notes when these remarks are printed.

To confine the subject to the limits assigned for the present discussion, we find from various sources records of a mucoid or, as I would call it, a lymphoid œdema of the palate and pharynx, of the intranasal structures, of the epiglottis, and of the larynx, top and interior. We find records of patches of exudation on the tonsils and on other portions of the throat, much resembling the patches of diphtheria; we find records of œdema of the glottis and death therefrom, analogous to Dr. Glasgow's cases of œdema of the vocal bands, and of sudden death from spasm of the glottis or from sudden laryngeal stenosis.†

We find records of purpura spots on the mucous membrane of the structures already named, and even in the trachea, with recurrent hæmorrhage therefrom;‡ and we find records of mycosis of the tonsils.

There are a few additional manifestations in our immediate domain which have doubtless been observed by Dr. Glasgow during the late prevalence of influenza. These are, as extensions from the nasal passages, inflammation and suppuration in the frontal and maxillary sinuses, in the ethmoidal cells, cerebral abscess, inflammation of the Eustachian tube leading to otitis media, and other lesions of the auditory apparatus; as extensions of the laryngitis,

hæmorrhage\* and abscess;† and as sequelæ, paralysis of the palate‡ and paralysis of the larynx.§

I should likewise call attention to a paper by another fellow of our association, Dr. Seiler, read in the same year before the Laryngological Section of the American Medical Association, in which he presents a summary of some five hundred personal observations of cases similar in character to those described by Dr. Glasgow and with which he had been familiar for about the same period.

Although the ætiology of influenza is not included in the subject of the present discussion, it may be permitted here to remark that the various local but extensively separated telluric disturbances of several kinds that have taken place in the United States within the period comprised in the clinical observations of Dr. Glasgow and Dr. Seiler, and of a few others of like character, link their cases to those which have recently occurred pandemically throughout the globe, and which have not altogether ceased to appear endemically, and that they thus justify the surmise of Dr. Glasgow that the epidemic described by him was to be regarded as *influenza*—a surmise, under the circumstances, of most discriminative acumen.

The symptoms of influenza as manifested in the upper respiratory tract are not at all characteristic, and are recognizable as due to that disease only from their endemic character and the peculiar prostration of the nervous system which attends them, and which in its turn is characterized by suddenness of onset and by great debility of the circulatory system.

These symptoms comprise sternutation, coryza, parosmia, nasal dyspnoea, epistaxis, sore throat, dysphagia, impaired articulation, cough, expectoration sometimes hæmorrhagic, dysphonia, aphonia, laryngeal dyspnoea, spasm of the larynx.

The lesions, mainly catarrhal, giving rise to more or less of these symptoms are not universal. They exist probably in about one fourth of the cases, the remainder presenting the nervous, pulmonary, and gastro-intestinal disorders without catarrhal complication.

The pathological lesions observed in the upper respiratory apparatus comprise catarrhal, hæmorrhagic, and purulent rhinitis; inflammation and suppuration of the ethmoidal, frontal, and maxillary sinuses; acute phlegmonous and œdematoid sore throat; simple acute pharyngitis and œdematoid pharyngitis, general amygdalitis, and lacunal amygdalitis; inflammation and tumefaction of the lymphoid nodules at the vault of the pharynx and in the base of the tongue; pseudo-membranous exudation of the tonsils, palate, pharynx, tongue, and larynx; superficial, œdematous, hæmorrhagic, fibrinous, subglottic, purulent, and ulcerative laryngitis; abscess of the larynx; simple and hæmorrhagic tracheitis—all this but an exemplification of the general Protean characters of influenza in general.

To these must be added submaxillary and cervical infiltration of the connective tissue with lymph, simulating the

\* Read before the American Laryngological Association at its thirteenth annual congress.

† De Lostalot. *France méd.*, March 28, 1890. *Bavachi. Gaz. méd. d'Orient*, April 15, 1891.

‡ Caverhill, Semon. *Edinb. Med. Jour.*, August, 1890.

\* Marano. *Arch. ital. di lar.*, May, 1890.

† Schäffer. *Deut. med. Woch.*, No. 10, 1890.

‡ Heymann. *Deut. med. Ztg.*, March 1, 1890.

§ Krakauer. *Deut. med. Ztg.*, March 17, 1890.

more serious lesion known as Louis's or Ludwig's angina, and sometimes compressing the larynx. On incision into this tumid mass there is no evacuation of pus either immediately or a day or two after, but only blood and serum or a sero-lymph exude, as occurred in a few cases I have seen in consultation during the pandemic.

These lesions occur but in a small proportion of the catarrhal cases.

It is to be hoped that some member of the profession with sufficient leisure will study the records of these manifestations with a view of learning their proportionate frequency.

The congestion of the mucous membrane is passive rather than active, due to venous stasis rather than arterial congestion. The color is a violet-red rather than a carmine. The membrane looks sodden, tumid, and pasty from lymph stasis, and from exudations of lymph on the surface. Echy-moses take place in irregular numbers and distribution, and hæmorrhages, for the most part slight, in a certain proportion. In the œdematoid cases muco-lymph, rather than sero-mucus, is discharged from incised wounds, and the release of serum, as in ordinary œdema from venous stasis, is seen but exceptionally.

At a later date fibrinous accumulations are noted at various points upon the mucous membrane. In some cases there is profuse glandular secretion, and in some laryngeal cases the secretion may be seen exuding from the ducts of the glands.\*

The morbid process may proceed to suppuration and ulceration, while in some cases abscesses are formed. These manifestations do not subside with the actual attack of influenza, but often continue for a number of weeks after cessation of all characteristic constitutional symptoms.

In some cases of laryngeal complication, paresis of the laryngeal muscles takes place, chiefly in the domain of the constrictors, and occasionally in the form of paralysis of the recurrent.†

Paralysis of the palate and other paralyzes sometimes occur in the domain of the upper respiratory organs which bear considerable resemblance to the paralysis occurring in diphtheria.

I have seen a number of examples of the tumid, puffy, pasty condition of the mucous membrane of more or less of the mouth, palate, and pharynx, so well described by Glasgow, much resembling ordinary œdema on first inspection, but not fluctuating or pitting under pressure. The tumefaction is often so great as to impair articulation, respiration, and glutition. The rhinopharynx, the interior of the nose, the epiglottis, the borders and the interior of the larynx, may be similarly affected. At the same time, in some instances, there is an analogous tumefaction of the subcutaneous tissues under the lower jaw and in front of the neck, similar in appearance to that of diffuse cellular infiltration, widely known as Louis's or as Ludwig's angina, and giving rise to dyspnoea by compression.

Incision into the tumid portions of mucous membrane

show that the infiltration is not serous but seems lymphous, and the viscid liquid will exude in long strands. During paroxysms of gagging after incision I have seen thick strands reach from the mouth of the seated patient to the spittoon on the floor in unbroken streams. In other cases there is nothing but venous hæmorrhage from the incision, but considerable mucoid or lymphoid material will be expectorated later.

Before the œdematoid condition is reached, the lymph will have made its appearance on the surface of the mucous membranes, whence it is expectorated in thinner viscid strands. The known connection of the lymphoid spaces of the nasal mucous membrane with the subarachnoid and subdural spaces affords a clew for accounting for some of the terrible meningeal and cerebral complications, if we admit that the disease is one affecting the lymphatic circulation as well as the sanguinous circulation. It is probable that both are impaired by parietic conditions of the vasomotor system as a direct consequence of the poison of influenza, just as its poisonous influence upon the pneumogastric nerve has long been held to account for the frequent pneumonic congestion and the cardiac debility. The tumefaction of various lymphatic glands and of the spleen noted in many cases still further indicates the lymphatic apparatus as a chief seat of lesion.

I must therefore regard the immediate anatomico-pathological lesion of influenza, as manifested in the upper respiratory passages, as one involving the lymphatic organs and structures, in consequence of which the lymph accumulates in the connective tissue.

There appears to be a paresis of the nervous system, in partial result of which there is a stasis in the venous and lymphatic circulations. Hence passive sanguineous congestions, echy-moses, and hæmorrhages from the one, and passive lymphous congestions and lymphous or mucoid exudations from the other. Fibrinous exudation occurs in some instances, and a typhoid grade of inflammation in others, sometimes terminating in suppuration and in discrete or in diffuse abscess.

I have had two most remarkable instances of a happy effect of severe attacks of influenza upon malignant diseases. One was a severe case of epithelioma of the palate in a gentleman more than eighty years of age. The diagnosis had been confirmed by histological investigation. I had destroyed the entire disease upon one side by partial excision and by electrolysis, and it had cicatrized in the most satisfactory manner. The opposite side, which was not near as extensively diseased at first as the other side, resisted the same treatment and also the electric canterry. It had in places succumbed to lactic acid, but, despite all that could be done, the disease had extended to the pharyngopalatine folds and to the region of the alveoli, when, in January, 1891, the patient was suddenly attacked with the influenza. The brunt of the disease was borne in the epitheliomatous portion of his throat; the entire diseased portion sloughed out, and he convalesced from his influenza and his epithelioma together. A year later he called to pay me a Christmas visit, and he was so stout I did not recognize him until he laughingly recalled himself to me.

\* B. Fränkel. *Deut. med. Woch.*, No. 23, 1890.

† Krakauer. *Loc. cit.*

The other case was one of tuberculosis of the lungs and the larynx in a lady about fifty years of age. The cough was incessant. Rest at night could be secured but by spells, and that with difficulty. Expectoration was extreme. It was reported to me by her family physician as more than a pint in the twenty-four hours. This lady was attacked with influenza, and that disease cured her tuberculosis. She has not coughed or expectorated for eighteen months, and is, to all intents and purposes, a healthy, though not a robust, woman.

These cases present some compensation for the much larger class in which the influenza hurries the patient to his doom. They remind me very much of a number of cases which I have observed for many years in hospital practice, in which patients with tuberculosis, with syphilis, and with carcinoma have become cured by the effects of an intercurrent attack of erysipelas. I have been afraid to inoculate similar patients with erysipelas, lest it should get beyond control, for erysipelas of the nose and throat is a very serious disease; but I have again and again called the attention of some of my bacteriological friends to the importance of the subject, and have for years unavailably coaxed some of my surgical friends to have some of their cases of carcinoma of the mamma inoculated with erysipelas, as that disease would be more manageable on the exterior of the body than in its cavities.

I can thus confirm the observations recently recorded from various sources, that infection with erysipelas will sometimes cure tuberculosis and carcinoma.

THE RESULT OF  
TREATMENT OF THE UPPER AIR PASSAGES  
IN PRODUCING PERMANENT RELIEF IN ASTHMA.\*

BY FRANCKE H. BOSWORTH, M. D.

I THINK all of us will confess to a certain degree of enthusiasm in adopting new and original methods of treatment for the relief of hitherto obscure and intractable diseases, and, furthermore, that in recording our results we are under the influence of a certain mental bias, which leads us perhaps to overrate our successes. Whether this be true in regard to the intranasal treatment of asthma seems now the fitting time to decide, in view of the fact that a number of years have elapsed since the remarkable observations of Schäffer, Fränkel, Bresgen, Hack, Daly, Spencer, Todd, and others were first put on record.

In a paper read before the American Climatological Association on May 28, 1885, I advanced the theory that an asthmatic paroxysm is dependent on three conditions: First, a general neurotic habit; second, a diseased condition of the intranasal mucous membrane, and not the bronchial; and third, some obscure atmospheric condition; the former two being the active predisposing causes, while the latter is the exciting cause of the paroxysm. The truth of these propositions I think is generally accepted; certainly no one

will question at the present day the fact that a diseased condition of the nasal mucous membrane exerts a very marked influence in the production of a paroxysm of asthma. This being true, the further proposition must be accepted, that in the restoration of the nasal mucous membrane to a condition of healthy function we remove one of the very active causes of the asthmatic paroxysm, and thereby are notably aided in the complete cure of the disease. I should like, parenthetically, to emphasize this point, and repeat that our efforts in intranasal treatment should be directed broadly toward the complete restoration of healthy functional activity in the membrane, for I consider it as a somewhat narrow view to regard the removal of a simple nasal stenosis as the prominent indication.

In my former paper I furthermore argued that a paroxysm of asthma not only depended on the three stated conditions, but that the removal of any one of them, and not all, was ordinarily sufficient to arrest the disease. We all of us recognize the fact that a resort to certain elevated regions is almost invariably attended by immediate relief. In this way the obscure atmospheric condition which is the cause of the paroxysm is removed. We are furthermore familiar with the fact that in many instances where, by our general and specific therapeutic measures, the peculiar neurotic condition is overcome, the asthmatic paroxysms terminate. In the remaining cases of relief afforded by treating the intranasal condition, clinical observations have multiplied themselves to such an extent that the success of this method in a certain number of cases can not be questioned. The permanence of the results, however, opens up an exceedingly interesting and pertinent inquiry. In a paper on asthma, published in the *American Journal of the Medical Sciences*, in September, 1888, I analyzed the results of treatment in eighty cases, thirty-four of which were instances of hay-asthma or periodical asthma, and forty-six of perennial asthma or true nervous asthma, as it has been called. For our present purpose these may be grouped together. Of the eighty cases, I reported forty-six as having been cured, twenty-six improved, three unimproved, and in five cases the results were unrecorded. Three years have now elapsed since this record was made, and I regret exceedingly my inability to report as to the ultimate results of treatment in these cases. This report was based on a somewhat extensive correspondence, and the limited time at my disposal has prevented my hunting up the cases, the very large proportion of which have passed from my observation. A few of those patients who were reported as cured, however, have suffered relapses, but I am confident that I do not understate the number when I say that in but six of them have the asthmatic paroxysms returned, but of these the violence and frequency of the paroxysm in no instance equaled that which existed before the treatment.

Since this report I have recorded and subjected to treatment eighty-eight additional cases of asthma in which there was a co-existent intranasal lesion of a turgescient character. In running over these cases I find that forty-two patients were cured, thirty-three were improved, two were unimproved, and in eleven the results were unknown, the patients being seen usually but once. The local lesion was in the

\* Read before the American Laryngological Association at its thirteenth annual congress.

very large majority of instances either nasal polypi, deflected septum, or hypertrophic rhinitis.

Leaving out of consideration the eleven cases in which the results were unknown, we have seventy-seven patients suffering from some form of asthma, in only two of which did the intranasal treatment fail to afford a certain amount of relief. If this report is correct, and I believe it to be absolutely so, I think no stronger evidence could be adduced of the intimate and close causative relation which exists between a diseased condition of the nasal mucous membrane and asthma. Since Voltolini's first observation, I think no one denies that nasal polypi may be the cause of asthma, but hypertrophic rhinitis and deviations of the septum as a cause of the disease are still seriously questioned by many.

I have reported forty-two cases as cured. Curiously enough, there would seem to be some question as to what constitutes a cure in asthma. I think, however, that we are fully justified in considering a patient cured who has passed through twelve months of immunity, subjected as he is during that time to the various atmospheric changes which are so prone to give rise to an attack, especially during the cold and damp weather of the spring and fall months. In the foregoing report I have endeavored to confine myself to this rule, though in some of the cases the reports cover two and three years of immunity.

The thirty-three patients reported as improved include not only those in whom the paroxysms were notably mitigated, but others in whom months elapsed without an attack, and in many the disease had ceased to be a source of any very serious distress, and yet, the immunity not persisting for the full twelve months, I have recorded them simply as improved.

Coming now to the immediate topic of discussion—viz., the permanence of relief afforded by intranasal treatment—I think this is fully answered by this report. This method is clear in its indications, easy of accomplishment, and promises, I believe, not only more immediate relief, but more permanent relief from this distressing disease than any method of treatment yet suggested.

While, therefore, this method affords so much promise, for both the temporary and permanent relief of the disease, it is to be borne in mind that we are dealing here with but a single factor in its causation. The neurotic habit is an equally prominent factor, and I do not think we have done our full duty in any case without giving our patient the full benefit of those general hygienic measures, together with internal medication, which are attended with such excellent results in their action upon the nervous system.

THE SECOND YEAR'S WORK IN  
DISEASES OF THE RECTUM  
AT THE NEW YORK POST-GRADUATE HOSPITAL.

By CHARLES B. KELSEY, M. D.

At the end of this the second year of the clinic we will devote the hour to a short review of the work done, glancing back over cases, operations, and results grouped together.

During the year 1891 we have had one hundred and forty new cases, presenting one hundred and forty-seven distinct diseases. In these cases, seventy-four operations have been done before the class, which we shall speak of more in detail. These figures, added to those of the first year, give us as total for the two years and one month since the clinic was opened of two hundred and seventy-eight cases of disease and one hundred and forty-one operations in public. When this opportunity for seeing diseases of the rectum is compared with what existed before the establishment of the clinic, we can only congratulate ourselves and thank the profession at large for sending the material.

Of the cases treated during the past year many have been of great interest. Our mortality during the first year came from hopeless cases; this year it has illustrated the risks of even trivial operations. There have been three deaths. One was that of an apparently strong man—but, it appeared afterward, a hard drinker—due to diffuse, septic, pelvic cellulitis following the opening of a small abscess in the perinæum. Another was caused by acute alcoholism, following an operation for fissure upon a drunkard, who had to be removed to Bellevue the following morning; and the third was from a very extensive extirpation. The patient had previously been colotomized to make the operation by Kraske's method as safe as possible, and had we stopped there he would be alive now. The case seemed a suitable one for extirpation until it was too late to abandon the operation, but the shock was too great. It was one of those to which the recently coined word "inoperable" particularly applies.

Looking back over our cases, there is one which I think is unique. It is well known that a congenital stricture of the rectum which during early life has caused comparatively few symptoms may, as age advances, cause greater annoyance and danger from the loss of suppleness in the parts, and the final addition of ulceration to the other conditions. No case has ever come within the range of my reading, however, where such a congenital stricture first made itself known by complete intestinal obstruction at the age of thirty-five. The patient was a colored woman, under the care of Dr. H. L. Richardson, of New York.

On questioning, she said she had noticed that never in her life had her passages been larger than the little finger, but she supposed that was natural and had never had any sickness. At the usual site of such strictures, just fairly above the sphincters, about two inches from the anus, there was found a perfectly characteristic membranous obstruction with a pin-head perforation. The opening, which had been sufficient for thirty-five years, had become contracted from thickening and inflammation, and would no longer allow the escape of feces. Above the first membrane there was a distinct congenital narrowing of the gut, but not to a degree to cause any obstruction. The membrane was freely divided, the obstruction was relieved, and the patient left the hospital in a week.

The capital operations for cancerous and non-malignant strictures have done well. There have been fourteen colotomies, four complete extirpations, and three proctotomies with but one death—that already referred to. But few comparatively of our cancerous strictures have been when first seen at a stage which rendered extirpation justifiable, and

hence the number of colotomies. The rule in operating has been that a cancer that was movable could be extirpated, while one that was firmly attached to neighboring parts should be treated by colotomy. The trouble with the results of extirpation comes from the lack of room to get clear of the disease in many cases. In cancer of the breast we cut clear of the disease with an ample margin, while in cancer of the rectum we dissect the disease carefully off from the prostate, the base of the bladder, the vagina, and the uterus with no margin whatever. In many cases the growth is only just removed, if indeed it is entirely removed, and it is not strange that there should be quick recurrence.

Of the results of the colotomies it is impossible to speak too highly. In none have we failed to give great relief to suffering, and in none to gain a considerable length of life over what the patient would have had without the operation. This you have all had a chance to see for yourselves, not only in the cases operated upon this year, but in those of longer standing in which the patients report occasionally. There are few of you who do not come here with your minds possessed of the natural and general antipathy to this method of prolonging life and relieving suffering, but none of you carry that feeling away with you after coming in personal contact with those who have been operated upon. Instead of a lot of miserable, loathsome creatures, "better dead than alive," you find a very jolly and contented class of patients, male and female, married and single, attending to the ordinary duties of life, none of whom could under any circumstances be induced to change their present condition for that before the operation.

If this clinic never does anything more than to overcome the ignorant prejudice against this operation and bring this remedy into universal repute for proper cases, as the similar clinics have done in England, it will still have justified its existence.

And yet we are very conservative in recommending and practicing colotomy. It is never done where anything else will give relief that is not attended by too great risk. Cancers we extirpate if we can, and non-malignant strictures we treat in every other way likely to do good, including also extirpation, before doing colotomy. But in all cancers we either extirpate or perform colotomy as soon as the patient's consent is gained. Nothing can be gained and life may be lost by delay. And so in the non-malignant cases, where complete extirpation of the disease is out of the question, and where divulsion, division, and dilatation have been tried for years; where acids and injections and suppositories have been kept up till the patient is discouraged, and he is steadily losing ground, we do not wait long before relieving him after we decide that all other treatment is worse than useless.

It is well to impress this upon you again, for the idea seems to have gone abroad that we do colotomies here in preference to other modes of treatment. The fact is that we never do colotomies except to prolong life when no other mode of treatment is applicable; and that if we did not give relief in this way these patients would simply be sent away to continue their sufferings and die a miserable death. This is why I am always trying to impress upon

you that it is more important to know when to do a colotomy than how to do a colotomy, and why I never do one without asking several of you to come down into the amphitheatre and tell the class what other plan of treatment is applicable. In cancer you suggest extirpation, and I explain to you that the disease is not suitable for extirpation, being too extensive and attended by too great a risk to life. In non-malignant disease you suggest all the recognized modes of treatment, and it is answered that all have been tried without benefit, and from the extent of the disease none can be of benefit; and thus in every case, having eliminated every other proper mode of treatment, I try to convince you that colotomy should be done, and the results you see.

Perhaps the best argument in favor of the operation that can be given you is that twice a patient operated upon has, after a time, brought us a friend suffering in the same way who desired the same treatment.

The cases in which colotomy has been performed illustrate many forms of disease for which the operation is indicated. Six were for cancer too extensive for removal; three for extensive and incurable non-malignant ulceration and stricture; two in women for chronic intestinal obstruction due to old pelvic exudation; and one as a preliminary to a subsequent extirpation by Kraske's method.

In the matter of our fifty cases of piles and twenty operations with the clamp and cautery we have done well, having had nothing but the most satisfactory results. In the one case in which we yielded to the continual demand of the students from the West to know about carbolic-acid injections, we were more than usually unfortunate.

The man was in fairly good condition, "could not be operated upon," and was bleeding profusely, and the students wanted to see the carbolic-acid treatment. Now you all know that I consider this one of the most uncertain of all treatments, but in this particular case I tried it for the benefit of the class. A moderate-sized tumor was injected with five drops of a thirty-three-per-cent. solution of carbolic acid in equal parts of glycerin and water. The patient felt no pain at the time and was told to come again in a week if he had no trouble, but to report in forty-eight hours if anything went wrong. In forty-eight hours he reported. On the side where the injection had been made there was a marginal tumor of the size of a horse-chestnut covered with equal parts of skin and mucous membrane, and with the mucous membrane gangrenous and sloughing. On the opposite side, where no injection had been made, there was another tumor outside the anus and irreducible, almost of the size of the former. The first one sloughed and shriveled, the second suppurated and burst with two openings—one on the skin and the other on the mucous membrane. The patient was in bed three weeks, and they tell me went away thinking he had been very fortunate in finding a doctor who could cure piles without an operation.

This was an unfortunate result. In the vast majority of cases the treatment would have been satisfactory. It is just such exceptions as this that have led me to abandon it, and everybody who practices the method for any length of time will occasionally have just such a case.

By the courtesy of Dr. Boldt we have been able to show you at St. Mark's Hospital two very rare cases. The first was a typical case of chancroidal ulceration around the

anus and within the rectum, one of the cases that prove indubitably the occasional causation of so-called syphilitic stricture by chaneroid, and go to the support of the classical argument of Mason, many years ago, that most of the "syphilitic strictures" were not syphilitic but chaneroidal. You will seldom have a chance to see the causation and follow the development of venereal stricture as in this case.

The other case of Dr. Boldt's was one of sarcoma of the sacrum, causing a distinct tumor in the soft tissues over the sacrum, and another, of the size of an egg, projecting into and partially occluding the rectum—a case, perhaps, ultimately for a colotomy should the new growth advance on the rectal side sufficiently to cause obstruction. In one of my first colotomies complete obstruction was caused by a growth of this kind from the promontory of the sacrum, which first manifested its presence by causing the usual symptoms of acute intestinal obstruction.

Another rare case was that of the physician who complained of congenital absence of controlling power in the sphincters. Fluid passages were always liable to escape him without notice, and flatus did the same. We tried to tighten the orifice with the Paquelin cautery, but the patient has written me since that the operation was a failure—a statement that, for certain reasons, I am not quite prepared to accept.

The remaining cases need no special comment. The fissures, fistulæ, abscesses, both superficial and deep, the cases of intestinal catarrh and of actual ulceration of the rectum, need not be dwelt upon. Our object has been to give a brief *résumé* of the work done and the results.

## THE OFFICE OF CORONER IN NEW YORK.\*

BY WOOSTER BEACH, M. D.

THE office of coroner in this city is filled by four men elected on the county ticket, whose term of office is three years.

Each coroner appoints a physician who acts as his assistant at inquests and makes examinations of all dead bodies, post-mortems should he deem them necessary. Besides these officials, there is a clerk connected with the office whose duty it is to receive the reports of cases requiring attention and keep a record of the inquests. He also attends to the proceedings in suits in which the sheriff is a party—almost exclusively cases where property is replevined from the sheriff.

The usual daily routine of the coroner's office is about as follows: The cases from the various parts of the city requiring the attention of the coroner during the day are reported to the clerk mostly by the police, under whose notice they generally first come.

Unless the case is known to be of more importance than usual, the practice is for the coroner's physician to proceed to the place where the body lies, examine it, take the state-

ments of one or more witnesses as to the manner of death, and furnish a certificate for burial.

In the important, or at least the prominent, cases the coroner accompanies the physician in his visit to the body, and then the formal proceedings as prescribed by the law are more nearly followed.

The inquests, so called, containing the statements of the witnesses taken by the physician alone are completed at uncertain intervals when a sufficiently large batch has accumulated. This is done at the office by the coroner swearing a jury, who finish up the dozen or more papers on hand by affixing their signatures to them. This wholesale manufacture of inquests is certainly not legal, but, in view of the unimportant character of the cases acted upon, it is perhaps allowable.

The number of cases reported at the coroner's office in a day runs from five to ten. One may be an accident, one a suicide, one a case of drowning, and perhaps one of murder. It may be that an ante-mortem examination may be required. By far the larger number reported are of persons dying without medical attendance, and consequently, as no certificate of burial has been given, one must be obtained from the coroner.

The average time required for holding an inquest is less than half an hour. A few cases may consume an entire day or more, but, taking them altogether, the above-stated will be about the average time. As the work is divided among four coroners, it will be seen that their labors can not be deemed onerous.

For the entire expense of the coroner's department \$52,000 per annum is appropriated.

The defects in the present system are:

1. The choice of the coroner by election. It is scarcely necessary to refer to the evils of this defect to a citizen of our city. The practical working of this plan is that the office is filled by a man totally ignorant of the duties required of him, and quite likely not to trouble himself about them during his term of office.

2. The coroner's jury. Except, perhaps, in a few cases, there is no necessity for such a body. If a coroner's case results in a conviction of a criminal, it subsequently comes before two juries—the grand and petty.

3. In the case of persons dying unattended by a physician, or where there is no suspicion of crime connected with the death, the entire formality of a coroner's inquest is required for no other object than that of obtaining a certificate for burial.

4. If the coroner himself knows little or nothing of the duties required of him, we can not reasonably expect that he will choose a proper medical assistant. We may consider ourselves fortunate in this city that we have physicians in good standing as appointees.

5. The costs of the coroner's department are excessive. Really good service should not cost one quarter of the amount paid.

In any attempt at reform in the coroner's office the importance of the medical service must be kept prominently in view.

The examination of the dead body in criminal cases far

\* Read before the Section in Public Health and Hygiene of the New York Academy of Medicine.

exceeds in importance any other proceeding connected with the coroner's investigation. The coroner may bungle, but his actions may be reviewed and corrected. Not so with the post-mortem examination of the body. Its position, its surroundings, may, to a trained eye, furnish most important evidence which, not taken advantage of before it is disturbed, may be lost forever. With the dissection it may be even worse. The scalpel of the incompetent physician may make sad havoc with wounded or diseased organs and entirely destroy evidence that a proper examination would reveal.

An autopsy, therefore, made in an unskillful manner may actually be the means of covering up a crime instead of bringing it to light.

In 1877 a law was passed in Massachusetts abolishing the office of coroner and the coroner's jury, and substituting "medical examiners" in their place.

That law has secured good results and works smoothly. With some changes it would be suitable for New York, but in our State the election of a coroner in each county is made obligatory by the Constitution, and it is only by a constitutional amendment that the office can be abolished. Still, the Legislature may limit the powers or change the duties of the coroner and provide for the appointment of medical examiners, so as to get substantially the same law as that of Massachusetts. In that State the legal part of the investigation is taken charge of by a *trial justice*, assisted, if necessary, by the district attorney. By the New York Legislature granting the powers of the Massachusetts *trial justice* to our coroner, the obstacle presented by the Constitution may be overcome.

The really great difficulty in effecting the reform we desire is in securing the appointment of the proper man for a medical officer and in keeping the office free from political influence. No matter how perfect a law we may have, if the most careful discrimination is not exercised in selecting a man to carry out its provisions, it will be a failure.

Nothing, then, should engage our deliberations more earnestly in forming a plan to carry out our object than the selection of the proper appointing power that is to furnish us with the medical examiner.

The Section in Gynecology and Abdominal Surgery of the Pan-American Medical Congress has been organized by the election of Dr. William Warren Potter, of Buffalo, as executive chairman; Dr. Brooks H. Wells, of New York, as English-speaking secretary; and Dr. Ernst W. Cushing, of Boston, as Spanish-speaking secretary. The foreign secretaries of the section thus far elected are: *The Argentine*, Dr. Dn. L. C. Maglioni Llobet, Victoria 737, Buenos Aires; *Brazil*, Dr. Dm. Luiz da Cunha Feibo, Rio de Janeiro; *British North America*, Dr. J. F. W. Ross, Esq., Toronto; *United States of Colombia*, Dr. Dn. José M. Buendia, Calle 10, No. 212, Bogotá; *Nicaragua*, Dr. Juan I. Urtecho, Calle Real, ciudad Granada; *Spanish West Indies*, Dr. Dn. Gabriel Casuso, Virtudes 37, Habana, Cuba; *Uruguay*, Dr. Dn. Enrique Peréy, Uruguay 371, Montevideo.

A Death following the Administration of Chloroform has occurred in New York during the past week. The patient was an old man with atheromatous arteries, in whom an amputation for gangrene of a finger was about to be performed. The anæsthetist had had two years' experience in hospitals in the city, and the coroner's inquest showed that the patient's death had been caused by pulmonary œdema.

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FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, MARCH 26, 1892.

REFORMS NEEDED IN NEW YORK CITY INSANE ASYLUMS.

RECENTLY the Mayor of New York appointed a commission of five well-known gentlemen to investigate the subject of the care of the insane in the city asylums, and to report whether it was advisable to continue the present system or to turn the patients over to the State.

The commission has just made its report, and those unfamiliar with the condition of these municipal institutions will probably turn it over to see if their eyes did not deceive them, and if some other place than New York city is the subject of the report. That the commission did not favor the transfer of both patients and institutions to the State is probably because they believe atonement should be made in the future for the sins of the past. For no other reason is it apparent that what they characterize as "a reproach to humanity" should be continued, even upon the plea that the city recognizes the curability of insanity. From their inspection of both State and city institutions they found the latter superior to the former in one particular—that of furnishing iron bedsteads! Were it not for the importance of the subject and the wretched condition of affairs that is now brought prominently before the public it might be imagined that the commissioners had desired to instill some humor into their report. And, yet, read their presentment: "The condition of these insane poor is pitiable. Their accommodations are a reproach to humanity. Overcrowding exists in every building of every department, and their wretched existence is rendered still more intolerable by the absence of comfortable surroundings, of proper accommodations of every kind, and by insufficient protection in the case of many of the smaller buildings from the inclemency of the weather. There is also the danger of fire, which, in the inflammable wooden buildings, would be certain to result in large loss of life." If these unfortunates were convicts their environment would be better.

On January 30, 1892, there were 5,485 insane patients in the asylums on Blackwell's Island, Ward's Island, and Hart's Island, and at Central Islip, and the total cost of maintaining these institutions during the year was about \$700,000. In the seven State hospitals there were 5,870 inmates, and they cost \$1,100,000 annually to maintain. In other words, this city is attempting to care for almost as many insane patients as the State in half the number of buildings and at two thirds of the cost.

For the relief of the existing evils it is recommended that the per capita allowance for the support of the insane be increased; that they should be removed from the neighborhood

of convicts and paupers; that the quality of the food should be improved; that the medical superintendent should have full authority over his subordinates; that the old buildings should be replaced by better ones; and that some of the present buildings should be enlarged. For the sake of our reputation for humanity alone, it is to be hoped that these necessary changes will be inaugurated at an early date.

#### THE DIAGNOSIS OF DRUNKENNESS.

A LECTURE delivered before the Hunterian Society of London by Dr. J. Hughlings Jackson, entitled *Neurological Fragments*, was published in the *Lancet* for March 5th. The lecture bristles with ingenious suggestions, but, on account of certain peculiar terms coined by the author and on account of his brevity of expression, parts of it require careful and repeated reading to bring out their full meaning. In our last issue we mentioned his remarks on the reflexes in connection with the condition of supervenosity; another matter on which he spoke very instructively was the difficulty sometimes felt in diagnosing drunkenness in the absence of a history of the onset of the symptoms.

For practical purposes, he said, alcoholic intoxication had to be studied carefully. It was well known that men fatally ill from cerebral lesions were sometimes locked up in police cells for drunkenness, and it needed to be insisted on that intracranial lesions that would soon result in death might give rise not only to insensibility, but also to the manner and conduct of a person partly intoxicated with alcohol. He alluded to a fatal case of meningeal hæmorrhage in which the patient was violent and profane and, what was more striking, showed purposive action. On the other hand, men were sometimes seen in the hospital who, after sucking raw spirits out of a cask, were seemingly in a state of coma as deep as that caused in other men by a large and fatal cerebral hæmorrhage. Without the history of the circumstances and of the mode of onset, the diagnosis of apoplexy produced by alcohol from that produced by cerebral hæmorrhage was very difficult and might be impossible; for an hour or two after an injury to the head there might be a condition very like that of a man slightly drunk, and the patient might act elaborately even if foolishly, while "unconscious"—unconscious in the sense that on his recovery he would remember nothing of his strange doings.

When a man of Hughlings Jackson's rare acumen in diagnosis makes such statements as these, it seems as if the wisecracks of the daily newspapers might with propriety curb the glibness of their criticism of the occasional ambulance surgeon who makes a mistake.

#### MINOR PARAGRAPHS.

##### THE QUESTION OF THE CONTAGIOUSNESS OF LEPROSY.

IN the March number of the *International Medical Magazine* Dr. L. Duncan Bulkley concludes a paper with the statement that there is no warrant for the popular terror at the name of leprosy as a disease; that, while probably of bacillary origin,

it is not contagious in the ordinary acceptation of the term. When acquired, the disease may, under favorable conditions, be transferred from one person to another; and, while heredity may account for a share of the cases, the disease is not necessarily so transmitted. Furthermore, there is far greater reason for the restriction of syphilitic and tuberculous persons by isolation and segregation than for that of lepers. This opinion of an American dermatologist is fortified by the recent report of the English Leprosy Commission, in which their study of the disease showed that it was contagious and inoculable only in a very limited degree and not hereditary. They found only half as many cases of the disease in India as had been estimated. As a result of two thousand experiments, the commission considered the risk of inoculation so small that it might be disregarded, and concluded that a fish diet had nothing to do with the disease.

##### SUPPLIES FOR THE MEDICAL CORPS OF THE ARMY.

AN awkward impediment to the work of providing the medical staff of the army with certain necessary supplies for which a contract had been given out seems to have come up in the shape of a criticism by the Second Controller of the course pursued by the Surgeon-General in the matter. It appears that after the contract had been made it became evident that certain modifications of the articles contracted for would render them decidedly more useful, but that the changes would entail a moderate advance on the prices agreed upon. The Surgeon-General thought it proper to change the contract accordingly without going to the additional expense of publishing a fresh invitation for bidders. As the newspapers have it, he has done so, and will leave the question of irregularity to be settled in the future. This degree of latitude, it seems to us, might well be allowed to the discretion of the head of a staff department.

##### GUNSHOT WOUNDS OF THE SPINAL CORD.

IN the February number of the *Revue de chirurgie* there is an exhaustive article on this subject by Dr. E. Vincent. M. Vincent's conclusions are as follows: These injuries are of great gravity, but they are not necessarily fatal, and there is reason to believe that surgical intervention may help to save some of the wounded. Whatever may be the nature of the injury to the spinal cord—provided there is no mortal injury of a thoracic or abdominal organ, and provided the wound involves the posterior or lateral portion of the vertebral column at an accessible point—the tract of the wound should be enlarged and any foreign body that may be found should be extracted, and for this purpose one should not hesitate to open into the rachidian canal if necessary, for such a procedure, although sometimes futile, is harmless, with antiseptic precautions, and may prove of advantage.

##### THE ASSOCIATION OF THE ALUMNI OF THE NEW YORK HOSPITAL.

ON Wednesday evening of this week a meeting of ex-members of the house staff of the hospital and its branches was held in the governors' room for the purpose of organizing an association having the title that heads this article. It was well attended, and a number of letters and telegraphic messages were read from gentlemen who were unable to be present, all of whom expressed their hearty sympathy with the undertaking and their readiness to take part in it. It is strange that such an association was not formed many years ago, and the older graduates of the hospital are undoubtedly glad that the superior enterprise of their younger brethren—especially of a committee

consisting of Dr. Walter Vought, Dr. E. W. Clark, and Dr. T. S. Southworth—has at last made its organization an accomplished fact.

#### A MAGNETIC PHASEMETER.

In the March number of the *American Journal of Science* Mr. John Trowbridge describes an instrument adopted by him for use in determining questions of the phase of alternating electric currents in transformers and in branch circuits. Two telephone diaphragms are provided with mirrors, and a beam of light is reflected in such a manner that the vibration of one diaphragm gives a spot of light a horizontal motion, the other one gives the spot of light a vertical motion, and the combination of the movements gives a figure that indicates the relative amplitude of the motions of the diaphragms and also the difference of phase of the currents that set the diaphragms in motion. This device Mr. Trowbridge calls a phasemeter.

#### AN UNJUST AWARD IN A MALPRACTICE SUIT.

A JURY in Poughkeepsie has recently rendered a verdict of \$2,500 against a physician of that city for alleged malpractice in the case of a man who fell upon a sidewalk of dirt and ashes and sustained a compound, comminuted fracture of the arm. A month after the accident he was admitted into St. Luke's Hospital, New York, for septic infection, the arm was incised to facilitate the escape of pus, and it has been useless since he recovered. He bases his suit on the ground that the attending physician at his home did not properly cleanse the wound. The award on this ground seems to us to be very unjust, as the most skillful surgeon might, under the circumstances, have had a similar result.

#### ANKYLOSTOMIASIS THE BERIBERI OF ASSAM.

ACCORDING to the *Indian Medical Gazette* for February, 1892, Dr. G. M. Giles finds that the diseases known as the beriberi and the kala-azar of Assam are identical, and that they are in reality ankylostomiasis caused by the *Dochmius duodenalis*. This parasite, Dr. Giles finds, develops slowly if at all in drinking-water, but develops plentifully in feces. The ingress of the parasite into the human system is believed to be due to the habit of cleansing kitchen and table utensils with infected earth, and of eating food from a mat on the ground. The symptoms and causation of the disease are the same as those found by Dr. Kynsey in the so-called beriberi of Ceylon.

#### THE VALUE OF ALBUMINURIA AS A MEANS OF DIAGNOSIS.

In a paper on this subject in the *International Medical Magazine* Dr. F. R. Sturgis, of New York, concludes from a survey of the literature that albumin in the urine does not necessarily signify any renal disease; that it exists temporarily in many diseases unassociated with any organic renal complication; that from the uncertainty of tests and methods of testing it loses a great deal of its value as a diagnostic sign; and that if present in even a small quantity it is a danger-signal, and if persistent indicates some serious organic lesion.

#### ANTE-MORTEM BURIAL.

OUR excellent contemporary the *Maryland Medical Journal* publishes in its issue for March 19th a very useful article entitled Studies in Plaster Jackets and how to make Removable Plaster-of-Paris Corsets, by Dr. C. C. Barnwell, of Baltimore.

The secondary title of Dr. Barnwell's article is: "After the Method of the late Professor Louis A. Sayre, M. D., of New York," meaning undoubtedly Professor Louis A. Sayre, who, we are glad to be able to say, is still in the flesh and shows no signs of hastening to put on immortality.

#### PROMOTION EXAMINATIONS IN THE ARMY MEDICAL CORPS.

By a recent law no medical officer in the army can be promoted to the rank of captain until he has passed an examination for promotion. Heretofore the medical officers of the army have been promoted to the rank referred to at the end of five years' service without an examination, while their less favored brethren of the navy and of the marine-hospital service have had to prepare at the end of three and four years' service, respectively, for an examination preliminary to promotion that was quite as rigorous as that given for admission into the corps.

#### NEW TITLES FOR ARMY MEDICAL OFFICERS.

THE Senate has just passed a law giving to officers of the medical corps holding the rank of colonel the grade of assistant surgeon-generals, and to those holding the rank of lieutenant-colonel the grade of deputy surgeon-generals. These are new titles in our army and are similar to those of the British army medical corps.

#### ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 22, 1892:

DISEASES.	Week ending Mar. 15		Week ending Mar. 22.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	4	12	2	6
Typhoid fever.....	7	2	9	6
Scarlet fever.....	231	31	215	28
Cerebro-spinal meningitis.....	0	0	4	4
Measles.....	328	20	282	23
Diphtheria.....	98	32	109	37
Small-pox.....	1	1	4	1
Erysipelas.....	0	0	2	0
Varicella.....	0	0	10	0
Pertussis.....	0	0	2	3
Mumps.....	0	0	2	0

**A Bacteriological Institute in Tokio.**—Dr. Kitasato, who has been in Koch's laboratory for many years, and who is so well known for his bacteriological researches, intends to leave Berlin to open a bacteriological institute in Tokio.

**Changes of Address.**—Dr. William R. Ballou, from New York to the Oakland Heights Sanatorium, Asheville, N. C.; Dr. F. J. Leviser, to No. 640 Madison Avenue.

**The Sixth Annual State Sanitary Convention of Pennsylvania,** under the auspices of the State Board of Health, will be held at Erie on the 29th, 30th, and 31st inst.

**The New York Post-graduate Clinical Society.**—The special order for the meeting of Saturday evening, the 19th inst., was a paper entitled Points in the Diagnosis and Management of Serous and Suppurative Pleurisy, by Dr. J. K. Crook.

**A Society for the Promotion of Maternal Lactation** has been organized in Paris, according to the *Gazette hebdomadaire de médecine et de chirurgie*.

**The Death of Dr. D. Hayes Agnew, of Philadelphia,** occurred, not unexpectedly, on Tuesday of this week. He was in the seventy-fourth year of his age. He obtained his medical education at the University of Pennsylvania, and in his later years was professor of surgery in that

institution, having in the mean time won distinction as a teacher of anatomy in the Philadelphia School of Anatomy. He was a surgeon of distinction and the author of a well-known text-book of surgery.

**The Death of Dr. H. Rosenthal, of Berlin,** for many years the editor of the *Allgemeine medicinische Central-Zeitung*, is announced in the *Wiener klinische Wochenschrift* as having taken place recently.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending March 19, 1892:*

- MARSTELLER, E. H., Passed Assistant Surgeon. Ordered to duty at the Naval Academy.
- ARNOLD, W. F., Passed Assistant Surgeon. Detached from the Vermont and ordered to the Richmond.
- LOWNDES, C. H. T., Assistant Surgeon. Detached from the Richmond and ordered to the Vermont.
- DICKINSON, D., Surgeon. Detached from the Navy Yard, Mare Island, and granted two months' leave.
- MOORE, A. M., Surgeon. Detached from the Naval Hospital, Mare Island, and ordered to the Navy Yard, Mare Island.
- NORFLEET, E., Surgeon. Detached from the U. S. Steamer Monocacy and granted three months' sick leave.
- SMITH, G. T., Assistant Surgeon. Detached from the U. S. Steamer Mohican and ordered to the U. S. Steamer Hassler.
- YOUNG, L. L., Assistant Surgeon. Detached from the Independence and ordered to the Mohican.
- SCHOFIELD, W. K., Medical Director. Granted one year's leave of absence, with permission to leave the United States.

**Society Meetings for the Coming Week:**

- TUESDAY, *March 29th:* Boston Society of Medical Sciences (private).
- WEDNESDAY, *March 30th:* Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield).
- FRIDAY, *April 1st:* Practitioners' Society of New York (private); Baltimore Clinical Society.
- SATURDAY, *April 2d:* Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

**Answers to Correspondents:**

*No. 375.*—We can not answer your first question. In regard to the luminous signs, address Messrs. F. W. Devoe & Co., corner of Fulton and William Streets, New York.

*No. 376.*—The surgeon-general of the State of New York is Dr. Joseph D. Bryant, and his address is No. 54 West Thirty-sixth Street, New York city. Probably he can furnish you with information concerning the ambulance service.

Letters to the Editor.

COCAINE POISONING.

ANN ARBOR, MICH., *February 8, 1892.*

*To the Editor of the New York Medical Journal:*

SIR: Will you please grant me a short space in the *Journal* in which to record the phenomena accompanying a case of cocaine poisoning which recently came to my notice, and also the results of treatment? The patient is a young man who for some time past had been suffering from rectal ulcer with colitis accompanied with quite intense tenesmus, for the relief of which latter he had resorted to cocaine. On the afternoon of February 4th, upon his own responsibility, he took a suppository containing rather more than three grains of the drug. I saw him about an hour after and found his condition as follows: Pulse 150, thready; respirations 5 to the minute and simulating the Cheyne-Stokes variety; pupils dilated; bilateral sweating; surface cold, patient conscious, and responding well to questions; vision good; no pain; no nausea; surface

anæmic. I ordered twenty drops of tincture of digitalis with  $\frac{1}{6}$  of a grain of atropine sulphate hypodermically, to be repeated in twenty minutes; hot applications to the surface and brandy internally. Half an hour after the second hypodermic the patient's pulse had fallen to 120; the respirations had increased to 12 and were regular; and the surface was becoming warm and somewhat flushed. I then put him upon digitalis and strophanthus, three drops of each, internally, and omitted the atropine.

At midnight his pulse had reached 100, and the respirations were normal. From this time he rapidly recovered.

In two cases elsewhere reported I obtained similar results from the treatment pursued in this case. While digitalis, or any of the other cardiac tonics, is strongly indicated in these cases, there might be a question about the atropine, since the action upon the pupil of both cocaine and atropine is mydriatic, and this would indicate that the two agents are synergists. Yet cocaine paralyzes respiration, while atropine stimulates the respiratory function. Here, it would seem, is the chief indication for atropine to overcome the toxic action of cocaine. While this is true, yet it must not be forgotten that atropine also stimulates all the vaso-motor ganglia, and, if carried beyond a certain limit, would overcome the cardiac inhibition obtained by the digitalis—an important factor in eliminating the cocaine poison.

J. A. WESSINGER, M. D.

BEARD AND ROCKWELL ON ELECTRICITY.

NEW YORK, *March 14, 1892.*

*To the Editor of the New York Medical Journal:*

SIR: In a recent number of this journal a short review of the eighth edition of Beard and Rockwell's *Medical and Surgical Electricity* appeared in which defects were pointed out, while its merits were by no means overlooked.

The animus of the review was everything that could be desired. Certainly no author can complain when his book, after nearly two decades of uninterrupted success, is characterized as "deserving its popularity." But there is one statement to which I must demur.

The reviewer says: "Dr. Rockwell would inspire more confidence if he told us candidly that there were some infirmities in which electricity was of no use."

Now, at first sight this seems to be a very severe arraignment, but that the writer did not mean to convey any impression specially derogatory is evidenced by the general tenor of his remarks.

The truth might perhaps be more nearly stated if he would accept a mean between another review written by the late Dr. Frank H. Hamilton some years ago and his own. Dr. Hamilton stated that the book seemed to be given up to a discussion of what electricity would not do rather than what it would do.

How shall we reconcile two such divergent opinions emanating from fair and honest critics? A close inspection of the detailed cases (which in some future edition I hope to entirely recast) will clearly show that they are neither given up to "demonstration of what electricity will not do," nor to assertions that it is a universal panacea. No one better than he who has labored for years in the department of electro-therapeutics appreciates its limitations, and I can in a measure sympathize with the remark once made to me by Dr. E. L. Keyes, that he had "broken his heart over electricity." Now, among these cases many recoveries in many different conditions are very properly reported; but a careful perusal of the clinical portion of the work will show that a large proportion of cases are spoken of as only improved or relieved, while others relapsed, and not a few are recorded as receiving no benefit.

When electricity first came into prominence, some twenty years ago, it was earnestly hoped that electrolysis could be made to accomplish something for the relief and cure of cancer. In connection with Dr. Beard, I treated a very large number of cases of scirrhus of the breast and other parts, and indeed almost every variety of malignant growth. The most grateful relief of pain was often demonstrated, but it was just as clearly demonstrated then, and by subsequent efforts, that electricity was incapable to any extent of favorably influencing the progress of these scirrhus tumors of the breast. This and many other things equally unfavorable to electricity the book states clearly enough; and if the writer had done no more than to demonstrate this one fact, in the face of certain well-remembered statements to the contrary, he would regard it as sufficient to justify all the attention given to this department of medicine.

A. D. ROCKWELL, M. D.

## Proceedings of Societies.

### AMERICAN LARYNGOLOGICAL ASSOCIATION.

*Thirteenth Annual Congress, held at Washington, on Tuesday, Wednesday, and Thursday, September 22, 23, and 24, 1891.*

The President, Dr. W. C. GLASGOW, of St. Louis, in the Chair.

(Continued from page 329.)

**The Radical Treatment of Nasal Myxomata.**—Dr. W. E. CASSELBERRY read a paper on this subject. (See vol. liv, page 533.)

Dr. SAJOUS: I have listened with great interest to this communication; it is on a subject to which I have given much attention. I agree with the authors whom he quotes as to the difficulty of reaching the points from which polypi arise after removal of the growths. It is surprising to see how easy the operation seems to be as described in the books, but it is not so easy in practice. Some years ago I attempted to pass a galvano-cautery wire as far as possible behind the middle turbinated bone; I subsequently found that by using a rongeur forceps and removing a small portion of the middle turbinated bone at its anterior angle I made a convenient passage for the introduction of the instrument. I have not found it necessary, except in very few cases, to remove the whole body, in order to introduce the forceps or galvano-cautery. In applying the galvano-cautery, I have been much helped by using an electrode with a tip bent in the shape of a cirette. By not heating the wire too much, say to a red heat, it retains its hardness, and can be used as a cirette, combining the heat with the scraping of the surface, if so desired. The electrode I now show you is, as you can see, glass-covered. It can be easily cleansed and does away with the silk-covered electrodes, which can never be made absolutely aseptic. The glass electrodes are not affected by the heat of the incandescent tip.

Dr. J. SOLIS-COHEN: I rise simply to say that some months ago I read in one of the journals an article by a gentleman whose name I can not recall, in which he recommended, after removal of polypi, simply washing out the nose with a solution of alcohol or of witch-hazel. I would here bear testimony to its value; I use it in preference to the cautery. I use it in the strength of one to four, one to three, or even one to two—simply the distilled extract of hamamelis with alcohol.

Dr. BOSWORTH: I should like to ask if Dr. Cohen thinks that it will have the slightest effect in preventing the return of the polyp.

Dr. COHEN: Yes, I have found it so.

Dr. BOSWORTH: I have used both the witch-hazel and the cautery, and found neither of value.

Dr. COHEN: I use it in place of the application of the cautery, using injections twice a day; the patient can do this for himself.

Dr. BOSWORTH: I quite agree with the remarks which have been made with regard to the galvano-cautery. I think that it is the removal of the polyp which cures the patient; I do not think that there is any use in applying the galvano-cautery afterward unless some better reason can be given than has been offered. The principal value of the hamamelis in such cases is that it may prevent the use of something worse.

Dr. ROE: I agree with the last speaker, that the success of the treatment of nasal polyps lies in the completeness of their removal; but in some cases, owing to their situation, complete removal is well-nigh impossible. In the majority of these cases it is because the polyps lie behind an enlarged middle turbinated body. In all such cases in which the turbinated body is very much enlarged, and particularly where the bone is sufficiently projecting to press against the septum, I have made it a rule to remove a part of this projecting turbinated body. I do not remove the whole of it, but only sufficient to get at the base of the polyps. The method I adopt for its removal is by means of a saw, such as I presented to this association two years ago, and termed the nasal bow saw. It is modeled on the plan of the jeweler's saw, and by using one with the blade set at a right angle with the back and with a bow at the proper height, the amount taken off can be so accurately regulated that we can remove just the amount desired. I formerly used scissors, but scissors crush the bone before cutting it, and the same objection applies to the snare. I find the method that I have described by far the best, and it leaves the parts in a better condition for healing. In those cases where the base of the polyp is accessible I have for some time adopted a plan of encircling the polyp with the wire, and then dissecting away the base with a small knife, taking the periosteum with it; and where it is located upon a turbinated bone, taking off a small spiculum of bone with it. When this is done I never have a recurrence of the polyp.

Dr. RICE: The treatment of those cases of multiple nasal polypi which form the text of Dr. Casselberry's paper is very difficult. After all tangible growths have been removed by the snare the entire mucous surface in the affected nostril is so thickened, and the middle turbinated bone is frequently so much hypertrophied, that great obstruction still exists. Even after all hypertrophy has been removed the mucopurulent secretions are very abundant and exceedingly troublesome to the patient. It is not possible with the snare to reach the tissue satisfactorily which is above and behind the middle turbinated bone without first removing a portion of the middle turbinated bone. I do not approve of the application of the galvano-cautery to the surface of the middle turbinated bone, where it is very closely related to the septum. Both surfaces are apt to be scorched, very little tissue is removed, and adhesive inflammation may be the result of such burning. The only rational method of treatment is to remove enough of the middle turbinated bone, so that the thickened tissues above and behind it can be reached and removed by proper manipulations.

A word of caution should be suggested as to the removal of the middle turbinated bone. Only so much of it should be taken away as will secure good drainage and allow treatment of the cavity above. I have seen severe forms of atrophic rhinitis following the wholesale removal of the middle turbinated bone and the use of the galvano-cautery above the neighboring structures.

In these cases of nasal polypi the middle turbinated bone seems to have become so much weakened in its attachments that the entire bone may be removed by the snare if too much of it is included within the loop. The treatment of these cases is troublesome at the very best, and requires careful and painstaking work.

Dr. JARVIS: I am myself a great believer in the surgical treatment of these cases; but I also believe, in contradistinction to what Dr. Bosworth states, that it is possible to find chemical agents that will remove these growths. I formerly employed an application, which I was led to try some years ago, through the suggestion of a physician who had found it very effective. While the treatment in most cases is purely surgical, it is not necessary to make the nose a surgical armamentarium. For instance, why should we use first a snare, then scissors, then a saw, and finally the cautery? It seems to me that this might all be done with two instruments—the snare and the searching forceps. Where small polypoid growths appear, I encircle the base and remove part of the bone with it; the searching forceps I use is of about the thickness of a lead-pencil. With this little instrument these bead-like growths are seized and stripped off one after another; there is no hemorrhage of any account after tearing them away. There is one point which I wish to accentuate: where we remove polypi by means of the wire snare, we use a method which is easy and simple as compared with evulsion and the cautery, and one which is free from the danger of producing septic symptoms. Even if the patient has to come back again for another operation in a year or two, it is not much trouble to repeat the procedure.

Dr. J. SOLIS-COHEN: I would ask the last speaker if he knows of any medicament which, applied to a polyp, will cause it to disappear without surgical procedure? If so, he should state what it is.

Dr. JARVIS: There is no secret about it, it was simply the injection of the tincture of the chloride of iron into the nostril. It is not an elegant application and I am not entirely satisfied with it; but in some cases I have found it effective.

Dr. MULHALL: There is nothing new about that, as it is mentioned in the text-books on surgery years ago. With regard to operating upon these cases, I have a rule concerning the removal of a portion, but not the entire, middle turbinated bone. It came to me by experience. The rule is that where the Jarvis snare can catch the end of the middle turbinated bone, it can be and should be removed. I rise principally, however, to speak in opposition to the views expressed with regard to the use of the galvano-cautery. Some years ago I read a paper condemning the use of the galvano-cautery by Lennox Browne, who claimed that it caused erysipelas and other bad results. I concluded that they were not due to the method, but to the rules of operating laid down by that writer. I have used it in many cases—I should say at least four thousand cases—and have never met with such an accident. My rule is that the platinum wire should be white hot before cauterizing the spot, and it should be withdrawn in the same condition. Lennox Browne's rule was to heat the wire only to a cherry-red heat and allow it to cool inside of the nose before withdrawal. This is sure to be followed by inflammation, for which the operation has been blamed, whereas it is the fault of the operator. It is necessary in some cases to remove part of the middle turbinated bone in order to reach a polyp in the hiatus semilunaris. In one case I recommended the removal of the entire middle turbinated bone for a man who had had polypi removed for thirty years; the operation was done with entire success.

Dr. MACKENZIE: I have been very much interested in the discussion, especially in the remarks of Dr. Jarvis, and in the

simplicity of the means to be used in the class of cases under discussion. I can not, however, concur in his statement that everything can be done with the snare. In these bone cases I have found considerable difficulty in getting the snare through the bone; when the bone was thoroughly engaged in the loop, it was with the greatest difficulty that I got it home. Therefore, in many cases, I have been obliged to relinquish the snare in favor of other means. I am also completely in accord with Dr. Mulhall in his estimate of the value of the galvano-cautery; I keep it by my side all the time. I use it every day, and among several thousand cases I have never seen an accident. I use it at a heat just bordering upon a white heat, and just whiter than a cherry-red. I have seen a purulent discharge following the application and lasting several weeks, and some sloughing after removing large pieces of the turbinated bones, but no serious accident. At the same time it must be admitted that unskillful use of the cautery might cause sloughing and do great damage.

Dr. ROE: The main reason for the failure to get good results after the employment of the galvanic cautery, and the cause of the occurrence of inflammatory and septic troubles, is that the burned surface, after the operation, is not rendered thoroughly aseptic. This should be done as thoroughly after a cautery operation as after a cutting operation, and kept so until the parts are healed. When this is done we never have any inflammatory or septic troubles and seldom a purulent discharge. This fact was pointed out by me in an article read last year in Berlin before the International Medical Congress.

Dr. ASCH: My experience is thoroughly in accord with that of Dr. Jarvis. I find that the snare fills every indication; the operation is a slight one and, if necessary, can be repeated at a future time. But few growths require more than one or two operations. With regard to the objection of Dr. Mackenzie, I think that the trouble is due to defective instruments. Where the snare and holder are made of steel, there is no difficulty in cutting through bone—certainly not with an instrument made as mine are. Like Dr. Jarvis, I have never seen the use of the snare followed by septic trouble. I take the precaution always to immerse the wire and snare in a carbolyzed solution before operating.

Dr. JARVIS: The galvano-cautery is harmless, why is it that we read of the case of Ziem, where total blindness followed its use in one eye; or that of Quinlan, where meningitis occurred? I also recall a case where erysipelas resulted, where the operator was sued for malpractice.

Dr. MULHALL: I attribute such accidents to an imperfect method of operating.

Dr. ROE: I should say imperfect antiseptics.

Dr. SAJOUS: I would confirm the statements just made as regards improper use of the galvano-cautery.

Dr. CASSELBERRY: I feel a little guilty for calling out a discussion upon all the methods of treating polypi. My contribution was meant to limit the discussion to a newer field—the removal of the anterior portion of the middle turbinated bone in certain cases. I hardly think that the removal of a small portion of the middle turbinated bone could give rise to atrophic rhinitis. With regard to the transition of hypertrophic into atrophic rhinitis, I would offer the suggestion that it may occur more frequently in the climate of New York, as I have never seen a case in Chicago where hypertrophic change has passed into an atrophic. With regard to the use of chemical agents, especially the tincture of iron, alcohol, etc., I think that where there is general relaxation of the parts such astringents are useful as adjuncts to surgical treatment. Alone they can not often reach the actual seat of disease. With regard to the snare, I may say the same, concerning, however, a much smaller proportion of cases—that one can not always reach the growth with the

snare; and the cauterly also fails at times. Then I resort to the operation described. In conclusion, I will merely refer to the remark that has been made about removal of the normal turbinated body; the turbinated body in these cases is never normal; it is hypertrophied, sometimes covered with polyp-buds, and often curved over toward and crowding upon the septum. Moreover, I never removed the whole body, but merely the antero-inferior end. In the case where meningitis set in, following the use of the galvano-cauterly, it was probably a case of inflammatory ethmoiditis, and the meningitis set in before the cauterization; the use of the cauterly was merely a coincidence, occurring in an effort to relieve symptoms due to the ethmoiditis.

**Various Forms of Disease of the Ethmoid Cells.**—Dr. F. H. BOSWORTH read a paper on this subject. (See vol. liv, page 505.)

Dr. MACKENZIE: I take great pleasure in saying that Dr. Bosworth has at last read a paper with the contents of which I can entirely concur. I wish to say this in opening the discussion on the paper that we have just heard, and to thank him for that paper. I agree with him in his remark about the confusion of cause and effect that has been made by Woakes, whose theory is only explainable on this ground.

Dr. JARVIS: I can confirm the remark made by the reader of the paper concerning the dangers of removing the cap from the turbinated bone and opening the cells, and also of removing the bone, on account of the existence of a myxomatous growth. In such cases the unfortunate patient may perish with meningitis, from extension of the inflammation through the ethmoid cells. After the removal of the posterior end of the middle turbinated bone the nostril may be found to be occluded by a soft myxomatous growth. It is my rule not to stop until all this obstruction is removed. I believe we may have pure ethmoiditis. I recall a case of blood poisoning in which I was called in consultation after pyæmic symptoms had set in. I drilled away the side of the septum into the body of the turbinated bone, and in this way obtained free drainage. It required a number of operations, but the patient made a good recovery. It is of interest to note that in these cases of non-myxomatous ethmoiditis we often have to deal with a condition of malformation in which the septum is deflected to one side so as to completely occlude the upper part of the naris. I recall one case, that of a lady, who had traveled extensively without obtaining relief, in whom the trouble was removed by chiseling away the septum until the channel was clear. I agree entirely with Dr. Bosworth in his views upon the treatment of ethmoiditis.

Dr. WRIGHT: I did not understand whether or not Dr. Bosworth referred to cases of acute ethmoiditis; but since Dr. Jarvis has mentioned such a case I may also refer to one which I saw last spring. My observation is that these patients generally get well after thorough cleansing of the nose; washing it out frequently with a syringe or spray is often sufficient. Such an operation as Dr. Jarvis resorted to would rarely be necessary.

Dr. MULHALL: I subscribe to the views expressed by the reader of the paper and to his remarks upon a class of diseases which we all recognize and which he has grouped in a way that will be of great value. I wish simply to state that I coincide with his statement that in the class of cases referred to we are tempted to radical measures for the relief of the condition when milder ones would answer and are safer. I recall a case coming under my observation in which the middle turbinated bone was removed and the patient died; however, the operation was not done aseptically; it was before the day of the introduction of present measures into surgery. I now use the curette, but always take the precaution to do the operation in a perfectly aseptic manner. The danger of opening the ethmoid

cells and of lighting up inflammation is such as to make such measures indispensable.

Dr. JARVIS: I should like to say in reply to the remark of the last speaker, with reference to securing asepsis, that there is no method that will equal the use of the cold wire. I have never seen septic symptoms produced by the application of the cold wire in operating. I have seen such symptoms after the use of drills, but I think as long as the cold wire is used we can proceed with impunity. I do not think that any gentleman present can report a single case in which septicæmia followed an operation with the cold wire snare.

Dr. BOSWORTH: I have nothing to say in closing the debate, but I should not let the occasion pass without acknowledging the remarks of Dr. Mackenzie and my gratification at having him agree with my conclusions. With regard to the theory of necrosing ethmoiditis of Woakes as the cause of all cases of nasal polypus, I think he still stands almost alone in his views.

**The Symptoms and Pathological Changes in the Upper Air Passages in Influenza.**—Dr. J. SOLIS-COEN read a paper in opening a discussion on this subject. (See page 344.)

Dr. SURELY: I am very much interested in the paper, especially because of having met so many cases of tuberculosis the origin of which was apparently in an attack of influenza. Another point to which I would like to call attention is one noticed by some French writer, in an article published some eight or ten months ago, in which the idea was advanced that the late pandemic of influenza was a modification of, or allied to, cerebro-spinal meningitis. There is certainly a resemblance clinically, because in our district there were neurotic symptoms manifested in a majority of the cases strongly resembling the latter disease. A third point that I would mention is that the paper formulates the belief that it is a chemical metamorphosis which takes place in the various cells and tissues which constitute the original features of the disease. In our chemical work, incident to the examination of tubercular matter, etc., we have been unable yet to separate a distinct ptomaine or toxine from them. However, fluids treated with phosphotungstic and phosphomolybdic acids yield deposits which, when injected into the tissues of guinea-pigs, gave rise to intense glandular irritation and inflammation, which, in some cases, reaches its height in three days, afterward gradually subsiding. In one of the animals, where suppuration took place, examination of the pus showed no bacteria whatever, but pus cells and broken-down lymph material only. If we had allowed the animal to live, it is possible that the characteristic lymph elements might have been developed. The observations of the author of the paper can be borne out by the results of such experiments. The why and wherefore, of course, I do not know, but we shall pursue these experiments further upon the larger animals, such as calves or goats. I think that the chemical poisons of tuberculosis may be considered as related to that or those of pandemic influenza, whatever it is.

Dr. WRIGHT: I was much struck during the second epidemic of influenza by the disproportion between the amount of actual disorder which could be found upon examination and the amount of suffering and constitutional disturbance. I saw a large number of throat and nose patients in the hospital, and could find only a slight pharyngitis or rhinitis; and the way we usually made the diagnosis of influenza was by observing the slight lesions of the nose or throat and the large amount of constitutional disturbance.

Dr. ASER: I think that it would be well for the representatives from the different sections of the country to give their experience as to the manifestations of influenza, so that we could ascertain whether the upper air passages were equally affected in the different localities where it prevailed. In my own expe-

rience in New York there was not a marked increase in the number of such cases applying for treatment nor in their gravity, nor did I remark in the cases of influenza which came under my notice a uniformity of lesion. There was, however, one lesion which was frequently, though not always, present—viz.: an inflammation of the tonsils, attended by an extreme depression, which I have noticed under no other circumstances. Though follicular amygdalitis is usually marked by depression, I have never seen it so severe as in these cases. It was so great that in some cases it gave me reason to fear for the safety of my patients.

Dr. CASSELBERRY: The point raised by Dr. Asch is a very valuable one, and in fact I brought it out yesterday in connection with disease of the mucous membrane of the nose. As regards the climates of New York and Chicago, there seems to be a decided difference in the number of cases of transition from the hypertrophic to the atrophic stage of chronic rhinitis, which transition is rarely seen in Chicago. With regard to the point raised by Dr. Wright concerning the severity of local manifestations of influenza in the upper respiratory tract in Chicago, we observed them often of a violent type, commencing with severe rhinitis and naso-pharyngitis, and extending into intense degrees of laryngitis, bronchitis, and even pleuritis. In the nose I have not always at first been able to distinguish between the local manifestations of influenza and those of ordinary severe inflammatory attacks; perhaps in the former the mucous membrane had a more bluish aspect, and this appearance I had not attributed to a specific venous congestion, but to the violence of the attack.

Dr. WRIGHT: I might supplement my remarks by the statement that with us in New York we observed a much larger proportion of cases of suppuration of the middle ear than among ordinary cases of throat inflammation.

Dr. S. SOLIS-COHEN: The comparative frequency of special lesions of influenza in the personal experience of any physician will depend largely upon the character of his practice. For instance, in my general wards in the Philadelphia Hospital characteristic manifestations of the disease in the upper air passages were comparatively few; and, in fact, I can recall but two cases, both presenting the "solid œdema" referred to by the reader of the paper. On the other hand, I saw a much larger percentage in my private and consultation practice. I would express my admiration of the graphic expression "solid œdema," used by Dr. Glasgow in his original paper. The character of the manifestation has been fully described and I need not repeat it. The first case of influenza I saw in 1889 was one in which this solid œdema affected the tonsils and soft palate. Through the knowledge gained from the paper of Dr. Glasgow, I was enabled to make the diagnosis, which otherwise I might not have been able to do, as it was some months before general recognition of the existence of the pandemic. I have now under care a convalescing case which at first I was inclined to diagnose as one of typhoid fever; but its further progress has led me to think it rather a case of the peculiar pneumonia described by Dr. Glasgow, and I mention it now only to suggest the wisdom of greater attention to this peculiar condition. The favorable effect of influenza upon tubercular processes is, of course, exceptional. Hundreds of cases of tuberculosis have been hurried to the grave by the epidemic.

Dr. S. SOLIS-COHEN: I would supplement my remarks with the statement that with us, in Philadelphia, otitis media was also very common. In some cases other symptoms were lacking, and only from the prevalence of influenza and the occurrence of several cases among the children in a family was I enabled to recognize its infectious character. In many instances it was bilateral, one ear becoming affected as the other healed.

Dr. JARVIS: The paper read by Dr. Cohen presents clinical features of great interest which we may very well study. I refer especially to the encephalopathy of malignant disease and tuberculosis. Only a few days ago a most distinguished dermatologist expressed a belief that he had seldom seen cases of lupus in which erysipelas had occurred where a favorable influence was not exerted upon the course of the disease.

Dr. ROBINSON: I wish to simply say one thing, perhaps not bearing directly upon what Dr. Cohen has said. In connection with influenza, I have been witness to disturbances of the middle ear which seemed to me to be very interesting for several reasons. I could not say precisely in what the inflammatory condition consisted. There did not really seem to be any notable disturbance of the Eustachian tube, or inflammation of the canal; but these patients suffered a very great deal. There was dullness of hearing, noises, worse in one ear than in the other, and a sensation of a foreign body in the ear; but I could not determine anything of a pathological nature simply by sight. The obstinacy of these cases was something extremely remarkable. I saw a lady only a few days ago who has been troubled in this way for at least twelve months, in spite of general and local treatment. I wish merely to add this to the discussion—that there is something peculiar hitherto unclassified in the auditory disturbances following influenza.

Dr. JARVIS: According to my observation, the victims of this class of affections of the upper air passages were those having more or less pathological deviation of the septum; in other words, those who were suffering with chronic rhinitis. I would ask if this is borne out by the experience of any other gentleman present?

Dr. ROE: I observed, when the epidemic first appeared, that those who had chronic ear, nose, or throat disorders were those who suffered most from the influenza. I also noticed in this connection that the apparent cause of this œdema, which was first described by Dr. Glasgow and now mentioned by Dr. Cohen in his paper, was due to a vaso-motor paresis associated with cardiac weakness. In nearly all cases I have been led to look upon this passive œdema as not associated with any inflammatory trouble, but as one due to lack of sufficient circulation, resulting from weakness of the heart. In the treatment of these affections I have obtained the best results from the administration of cardiac stimulants in addition to other medication that may be indicated.

Dr. SHURLY: We have three distinct grades of severity among the cases of the late pandemic of influenza, and I wish to exclude entirely instances of ordinary influenza that we usually have in our northern climate every winter. In some cases the general affection is light and, perhaps, only lasts twenty-four hours, but the upper air passages seem particularly affected. Just as in epidemics of scarlet fever and measles, there are certain persons who have nasal catarrh or rhinitis, but who do not manifest the symptoms of scarlet fever or measles. Now I take issue with those gentlemen who hold that a deflection of the septum, or any purely local condition of the air passages, induces the attack; or that the nervous, pandemic, general disease is influenced by any local condition.

Dr. JARVIS: I wish to explain that I do not maintain that the pathological process is confined to the nostril, but that it constitutes the starting-point from which the disease may extend to the throat and lower air passages, producing more serious symptoms. I did not mean that the disease was due to a deflected septum, but that this condition might be a predisposing cause.

Dr. S. SOLIS-COHEN: The majority of the cases of influenza which I have seen had no chronic nasal trouble.

Dr. SAJORS: I think that the matter is easily explainable.

The gentlemen are looking at the matter from different standpoints, basing their conclusions upon their individual observations. Where there is already local disease, the patient will find that there is more local disturbance during the progress of the disease.

Dr. ROE: I did not mean to say that the local diseases that I referred to were the cause of the general symptoms, but that when these local disorders exist in the upper air passages the person is predisposed to attacks of influenza. I do not, however, regard the influenza as merely a local trouble, limited to the upper air passages, but believe it to be more severe when the air passages are diseased.

Dr. GLASGOW: The complications, or rather the pathological changes, occurring in the upper air passages as the result of influenza have been fully described, and I can add very little to what has been said. There are a few points, however, which have not been mentioned which have attracted my attention. During the epidemic I have met with a greater number of cases of acute suppuration of the antrum than I have seen at any other time. I think it was also true that during the prevalence of the disease the tendency of all inflammations of the closed cavities was to become purulent. If pleurisy occurred, it was empyema; pericardial effusion was purulent. In fact, according to my experience, purulent inflammation was a characteristic feature of the disease. My experience is fully in accord with the writer of the paper in stating that during the prevalence of the epidemic there was an almost complete disappearance of catarrhal inflammations of the upper air passages. The reappearance of this condition was an evidence that the epidemic was disappearing. I have not observed that local disease in the nasal passages had any causative effect in provoking the disease. Where pathological changes have produced obstruction, the addition of the cellular infiltration of the mucous membrane has certainly added to the distress. There is one point in Dr. Cohen's paper which has gratified me, for it was upon this point that I was criticised when I read my paper before this society on Oedematous Disease of the Upper Air Passages. I refer to the presence of an exudation in the throat bearing a certain resemblance to the diphtheritic membrane. I can heartily agree with Dr. Cohen in believing that influenza is essentially a disease of the blood. I have always considered it analogous to typhus or erysipelas—a general infectious disease. In regard to the connection of influenza with tuberculosis I have positive views, which are based upon extended clinical experience. According to my observations, I should say that influenza rather encourages the production of tuberculosis, instead of being a protection against it. The interstitial cellular infiltration of the alveolar walls—the pathological condition in influenza—seems to be a most fertile soil for the development and growth of the tubercular bacillus. Microscopic examination of the sputa of cases which have become tubercular shows enormous numbers of bacilli, and resembles rather a culture of the laboratory than human sputa.

The weakness of the heart has been referred to by the speaker, and I can fully indorse all that he has said. Cardiac weakness is a constant accompaniment of the disease; it is due to a change and weakening of the heart fibers, similar to that existing in infectious diseases.

Dr. J. SOLIS-COHEN: The supposed connection between cerebro-spinal meningitis and influenza, which has been referred to in the discussion, was first brought to the attention of the profession by Dr. Levick, who was then physician to the Pennsylvania Hospital, I believe about 1864. I did not wish to be understood as saying that influenza will cure tuberculosis. I have seen too many fatal cases of tuberculosis hurried off by influenza. I thought it peculiarly interesting that I had seen one

case of tuberculosis of the larynx and one of malignant disease of the pharynx cured by the attack of influenza.

**Useful Deductions derived from the Study of a Case of Cicatricial Contraction of the Larynx, possessing Unusual Clinical Features, with Exhibition of Specimen.**—Dr. W. C. JARVIS read a paper with this title. (See vol. liv, page 509.)

Dr. J. SOLIS-COHEN: Mr. President, I have looked at this specimen very carefully, and I can not divest myself of the opinion that if you were to cut through this stricture in the upper part of the larynx, you would find a normal glottis beneath.

Dr. MACKENZIE: The paper reminds me of a case which I had several months ago at the Johns Hopkins Hospital. The patient had syphilis, and suffered very much with dyspnoea. He had been treated for eighteen months for asthma. Upon examining his larynx, I found bilateral abductor paralysis. His dyspnoea was so great that I feared his death in my office, and I got his father to take him to the hospital in a carriage, with a note to the hospital resident to perform tracheotomy at once, if another attack came on, without waiting for my arrival. The operation was done at once by the house surgeon, but the expected relief did not appear. In fact, the dyspnoea not only got worse, but expiratory dyspnoea was added to the inspiratory difficulty. This showed, to my mind, that there must be some obstruction below the seat of operation which had been overlooked. The patient sank, and in the course of a few days died. I thought that it might be due to stricture of or pressure upon the trachea. The post-mortem was made by Dr. Welch, very carefully. No trace of syphilis was found in any part of the body, except in the respiratory organs. In the apex of one lung was found a large gumma. Both recurrent nerves were compressed, and were found in a mass of half cicatricial tissue and half enlarged glands. There was pressure upon the nerves, and the trachea at its bifurcation was so narrowed by the tumor and by contraction following ulceration, that it was with the greatest difficulty that a very fine probe could be forced through the stricture. There were other ulcers in a state of cicatrization in the neighborhood. The complete examination has not yet been made, but I may state that in the nerves we found certain fibers of both recurrent laryngeal nerves in a state of fatty degeneration. This case was extremely interesting to me because of the combination of the stenosis with the degeneration of the nerves and the external pressure of a tumor. This was all subsequent to the gummatous deposit in the lungs. It is very seldom that we find this location of syphilis strictly in the respiratory organs, without being manifested in any other part of the body; it is a paradoxical expression of the syphilitic infection. The patient was in the process of cure; but the cicatricial contraction of the ulcers made pressure upon the trachea and upon the nerves and caused his death. Of course there was also a condition of hypostatic pneumonia found at the examination after death.

Dr. ASCU: In a case like that reported by Dr. Jarvis I think it advisable to try dilatation; I have reported some cases which were cured and some much improved by this treatment. Of course the amount of dyspnoea might necessitate tracheotomy; but the dilatation could be practiced after the operation.

Dr. CASSELBERRY: I am greatly interested in Dr. Jarvis's case, and wish to speak of the danger of undertaking palliative treatment in cases of this kind. I recall one case of my own which in many respects is similar to the one before us. It was a man of middle age, suffering from syphilitic contraction in the upper part of the larynx, with attacks of dyspnoea, which were sometimes of dangerous severity. Tracheotomy was recommended and refused. It was just five days afterward that he suffered a severe attack of dyspnoea and perished before aid could

reach him. Now, I maintain that a man going about with such a condition of the larynx, exposed to all sorts of influences which might bring on an attack—such as cold or inhalation of dust or other irritants—is every moment in much more danger of his life than he would be from the performance of tracheotomy. I claim that palliative treatment with O'Dwyer's tubes in such severe cases is dangerous. We should perform tracheotomy first and then palliation if you choose; but first of all put the patient in a safe condition as regards his life, and treat the stricture afterward.

Dr. S. SOLIS-COHEN: This specimen very much resembles the laryngoscopic image of a case in the practice of my brother. Upon cutting through the contracted portion of the larynx—a therapeutic operation undertaken during life—there was found a healthy glottis beneath. Perhaps he recalls the case.

Dr. J. SOLIS-COHEN: Yes, I remember the case you refer to.

Dr. WRIGHT: I am interested in the specimen, but less on account of its extraordinary character than its ordinary character. There are a large number of cases of syphilitic contraction of the larynx presenting themselves having the same features. I have a case now under observation in which the inflammation, commencing in the nose, extended down the throat and into the larynx with cicatricial formation; and it was much benefited by iodide of potassium. I saw several cases of tracheal syphilis last winter which lend emphasis to Dr. Casselberry's remarks. Take a case of this kind; if he were to have an attack of ordinary laryngitis he would drop dead in the street; the slightest swelling could not help but cause suffocation. The patient would die suddenly. Certainly, in these cases it is our first duty to explain the condition clearly to the patient; he may refuse an operation, but it should be explained to him so that he may understand the danger he is in without it. I am glad that Dr. Jarvis has brought this subject before us for discussion.

Dr. SAJOUS: Speaking of the dangers to be encountered in these cases, I should like to include iodide of potassium in the list. The fact that œdema sometimes follows its use should be borne in mind in treating these patients.

Dr. WRIGHT: In cases of extreme stenosis I want to say that the administration of iodide of potassium may have the result just referred to, and if it is given, I would say, get out your tracheotomy instruments and be ready for immediate operation. I always treat these cases in a hospital, where I can keep them under observation.

Dr. SAJOUS: I would also state that in syphilitic laryngitis I noticed a connection between the administration of the iodide and the appearance of the œdema; as soon as I gave the iodide the œdema would appear, and would disappear as soon as it was stopped.

Dr. S. SOLIS-COHEN: I am glad that Dr. Sajous has brought this matter up. Few physicians keep in mind the possibility of producing œdema when they give large doses of iodide of potassium in syphilitic affections of the throat. It is not a mere theoretic danger. Professor S. W. Gross used to relate to his classes a case in which he had to sit up all night, prepared for instant tracheotomy. This danger is present in every case in which large doses are given at the first, without previous gradual increase, even where there is no local disease of the larynx. As to the specimen presented by Dr. Jarvis, any physician or surgeon who counsels against tracheotomy in such a case is taking a very grave responsibility.

Dr. J. SOLIS-COHEN: With regard to the occurrence of œdema in these cases, I must say that I can hardly see where the œdema is to come from on account of the dense infiltration of the parts; but there are other dangers than those from iodide of potassium. In several cases occurring in the practice of some of the most prominent men in the profession, in which I have urged

the performance of tracheotomy which was not done, the patients afterward died. Another point is that in cases of decided stenosis there would be danger from an attack of bronchitis, since a small pellet of mucus might cause strangulation. I was surprised that any one should use O'Dwyer's tubes when I first saw them, their caliber was so small; I did not see how they could possibly benefit the patient. I always make it a rule to use as large tracheotomy tubes as possible. I afterward found that patients could breathe very well through the small tubes of O'Dwyer.

Dr. JARVIS: In reference to Dr. Cohen's remark that there is a healthy larynx inferiorly, I should state that I meant to convey the idea that the contraction was limited to the upper part of the larynx. I of course knew that the cords were not involved; this was recognized during life. I was very glad to hear the remarks made about iodide of potassium. It is a valuable remedy in these cases, but it is not necessary to give it in overwhelming doses; small doses would be safer and sufficient to afford relief. I was also pleased with the remarks made about intubation. I am sure that if any gentleman present had seen the case he would have agreed with me as to the impracticability of the O'Dwyer tubes in this case; and I think that he would have been very glad to get off without causing serious inspiratory spasm during the examination. With regard to Dr. Casselberry's remarks, I stated that tracheotomy was indicated and that I had urged the patient to submit to the operation, but he thought that as long as he was relieved by the inhalations he would not have it done. I did not feel like sending him away just because he would not do exactly as I desired. I am glad that this report of the case has been so well received and that the discussion shows that the members agree as to the propriety of the measures suggested by me for the patient's relief.

**The Relation of Disturbances of the Mucous Membrane of the Upper Air Passages to Constitutional Conditions.**—The discussion of this subject was opened with a paper by Dr. BEVERLEY ROBINSON. (See page 340.)

Dr. MACKENZIE: The only thing that I have to complain of in the paper of Dr. Robinson is the unnecessary stress which he lays upon serofulous inflammations of the larynx or upper air tract. I suspect that the essayist is still under the influence of the old French school, and it is owing to his early training in that school that he comes to lay such stress upon serofulous inflammation in contradistinction to syphilitic and tubercular ulcers. I have read much of the literature of this subject and have come to the conclusion that there is very little difference between serofula and syphilis on one hand, and serofula and tuberculosis on the other. I think that there is no ground for belief in an ulcerative serofulous inflammation of the throat.

Dr. JARVIS: I should hesitate to accept the radical view of Dr. Mackenzie that serofulous inflammation is always tuberculous. We can not always demonstrate by microscopic examination the presence of bacilli. Many serofulous disorders come more correctly under the head of constitutional syphilis.

Dr. WRIGHT: I should like to know what serofula of the upper air passages is if it is not tuberculosis and if it is not syphilis. What is it?

Dr. JARVIS: I do not absolutely accept the term serofula. This condition might be due to inherited syphilis. I do not believe in making the comprehensive term "tuberculosis" cover all these cases. I might mention a case of necrosis coming under my observation in which the attending circumstances, clinical history, and social surroundings make it difficult to entertain the view of inoculation with syphilis, and there was no evidence of tuberculosis. In this patient the manner and result of treatment were such that we could not entertain the view that it was a case of tuberculosis or syphilis.

Dr. MULHALL: What has scrofula to do with syphilis? I remember the remark of a man with whom I had the pleasure of being associated for three years—I refer to Mr. Hutchinson, of London, who knows something of syphilis. The statement was that syphilis is not transmitted to the third generation. I offer an explanation of what we vaguely call "scrofula." I published a paper some seven years ago upon atrophic rhinitis, in which I gave a definition of scrofula as a peculiarity in the constitution or age of the parents by which one or both of them are unfitted for transmitting healthy offspring. For instance, the child of drunken parents may be scrofulous; the child of senile parents may be scrofulous; the child of syphilitic parents, if conceived in the stage of cachectic depression, may be scrofulous; the child of phthisical parents may be scrofulous. Therefore, scrofula affects the product of conception of parents who are in a profoundly depressed state of nutrition, whatever it may be due to.

Dr. S. SOLIS-COHEN: I have been very glad to hear this subject brought forward for discussion, since, unless we recognize an abnormal constitutional condition, which we may call scrofula, we will not treat its subjects properly, either for local disease in the upper air passages or for local or general disease elsewhere. Dr. Mackenzie believes that Dr. Robinson is at fault in paying deference to the opinions of the older French writers. I for one would like to express my indebtedness to those French writers, and especially to Lugol. Even with all our new lights, if we turn to the writings of that great man we can certainly learn something about scrofula—a disease which the elder Gross called the child of syphilis and the parent of tuberculosis. But syphilis is not the only cause of congenital scrofula. As Lugol pointed out and as Dr. Mulhall has just said, it is the inheritance of a child whose parents are, from whatever cause, physically incompetent to produce normal offspring, and it forms a species of what we vaguely call "diatheses." We have no better way of characterizing this condition, especially from the standpoint of the modern cell doctrine, than by stating the position thus: All manifestations of life enter this world as living cells; every cell springs from a parent cell. If that parent is intrinsically deficient or by extrinsic causes rendered unable to transmit to the offspring the necessary vitality or life force, the product will be incomplete or scrofulous. The scrofulous state may likewise be acquired by depression, privation, or excess. Benjamin Ward Richardson says that the secret of long life consists not so much in any peculiar endowment of the body as in the nice adjustment of parts. Going a little farther than this, we see throughout Nature a constant balancing of opposing forces. It is exemplified alike in the revolutions of the planets, in the course of the winds, in the swing of the pendulum. As in the macrocosm, so is it in the microcosm; the heart of man throbs as the heart of the universe. In the scrofulous child there is not that nice balance of opposing forces. Either there is not enough innate constructive force to repair the tissues broken down in the exercise of function, or there is a failure from incomplete development or, in the acquired condition, from incomplete nutrition, to supply energy to meet the destructive forces of the environment. This state has been well described by a modern French writer (Jaccoud), as one of "hypertrophy" or "congenital dystrophy"; but names are less important than the fact that the organism is unfitted to survive in the struggle for life. The child under such circumstances is not necessarily born tuberculous, but may become tuberculous. Local expression of the disease in the upper air passages or elsewhere is determined by some trauma or other accidental excitant. The local expression may not differ to sight from the local expression of other causes, but its course, its rebelliousness, the general condition of the patient, help the diagnosis.

I may refer to a case of scrofulous ozæna, which was neither syphilitic nor tuberculous, that I saw ten years ago in a boy whose brother and sister have since developed tuberculosis. My patient himself has not yet developed tuberculosis, though he may do so. At all events, the general history of the patient, rather than the shape of the ulcerations or the quantity of bone that necrosed, shows that his was a case of scrofula and not of tuberculosis, which his brother and sister manifested. The parents are neither tuberculous nor syphilitic, but they were, when the children were born, overworked and ill-nourished because of their poverty. I heartily agree with Dr. Robinson that in treatment, as in diagnosis, we must look upon the fundamental constitutional condition as more important than the local accident that comes under our eyes.

Dr. GLASGOW: I am a firm believer in the constitutional origin of many of the pathological conditions of the upper air passages—not from a theoretical, but from a clinical standpoint. That this view is not accepted more generally seems to be due to the fact that physicians are looking too closely to the local processes. I came many years ago to the conclusion that many of the cases showing congestion of the upper air tract could be promptly relieved by proper attention to constitutional rather than local conditions.

I am thoroughly pleased to hear the term scrofula again. I know I am out of date, but to me it is one of the most expressive terms in the medical vocabulary. The influence of my early training, listening to the teachings of Scoda and Oppolzer, made such an impression that it has been difficult for me to accept the views of later German pathology. I do not see that any addition can be made to the definition of scrofula as given by Dr. Mulhall and Dr. Cohen. Clinically the term designates a certain condition of the mucous membrane when it is applied to the air passages. In persons of the strumous diathesis inflammatory processes are prone to take on a subacute or chronic character. There is great infiltration of tissue with a lessened tendency to a return to the normal condition. The modern school would embrace all the conditions formerly known as strumous or scrofulous under the general name of tubercular infiltration. To me this seems unfortunate, when we look at the condition from a clinical standpoint, for we see many cases where we can certainly make a favorable prognosis. The name strumous would indicate this, while tubercle is a word of ill-omen. The confusion which is caused by the use of the word tubercular to indicate a variety of conditions is not justified by the fact that we often find the tubercular bacillus in this tissue. The old doctrine of Niemeyer—that "the great danger to the strumous lies in the possibility of becoming tuberculous"—is strictly in analogy with our experience at the present time, when we consider the infectious pneumonia of influenza. No one would consider this pneumonic condition as tubercular, but we do know that the pathological condition of the lung in this disease proves a most fertile soil for the growth of the tubercular bacillus, and large numbers die with an acquired tuberculosis. The bacillus grows and develops in the laboratory in several culture mediums, and is it not equally true that in the human body there exist several pathological conditions which furnish a suitable and fruitful soil?

Dr. BOSWORTH: In estimating the constitutional or other origin of any local disease of the upper air passages, it is necessary to differentiate between diseases of the nose and those of the naso-pharynx. I do not think that the constitutional state has much to do with catarrhal inflammations of the pituitary membrane, in a great majority of cases at least. But when you come to the naso-pharynx you will find catarrhal conditions very frequently dependent upon constitutional diseases. Disease of this region is most likely to occur between the age of

eighteen and forty years. I have found that most catarrhal affections locate themselves at this point in the naso-pharynx between these ages, thus establishing conditions which are aggravated by disorders in other parts of the body. This leads to the question, What has the lymphatic system to do with these disorders? and, still further, to the discussion and definition of struma. We think that we know about all there is to know about the nose and its disorders; but we have in the lymphatic glands existing in the naso-pharynx a subject for study—one that we know comparatively little about. Catarrhal diseases located in the naso-pharynx, secondary or primary, are dependent upon disorders of the lymphatic system; the source of the lymphatic disturbance is in the underlying constitutional condition. I do not like the term scrofulosis: I prefer to call it struma. I think, if we investigate the cause of the lymphatic condition that I have mentioned, it will lead us a step farther toward comprehending what is described as struma. My main point, however, is that the constitutional state has very little to do with diseases of the nose, but has very much to do with diseases of the naso-pharynx.

Dr. INGALS: I am particularly pleased with Dr. Robinson's paper, as it directs us to a rational treatment of a comparatively large class of obscure cases whose real nature is liable to be overlooked. I can not understand why constitutional conditions should not affect the nose as well as the naso-pharynx, and I can not agree with the last speaker that the nose is never affected in cases considered scrofulous.

Dr. WRIGHT: In answer to my question of what is meant by scrofula of the upper air passages, I have been informed that constitutional scrofula is, but have not been told how to recognize a scrofulous lesion in this location.

Dr. MULHALL: Six months ago I wrote a paper on The Effects of Diet and Exercise upon the Cure of Simple, Uncomplicated Chronic Inflammation in the Human Body. I think I proved in that paper by several new facts that constitutional conditions do affect the nose. I furthermore proved that to the dyspeptic disorders of Americans and their careless manner of eating and lack of physical exercise must be ascribed the cause of our national disease—catarrh—and not to our climate or any meteorological conditions whatever. I think that I also proved that patients, by proper hygienic treatment, by careful attention to diet, exercise, and clothing, can be cured without local treatment. I referred, as examples, to the cases of

two pugilists who had catarrh, whose noses were stuffed and hyperæmic, while they were spending their time in saloons and eating and drinking too much; they were in a state of hypernutrition. They used various remedies for the catarrh, both with and without the advice of physicians, without benefit. They then went into training for a prize-ring encounter, and two weeks before training ceased the nasal troubles entirely disappeared. I also referred to other cases in which equally good results were had from improvement of the personal habits of patients with nasal catarrh. Without this hygienic help, I denounce local medicinal treatment as utterly useless, except from a financial standpoint.

Dr. ROBINSON: With all respect to Dr. Mackenzie, who credits me with not forgetting my early training, I would state that I am not unfamiliar with recent French literature and German literature also. We are not yet in a position to place an exact value upon Koch's tuberculin in diagnosis. It is not possible to decide in every case whether a lesion is a tuberculous manifestation, or simply a case of so-called struma or scrofula affecting this locality and the tuberculous deposit still remaining doubtful. All of us are aware that there are cases of this kind in which the microscope fails to prove the lesion tubercu-

lar. What, then, shall we call them if they appear in patients evidently scrofulous? I am glad that the president has also expressed his approval of the views which Dr. Cohen so very eloquently set forth in his exposition of scrofula. We must not lose sight of the general ground of medicine, otherwise we will lose ourselves in minutie.

I submit that, in the presence of a scrofulous manifestation in the upper air passages, we are forced to call it something, and, if we can not pronounce it tubercular, what can we call it? We will have to fall back upon scrofula for the want of a better name—just as, in speaking of "catarrh," as Dr. Bosworth has admitted so forcibly, in some cases we are obliged to fall back upon general ideas and provisional names, perhaps without expressing ourselves positively as to the case being necessarily of one kind or another. For further consideration I will refer those interested to Dr. Keyes's last edition for the diagnosis between scrofulosis, tubercu'osis, and syphilis of the throat, where a part of what I have said will be found.

## New Inventions, etc.

### SOME NEW AND IMPROVED INSTRUMENTS.

BY SOUTHGATE LEIGH, M. D.,  
NORFOLK, VA.,

LATE HOUSE SURGEON, MT. SINAI HOSPITAL, N. Y.

DURING a househip of thirteen months on probably the heaviest surgical service in the United States I found many of the instruments in constant use unhandy or complicated. I attempted from time to time to improve and simplify them. I take the liberty of here presenting a few of them. They represent but little originality, yet I hope they may prove to be useful to the profession.

Messrs. George Tiemann & Co. are the manufacturers.

1. *Sponge Holder* (Fig. 1).—In abdominal surgery the sponge holders ordinarily used are unsatisfactory and unsafe, in that the sponges are liable to come off and be lost. Some operators use ovarian clamp forceps, but these are inconvenient from the size of their handles. The



FIG. 1.

holder here presented is intended to overcome both objections. It consists of two long rods with serrated grasping surfaces and an aseptic lock. When closed it holds the sponge *firmly* and securely, and forms a slender *single rod*.

2. *Ether Inhaler* (Fig. 2).—The Ormsbee inhaler has been clearly proved to be far superior to the ordinary inhalers. Its chief advantages are that it consumes less ether and that the vapor is warmed by the expired air. It is, however, somewhat complicated and an expensive

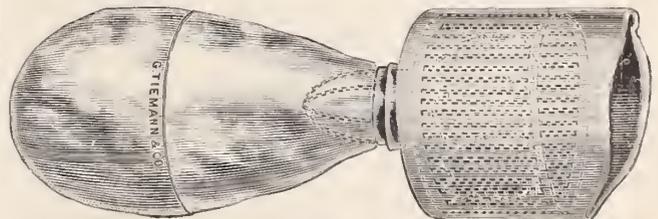


FIG. 2.

instrument. The inhaler here figured is extremely simple. It consists of an ordinary Allis inhaler with a bag attached and with a packing of sponges instead of cloth. It has all the advantages of the Ormsbee, with the addition of simplicity, smaller cost, and a better-fitting mouth-

piece. It can be used as an Allis inhaler by detaching the bag, and has the advantage of simpler packing, which may be easily removed and cleaned.

3. *Needle Holder* (Fig. 3).—This instrument is all metal and easily taken apart. Its action is simple, convenient, and best adapted for rapid work. The sliding catch is so nicely graduated that the operator can exert slight or great pressure on the needle, as occasion may re-

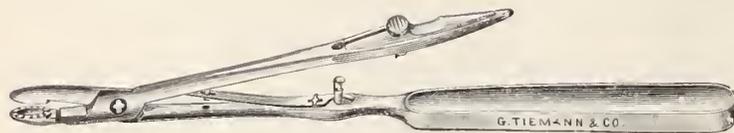


FIG. 3.

quire. While in use its spring prevents the instrument from opening more than a moderate distance. The grasping surface is hollowed for curved needles, and has a groove for Hagedorn needles.



FIG. 4.

4. *Artery Forceps*.—Figs. 4 and 5 represent the forceps in use at Mt. Sinai Hospital, both plain and bull-dog. They have been perfected from time to time, and are now probably the most reliable and con-



FIG. 5.

venient forceps that are made, especially for rapid operating. They have the same useful thumb-slide as the needle holder. They are easily cleaned.

5. *Miscellaneous*.—(a) The sliding catch was found to be so convenient that I have adapted it to the fixation forceps for the eye and to other catch forceps.

(b) The forceps ordinarily used for everting the lids in "grattage for trachoma" frequently cuts the edge of the cartilage. I have had one made with a modification which overcomes this objection.

(c) Bandage cutter: This consists of a large, wide, thin-bladed knife and a miter-box. The bandage is rolled wide and then cut into two or more bandages, according to the width required. It is a labor-saving machine.

## Miscellany.

**The Mechanism of the Mammalian Limb.**—The *Boston Medical and Surgical Journal* for March 17th contains the following lecture by Professor Harrison Allen, delivered before the Academy of Natural Science of Philadelphia:

In all animals the limbs are adapted for locomotion in one of three ways, and each of these is in fixed relation to the plane of support—the first, by which movement is made through air; the second, by which it is made through water; and the third, by which it is made on the ground. Observe, we speak of motion in air, in water, and on the ground. Flying and swimming mammals are surrounded by the medium through which they move, whereas in terrestrial mammals the limb is *on* the ground. The few exceptions that can be made to this statement will not interfere with its truth in general. Again, the size of the limb (notably the foot) in its proportion to that of the body decreases as we pass from the flying to the walking animal.\* Thus the wing of

\* It is curious that we have one phrase to express motion through the water, which is the act of swimming; one phrase to express motion

the bat in proportion to that of the body is immensely larger than are the paddles and flukes of a whale or seal, and both of these, again, are larger than the foot of any of the terrestrial animals. In a word, the size of the limb disposed for progression is in direct ratio to the density of the medium through or on which the animal moves.

Let us examine the skeleton of the dog with reference to the relation which the limbs have to each other, and to the influence which is exerted upon them by the weight of the head and spine. We notice, in the first place, that the anterior extremity is supported entirely by muscle; for we do not acknowledge that limbs with clavicles are better adapted for support than are those without these bones, since when the extremity is fixed at a small movable point to the breast bone it gives little or no assistance to the terrestrial movement. Indeed, the clavicle does not appear until

the limb is adapted for kinds of motion with which terrestrial planes of support have nothing to do. Now, in order that the anterior limb be firmly supported, its motions precisely defined, its strength as well as its mobility rigidly preserved, these muscles must be of enormous size and power. We find that the lines of origin of this muscle-mass are secured from a large region—namely, the back of the skull, the side of the chest, the sternum, the vertebral aponeurosis, and even, in some forms, the hip bones. All the muscles which thus arise are in the forms of sheets, either simple or folded once, twice, or three times. Often from a sheet we may have ribbons evolved, or from a second sheet bandage-like layers, but never thong-like or cable-like bands. These sheets are wonderfully rich in nerves, and extend to, and partially imbed, the shoulder blade so that no part save that which lies directly at the shoulder joint is free. They extend down along the arm at varying distances, always reaching as far as the humerus, and not infrequently the wrist.

How different is everything in the hind limb! The hip bone is fixed to the line of the spine; and the limb, not being supported by muscle-masses, has in every part an entirely different aspect from that of the front limb, and the muscles which do arise from the line of the spine are confined to a surface scarcely any larger than that of the hip bone, and act, of course, not on the part which is homologous to the scapula, but on the lower limb segments. They show slight disposition to extend forward—for example, as in the *psaos*—and scarcely any to extend backward along the caudal vertebrae, yet they preserve the same tendency, as do the fleshy masses of the anterior extremity, to send bundles down—that is, distally—to reach in most forms to points as far as the knee or even the ankle. Since the nerves are more numerous in the sheet than the spindle forms of muscles, it follows that the nerves going to the posterior extremity are relatively fewer than those going to the anterior.

Let us retrace our steps a moment to consider the two limbs from an entirely different point of view than the one above accepted. Assuming that vertebrate life found its first expression in aquatic animals, and remembering that the most important feature in the life of aquatic animals is the means by which the mechanism of respiration is adapted to the medium of water, it follows that problems of the mechanism of the limb in aquatic creatures will be essentially different from air-breathing forms, inasmuch as they all possess respiratory organs, which are fixed to the sides of the neck, or at least to the region back of the head, since in some types, as the fishes, there is no true neck. It will be at once seen, accepting as correct that an anterior extremity demands for high degrees of efficiency an extended surface for the origin of its muscles, that much of such surface is lost in gill-bearing vertebrates, and it is probably true that this accounts for the fact that no such forms possess large anterior extremities. Take, for example, the proteus type of water-newt, which is the best expression known of this phase of development. We have here the gill-arches in front of the small anterior limb, and the chief motion is ob-

through the air, which is the act of flying; but no one phrase to express motion on the ground; the last-named motion being included in such terms as the acts of walking, running, leaping, etc.

tained by the action of the long flexible tail rather than by the limbs. In the frog the gill-arches indeed disappear, yet even here the anterior limb remains of small size.

In mammals the relation existing between the motion of the anterior extremity and the respiratory act must be remembered. It is not accidental, I am sure, that such an extremity is placed at the side of the front of the thorax. The act of breathing is assisted by many of the muscles which move the anterior extremity, whereas none of the posterior have any connection with respiration. The posterior extremity, on the other hand, is held to the line of the spine by a fixed pelvic girdle. The exceptions to this rule are so unimportant that they can not be separately treated. Not only is each hip bone fixed to the side of the trunk, but is also joined to its fellow at the pubis (bats often excepted, and seals always), and the relations of both bones are held to be, not with respiration, but to the functions of the organs of the abdomen, especially to the rectum and the organs of generation.

We have seen that the shape of the limb is in relation to the density of the medium through which it is used, and now we will notice that in terrestrial forms the motions of the limbs hold an equally exact relation to the center of gravity of the body. In the most rapid motion of the terrestrial type the front limb can retain its plane of support on the ground until the trunk has passed along so far as to bring the center of gravity in a line which will pass vertically upward through the foot. In a subsequent attitude of support the hind limb can reach forward as far as or even beyond this line.

It is a remarkable circumstance that both in the anterior and posterior feet the ground is reached by the outer border of the foot, and not, as one would suppose at first sight, by the foot being brought down in a horizontal position. In all quadrupeds the outer border of the leg and the outer border of the foot receives distinct nerves. In the fore limb it is the ulnar, in the hind limb it is the musculo-cutaneous and short saphenous nerves. The outer border is further often adorned with fringes of hair or other appendages either in the form of scutes, warts, or of special folds of skin. In a word, the outer border of the foot and leg, taken as a whole, is apt to be distinct from the rest of the body, not only in the way it is used in progression, but in its domination of nutritive processes.

The cycle of movement of the foot in the act of walking is something as follows: The foot in the first stage—that is, before being brought to the ground—is in a position midway between pronation and supination. The outer border as it reaches the ground is held in this position but for an instant, since the body surging forward by the aid of the other three legs soon brings the main lines of weight upon the foot, which now rests on its widest surface of contact. The impact is somewhat gradually transferred to the inner border, along which, when the main body weight is beyond, the foot is lifted from the ground.

It is noteworthy that when used in any other way except for support on the ground (I mean by this, firm contact against a resisting terrestrial surface), limbs of all mammals resemble one another; for example, forms so distinct in systems of classification as the sloth, the bat, the seal, and the duck-mole are associated in one respect—namely, by the absence or diminution of impact of the several parts of the limbs. The characters of the bones of the arm and thigh, since they do not support the body on the ground, are almost exactly alike in the sloth and the bat. In like manner the general outline of the scapula in man, the ape, the kangaroo, and the jumping mouse conform to a single plan—that is to say, the suprascapular fossa is narrower than the infrascapular—since in none of these animals is the anterior extremity used for support. Likenesses which are due to strain, as in the bat and sloth, are recognizable; as well as those due to adaptation of the anterior extremity to prehension, as seen in men and the apes; or those due to adaptation to the swimming habit in creatures so far apart as the duck-mole and the seal; but all these, nevertheless, may be associated by a merely negative character—namely, the absence of impact.

When walking with a closed umbrella, using it as a cane, one brings the ferrule down on the ground at every step. A leg of a living animal periodically adjusted to the ground like the closed umbrella is said to be modified by *impact*. In a word, it is impact that takes place

in the umbrella every time it is brought to the ground. When the umbrella is held in mid-air and opened, the movement is independent of impact. An animal using its anterior extremity in a similar manner (as in a bat unfolding its wings for flight), the several parts are said to undergo *strain*. The difference between impact and strain in a general way implies a difference in the method of progression—that is to say, the difference between strictly locomotor and prehensile use.

I will now attempt to make an application of the above-stated facts, which I fear some will think radical. I allude to the study of the causes of certain fractures in the human body. May I venture the opinion that without an understanding of the mechanism of the limb in the lower animals the aetiology of lesions of the limb in man can not be explained? The following is an example of a lesion through strain: A sailor falling from the deck of a vessel to the bottom of an open hold, catches at a rope for support; he sustains himself but for an instant; he feels a sharp pain in the region of the shoulder; he lets go his grip and again falls. Examination shows that he has fractured his shoulder blade.\*

Now, the man has done exactly what a monkey will do many times a day in the forest, as he springs from swaying vine to pendent bough; but the animal incurs no risk to the shoulder blade or to any other bone. The man has attempted something, in an excursive way, to which his structure appears to be adapted, but in the attempt he fails and incurs injury. Unless an analysis of such a lesion can be reasonably undertaken by comparing the manner in which this act can be safely performed with that which results in disaster—in a word, of a comparison of the parts in a monkey and in man—no exact clue to the fracture can be vouchsafed. Let me also invite your attention to a lesion by impact. Sir Charles Bell has drawn the figure of a man on a stumbling horse; the man is in the act of being thrown forward. The position of the anterior limb of the horse and that of the arm of the man are the same. In an instant afterward both limbs will come to the ground, the horse's to enter into the second stage of the foot's normal cycle, the man's to break. In placing his anterior extremity forward as though it was well adapted to move on the ground (though it has long since been adapted for an entirely different class of work), he applies it for a purpose to which it is in reality unfitted, and disaster ensues.

I have been interested in studying the position of the hand in fracture at the lower end of the forearm. The text-books teach that the hand comes to the ground directly in the middle, or on the thumb side. I have concluded, when the body falls prone, that the hand comes down on the little-finger side, as is normally the case in the lower animals. An examination of the specimens preserved in museums has convinced me that this assumption is just as capable of explaining the deformation as is any other, and is sustained in addition by an examination of its literature. A short time ago I stumbled and fell. I instinctively threw the right hand forward to break the force of the fall. I found when I examined the parts that my hand was bruised along the little-finger side, and the clothing soiled on the corresponding part of the forearm. In the explanation of a lesion, created as it is by an error of impact, the line of reasoning essential to it is quite different from what is met with in strain; but the problem suggested is like it in one regard, that it is profitable to the study of the manner by which the parts of a limb adapted for strain are easily disadjusted when called upon to perform the duties of impact, and also like it in another way that it can be best explained by a knowledge of comparative anatomy.

**The American Medical Association.**—The committee appointed at the last meeting to consider the best means for promoting the prosperity of the sections of the association will hold an adjourned meeting in the Hotel Cadille, Detroit, Mich., on June 6th, at 3 p. m. Members of the committee are requested to notify the chairman of their intention to be present at this meeting. The committee would esteem it a favor if each member of the association would communicate in writing his or her views concerning the best measures for promoting the development of the sections. Such communications may be sent to the chairman of the committee, Dr. John S. Marshall, No. 9 Jackson Street, Chicago.

\* Dr. Joseph Leidy. *Proceedings of the Philadelphia County Medical Society*, 1891, p. 73.

**Mortality in Cities in the United States.**—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for March 18th:

CITIES.	Week ending—	Population, U. S. Census of 1880.	Total deaths from all causes.	DEATHS FROM—									
				Phthisis pulmonary.	Yellow fever.	Small-pox.	Varicella.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.		
New York, N. Y. ....	Mar. 12.	1,515,301	919	102				8	31	31	18	8	
Philadelphia, Pa. ....	Mar. 5.	1,046,954	514	65					14	19	18	2	
Brooklyn, N. Y. ....	Mar. 12.	806,443	384	51					1	17	15	3	
St. Louis, Mo. ....	Mar. 12.	451,770	160						2	3	1	1	
Boston, Mass. ....	Mar. 12.	448,477	216	28					3	7	8	1	
San Francisco, Cal. ....	Mar. 5.	298,997	136	21					3	3	6	2	
Cincinnati, Ohio. ....	Mar. 11.	296,908	107	17					3	1	6	2	
Cleveland, Ohio. ....	Mar. 12.	261,353	97	10					2	1	3	1	
Pittsburgh, Pa. ....	Mar. 5.	238,617	63	8					6	2	5	1	
Washington, D. C. ....	Mar. 12.	230,352	118	13					2	2		2	
Detroit, Mich. ....	Mar. 2.	205,876	92						11	3			
Newark, N. J. ....	Mar. 5.	181,830	131	16	1				6	13	2	1	
Newark, N. J. ....	Mar. 12.	181,830	123	13					2	17	3	1	
Minneapolis, Minn. ....	Mar. 12.	164,738	37							3			
Louisville, Ky. ....	Mar. 12.	161,129	64	9					2				
Rochester, N. Y. ....	Mar. 12.	133,856	66	7				1		6			
Kansas City, Mo. ....	Mar. 5.	132,716	38	9						2	1		
Providence, R. I. ....	Mar. 12.	132,146	63							1			
Denver, Col. ....	Mar. 5.	106,713	30	6				1					
Denver, Col. ....	Mar. 12.	106,713	30	6					2				
Toledo, Ohio. ....	Mar. 11.	81,434	20							2			
Nashville, Tenn. ....	Mar. 12.	76,168	27	4									
Fall River, Mass. ....	Mar. 11.	74,298	38	5						1	1		
Portland, Me. ....	Mar. 12.	36,425	16								1		
Binghamton, N. Y. ....	Mar. 12.	35,065	11	3					1				
Mobile, Ala. ....	Mar. 5.	31,076	15	2									
Mobile, Ala. ....	Mar. 12.	31,076	17	2									
Galveston, Texas. ....	Mar. 4.	29,084	12										
Anburn, N. Y. ....	Mar. 5.	25,858	9	2				1					
San Diego, Cal. ....	Dec. 12.	16,159	3										
San Diego, Cal. ....	Jan. 10.	16,159	6										
San Diego, Cal. ....	Mar. 5.	16,159	5										
Pensacola, Fla. ....	Mar. 5.	11,750	3										

**Parisian Surgery.**—In one of a series of articles entitled Clinical Notes in the Paris Hospitals now appearing in the *British Medical Journal*, the writer, Mr. Ernest Hart, who is the editor of that journal, says:

The leading surgeons and professors of the French hospitals have the advantage, for the most part, of very complete arrangements for teaching; the complete control of a highly skilled staff of *internes*, who serve for three years, and when they are professors of the Faculty, of *chefs de clinique* of thorough training and proved high accomplishment (who serve for five years); their own operation theatre attached to their wards, in which they perform a whole series of operations on their clinical days, uninterrupted by the intervening operations of any other surgeons. There is a staff of nurses and dressers trained to the methods and special views of the surgeons, so that whatever there is of individuality in the views and methods of the operator, and whatever is special to him in his dressings and instruments, may always be found thoroughly carried out. The surgical services, too, are generally larger and more active than those in the London hospitals; and the training of the surgeons who have passed through a long course of competitive examinations extending up to, and often beyond, the age of thirty, and even into middle life, has accustomed them to the art of teaching in a logical and systematic manner. As a rule, in an active surgical clinic, half a dozen operations may always be seen performed in succession, and each of these is illustrated by a short preliminary discourse, explaining the grounds for the diagnosis, the surgical and anatomical relations, and the steps of the operation about to be performed; at each stage of the operation, and while operating, the surgeon explains his procedure, or any modification of it which he finds necessary to adopt; and at the close of the operation he describes the result attained, and comments on the course of events. The French hospital surgeon or professor is trained to this end from his earliest career. Unless he is capable of lucid, orderly, and thorough exposition on almost any subject within the range of his art, he can never hope to survive the numerous competitive trials of the kind which he has to pass through at each successive grade of appointment, from that of *interne* to *chef de clinique*, *chirurgien du bureau central*, *agrégé*, etc. No man who was not laborious, studious, conscious of ability, and capable

of the rapid improvisations and dissertations required at every stage, would embark on a career which demands an average of at least ten to fifteen years of continuous work and preparation, and even then only the fittest survive. So that the surgeons, lecturers, and professors can at least all of them operate, lecture, and teach with approved skill and trained powers of exposition and large resource in acquired knowledge of the academic as well as the practical kind.

The surgical service of M. Péan, at St. Louis, is one of the most active in Paris, and his operating days in the amphitheatre attract a large number of students and of practitioners whose attendance is rewarded by a fluent and instructive clinical commentary as well as brilliant operations which include methods of proceeding, many of them invented and most of them modified by this able and eminent operator. On the day on which I was present in the theatre of St. Louis in the middle of the Christmas vacation there were fewer students than usual, but the cases for operation were as usual numerous, and the whole proceedings were sufficiently characteristic of the special features of the clinical and surgical teaching in the operating theatre to make me think that a pretty full report of the day's work would be of interest as illustrative of a highly instructive method of operation and of demonstration.

**To Contributors and Correspondents.**—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desire to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

THE  
DIAGNOSIS OF PANCREATIC DISEASE.\*

BY JOHN S. THACHER, M. D.

THE unsatisfactory position which the pancreas holds in the minds of clinicians is indicated by the scant attention which the best modern works on clinical medicine give to the consideration of its diseases. Fagge's book does not discuss the subject at all. Strümpell gives thirty lines to the symptoms and diagnosis of the various diseases of the pancreas, and Flint gives fifty. Briscoe, in one of the most recent English text-books on medicine, says that "very little of clinical value is known about the diseases of the pancreas, and it would be a waste of time to discuss their diagnosis." Friedreich, in von Ziemssen, says that "the pancreas does not possess any function the suppression of which would produce appreciable symptoms." This being the position of the best representatives of the profession even up to quite recent times, while indicating a conspicuous need, it would discourage us from any attempt to clear up our ignorance in this direction, were it not that several interesting observations have recently been made bearing upon the subject.

The pancreatic functions which are best understood are the digestive functions, and indeed until very lately these were the only ones which it had been even suspected of. Of all the digestive fluids the pancreatic juice is the most important, doing a greater work upon a greater variety of food elements than any of the other fluids of the alimentary canal. It would seem, then, that any disease of this organ, interfering with the production of this juice, would promptly and conspicuously manifest itself, and we would expect to find proteids, starches, and fats appearing undigested in the *feces*, and the patient's general nutrition distinctly interfered with. But both clinical and experimental observations on this point disappoint our *a priori* expectations. As regards starch, while Abelmann's studies upon a dog whose pancreas had been removed indicate a marked diminution in the digestion and absorption of starch, yet there are enough cases pointing otherwise to make Leo briefly dismiss the subject with the words that "the digestion of starch is in no way affected by the absence of pancreatic juice."

As regards proteids, there have been some experiments and some clinical observations showing that a pancreatic lesion may lead to the presence of abundant meat fibers in the *feces*. But the experiments of Müller and clinical experience seem to teach us that Leo is right in saying that "the effect on the digestion of meat is not sufficiently marked and constant to be of any value for the diagnosis of pancreatic disease." In the fats we have something to which most clinicians have pinned their faith as about the only reliable

indication for the diagnosis of these diseases, and it can not be denied that in several cases an abundance of fat has been passed from the rectum, and certain experiments, notably those of Abelmann, point in the same direction; but the basis of the belief in this diagnostic point has, on further observation, become much weakened. As Leube states, "an unusual abundance of fat in the *feces*, which one would expect in all diseases of the pancreas, and especially in total degeneration of the gland, is usually not found." Or, as Leo puts it, "it has been shown that the view often heretofore expressed, that an absence of the pancreatic juice from the alimentary canal produces an abundant presence of fat in the *feces*, is incorrect."

There have lately appeared the detailed reports of several interesting experimental observations upon the absorption of fats from the alimentary canal, and the influence upon this of the pancreatic juice and the bile, with quite uniform testimony to the predominating influence of the bile, leading us to an opinion that if there be simply an absence of the pancreatic juice from the intestines, while the bile is normal, the absorption of fats will ordinarily be complete.

The experiments of Müller show that where the bile is cut off from the intestines, while the absorption of starch and proteids is very little or not at all affected, the absorption of fat falls from about ninety per cent. to between forty-five and twenty per cent., and, on the other hand, that in the absence of pancreatic juice the absorption of starch is not affected, the digestion of proteids is a little less complete, and no effect upon the absorption of fat could be established.

Munk's experiments on a dog with biliary fistula show a great diminution in the absorption of fats; and, again, the experiments of Dastre, while showing a slight diminution in the absorption of fat in the absence of pancreatic juice, show a more marked effect in the same direction from the absence of the bile. Moreover, in none of the cases of pancreatic cyst collected by Treves did fatty dejecta occur, and according to Grandmaison they are observed more often in cancer, which is generally close to if not involving the duodenum, than in other pancreatic disease. Taking these facts into consideration, and also the fact that lesions of the pancreas are often associated with obstruction of the biliary duct, it seems possible that in many of the cases where fatty dejecta have occurred, they may have been due to shutting off of the bile rather than to the absence of pancreatic juice.

Our practical clinical conclusion, then, as regards the presence of proteids, starch, or fat in the *feces* as a basis of diagnosis, must be, that while they may occasionally occur in cases of pancreatic trouble, and when occurring in abundance would be one factor in the diagnosis, yet they usually do not occur, their absence does not by any means indicate a normal condition of the pancreas, and the presence of fat would point more strongly to some trouble of the liver or its ducts.

One point, however, associated with this, is perhaps on its way toward establishment, and that concerns the dimin-

\* Read before the Hospital Graduates' Club, at its fifty-fourth meeting, November 19, 1891.

ished ratio of the fatty acids to the neutral fats. Müller has shown, from three cases, that the ratio is in diseases of the pancreas diminished from the normal eighty-four per cent. to forty per cent., and Leo says that "the saponifying power of the pancreatic juice is distinctly affected, which gives us the only means of positive proof that the pancreatic juice is not doing its part in the intestinal digestion." This point, however, loses largely from its practical value because of the necessity of elaborate quantitative tests which could not be undertaken except by an experienced chemist.

A further practical point has recently been suggested, and possibly further observations will show it to be well taken. Walker maintains that the presence of the pancreatic juice is necessary to the normal pigmentation of the fæces, and that the absence of this juice, as well as the absence of the bile, may produce clay-colored stools.

This is based on two cases. In the first case the patient had light-colored stools without jaundice, the liver on autopsy being normal and the ducts pervious. But there were epigastric pain and diabetes, there were fatty fæces, and at the autopsy the pancreas was found much enlarged, fatty, and fibrous. In the second case the patient had had stone-colored stools, without jaundice or other symptoms of liver trouble, it and its ducts being normal at the autopsy; but there were greasy dejecta, also glycosuria, and at the autopsy the duct of Wirsung was found involved in the cicatrix of an ulcer.

The point suggested to Walker by these cases he also supports by certain further considerations. In the first place, the coloring matter of the bile is not the same as that of the fæces, and is therefore altered chemically by some agent, possibly by the pancreatic juice.

Again, as Claude Bernard observed some thirty-five years ago, "the bile only colors matters a very light yellow, while with the pancreatic juice the bile takes a decided brown tint."

Again, meconium, which contains bile, does not, however, show the usual fæcal color, and it is known that the pancreatic juice does not flow until after birth.

And again, certain drugs which increase the fæcal pigmentation and relieve symptoms of indigestion, are shown by experiments not to increase the secretion of bile.

While these cases and arguments of Walker's can hardly by themselves force us to accept the suggestion based upon them as proved, it seems to be sufficiently worthy of consideration to be borne in mind in suspected cases for further demonstration or disapproval.

Before leaving this discussion of diagnostic aids based on the digestive functions of this gland, let us notice this further point which has been made by Piseni.

The pancreatic juice effects the change of proteids into peptones, and of these into leucine and tyrosine, from which, by decomposition, are produced skatol, phenol, and especially indol, which latter is in turn the source of indican. From this it would follow that pancreatic disease would lead to the diminution of indican in the urine.

Piseni's experiments show that ligation of the pancreatic duct reduces the indican of the urine to a quarter of its normal quantity; but, as Leube states, "since human urine

in normal condition contains so scant an amount of indican, its absence from the urine or its presence in traces is only of diagnostic value in cases where, from the nature of the attack, an increase of the indican in the urine was to be confidently expected"; or, as Leo puts it, "since tumors of the stomach and intestines are generally accompanied by a marked increase of indican, an epigastric tumor is probably pancreatic if the indican is not increased or is diminished."

Lipuria has been mentioned as a symptom of diseases of the pancreas, but this is certainly so rare as not to merit our attention.

Until quite recent times, experiments have revealed no further functions of the pancreas than the digestive ones; but during the few years just past both experimental and pathological observations have been rapidly accumulating which now oblige us to admit at least the very plausible showing in favor of a further and important office for this gland.

It is true that even in the last century the coincidence of diabetes with pancreatic affections was noted. But Bouchardat was the first to propound a theory of the pancreatic origin of diabetes. Lanceraux, later, supported this position vigorously. But it was not until the experiments of Mering and Minkowski, reported in 1889, showed that total extirpation of the pancreas was followed by all the characteristic symptoms of diabetes, that the idea of an essential connection between this organ and this disease began to be generally and seriously entertained.

Of twenty-one dogs upon which they operated, three died within twenty-four hours without urinating; the other eighteen all excreted sugar, and the condition after complete removal of the pancreas was "not a simple temporary glycosuria, but a genuine diabetes mellitus, resembling in all respects the most severe form of this disease in man, even to extreme hunger and thirst, marked polyuria, emaciation, and weakness."

Lépine also extirpated the pancreas from several dogs, and found that in all those in which the autopsy showed complete removal there was marked and increasing glycosuria.

Dominicis has done thirty-four extirpations with less constant results, and yet, of these thirty-four animals, twenty-one had glycosuria, and all showed progressive emaciation, polyuria, polydipsia, and polyphagia, with various affections of the skin.

Remond's experiments included total and partial extirpation and ligation of the excretory ducts, and in each set he sometimes obtained and sometimes failed to obtain glycosuria.

Hedon has operated on twenty-three animals. The first ten died promptly, but improved technique resulted in the survival of the other thirteen, and they all passed glucose in their urine.

Arthaud and Butte also report similar results. They say: "We have repeated the experiment of total removal of the pancreas, and we have obtained results absolutely identical with those reported by Minkowski and von Mering and afterward by Lépine."

Renzi and Reale reported to the Tenth International Congress that in their experiments total removal of the pancreas was followed, in seventy-five per cent. of the cases, by glycosuria, and made the further interesting announcement that diabetes could be experimentally produced by removal of the duodenum or of the salivary glands.

It is of interest that incomplete extirpations have often failed to produce glycosuria, a remnant of little more than one tenth of the gland being enough in some cases to avoid this result, recalling analogous experiences with myxœdema after thyroidectomy.

The experiments which we have just reviewed conflict, it is true, with many former experiments on the pancreas, but they were largely ligations of the ducts, and the attempted extirpations were many, possibly most of them, incomplete. If, for instance, we look over Martinotti's reports of the operations from which he drew his decidedly negative conclusions, we find that remnants of the organs were revealed in three of the four cases, and that in the fourth, where none was left, no examination of the urine is reported, but there was marked emaciation.

Klebs and Munk failed to obtain diabetes by ligature or excision, and referred the diabetes observed by others to lesions of the solar plexus. But Klebs has since expressed his adherence to the pancreatic explanation; and, moreover, Peiper's cases of solar-plexus extirpation from fifteen animals, of which eleven survived, showed no diabetes.

Experimental observations are then very emphatic in support of the causative relation of pancreatic lesions to diabetes.

Nor are post-mortem observations silent on this question. Saundby's carefully detailed reports of the changes in the various organs of fifteen cases of diabetes in man which came to autopsy, show that the most constant and marked was an atrophy of the pancreas, being present in seven of the fifteen, and in all of the typical wasting cases. In four others the gland was firm and fibroid, and in only four did it appear normal.

Baumel professes to have found either gross or microscopic lesions in all the cases of diabetes which he has investigated. And Lanceraux reports twenty consecutive cases of the severe wasting variety, his "*diabète maigre*," which have come under his observation. Of these, fourteen have died, and they have all shown abnormal conditions, obstruction of the ducts, sclerosis, or steatosis. Frerichs reports thirty cases, of which twelve showed an abnormal atrophy. Senator says that one half show pancreatic lesions; and various others have recorded isolated cases illustrating the relation.

My own experience regarding this question has been this: During my connection with the Presbyterian and St. Luke's Hospitals, five autopsies have been made in those institutions upon well-marked cases of diabetes. To these I will add a case from Dr. Draper's practice, in which I examined the organs, and a case in which the autopsy was made by my associate, Dr. Tuttle. These include all the cases clearly of this nature which have during this period come to autopsy within the range of my direct investiga-

tion, and in all seven distinct pathological conditions of the pancreas were found.

One was of about one third the normal size, with a flabby atrophied appearance on gross examination. Another was so atrophied that only minute traces of the glandular tissue could be found. Another was of about two thirds the normal size, with apparently an increase in the interlobular connective tissue. Another was of about half the normal size, firm, and containing hardly any gland tissue except in the head, the rest being only dense connective tissue. Microscopical examination showed an extreme increase in the connective tissue at the expense of gland tissue, a good deal of proliferative endarteritis, and in places large numbers of infiltrated leucocytes. Another was a little larger than the usual size of a pancreas, but, on microscopical examination, showed a distinct, though not very abundant, increase of connective tissue, considerable degeneration of the gland cells, and a marked invasion of the gland by adipose tissue. Another, while not appearing small on gross examination, showed under the microscope extreme invasion by adipose and much increase of connective tissue, while the last case had dilated ducts which contained numerous calculi, the tissues being cirrhotic and atrophied.

In two cases not included in this group the patients were under observation for only six and twenty-four hours—one in coma all of the time and the other a considerable part of the time, so that no histories were obtained; but there was sugar in the urine, and yet the pancreas showed in each case but very slight, perhaps I should say doubtful, lesions.

On the other hand, I have examined the pancreas from a large number of miscellaneous cases, and while slight changes of the kinds related above are sometimes met with, still it is rare to find even a trace of any pathological abnormality.

It is true, on the other hand, that very many cases of pancreatic disease show no sugar in the urine. Of Fitz's seventy cases of acute and suppurative pancreatitis and pancreatic hæmorrhage, in only one is sugar reported—a very small proportion, even after allowing for the many whose urine was probably not examined because of the brevity of the attack or for other reasons.

Treves's collection of pancreatic cysts were accompanied by glycosuria only "sometimes," and it seems to be in but a small minority of cases of cancer of this organ that the symptom is observed.

And yet, considering all the experimental and pathological observations, we seem forced to respect the idea of a causal relation between pancreatic disease and diabetes, and to admit that for diagnostic purposes diabetes is of some value, pointing to be sure rather to chronic pancreatitis, lithiasis, cirrhosis, degeneration, and steatosis, than to tumors or acute lesions.

Of the suggestions offered to explain how the glycosuria follows from the absence of the pancreas, the most interesting, and the most reasonable in the scant light as yet thrown on the subject, is that which supposes a normal glycolytic ferment produced by the pancreas, thrown into the circulation and necessary to the utilization of glucose.

The blood, when no longer supplied with this, would evidently find itself overloaded with sugar, which it could no longer dispose of. The experiments of Lépine and others bearing on this theory make very pleasant reading, but the interesting nature of the recent observations already described have led us far enough in the discussion of the glycosuria symptom.

Pain in the epigastrium is generally present in acute lesions, often severe and of a colicky or neuralgic character. It is sometimes spoken of as cœliac neuralgia. In the case of cysts the pain is usually slight; in cancers, not, as a rule, prominent; in cases of lithiasis or chronic inflammation it is generally absent; and is probably never caused by steatosis or atrophy.

Jaundice is frequently produced by cancer of the pancreas, as would be expected from the intimate relation between the common bile duct and the head of the gland, and often helps to locate an epigastric tumor. It is rarely produced by cysts, and not at all by the other pancreatic lesions.

Ascites and enlargement of the spleen are frequently caused by the pressure of a cancer upon the portal vein, but not by a cyst or by other lesions.

It should be borne in mind that hæmorrhages into the intestine and stomach sometimes occur when the pancreas is diseased. It has been recorded in some cases, and I have happened to see two instances of hæmatemesis due to cancer of the head of the pancreas. In each case the tumor had invaded the wall of the duodenum, producing ulceration, from which the hæmorrhages are supposed to have come.

Compression of the abdominal aorta, with or without pulsation, is an occasional symptom of pancreatic tumor.

Compression of a ureter is rare.

The skin is said to be sometimes bronzed; it is occasionally dusky or yellow.

As regards further indigestion symptoms, there may be loss of appetite, nausea, eructations of gas, a sense of fullness in the epigastrium, and diarrhœa or constipation. Mental dullness and depression are common.

In acute lesions, in addition to the severe pains already mentioned, there are apt to be vomiting and collapse, sometimes fever. A slowing of the pulse is sometimes noticed, particularly in cases of hæmorrhage, and in these, too, death usually comes very quickly, often instantaneously.

Physical examination for a pancreatic cancer has failed to find it in about half the cases, though the gland can sometimes be felt even when normal. When found, it is in the epigastrium, at the mid-line or a little to the right of it, and is, as a rule, very slightly or not at all movable.

A cyst occupies the same position, but is often large, may fill the abdomen, and is generally immovable, round, with distinct outline, tense and elastic, but fluctuation can not always be made out. It usually enlarges rapidly, and has been known to discharge itself into the intestine.

The cyst fluid is generally turbid, brownish, odorless, of rather high specific gravity, alkaline or neutral, and contains albumin, but no urea and no bile. It will generally, but not always, emulsify fats and change starch into sugar.

## TREATMENT OF ACUTE OSTEOMYELITIS.\*

By ELLSWORTH ELIOT, JR., M. D.,  
ASSISTANT SURGEON IN THE VANDERBILT CLINIC;  
ASSISTANT DEMONSTRATOR OF ANATOMY  
IN THE COLLEGE OF PHYSICIANS AND SURGEONS.

In the treatment of surgical affections, as in the treatment of all medical troubles, one should always endeavor to eliminate the cause of the disease.

When for any reason this can not be accomplished, our treatment, conducted on purely symptomatic principles, becomes ineffectual. Nature may come to our assistance and restore the patient to health, with full return of all the patient's functions; but, although this happy result is moderately frequent in certain medical diseases, it must be admitted by all that unskillful treatment in surgery too often leads to a tardy convalescence, temporary, and at times permanent, loss of function or serious deformity, with perhaps the loss of a limb, and occasionally even loss of life itself.

Of no disease is this more true than in acute osteomyelitis, and in calling your attention to its treatment it will not be inappropriate to consider briefly its cause and the resulting pathological condition.

For years before bacteriology played its present important rôle in pathological surgery, acute osteomyelitis was considered an infectious disease simply from the resemblance of its symptoms to those of diseases whose infectious character was undisputed. Bacteriological investigation has substantiated this fact, and to-day at least two distinct forms of micrococci—namely, the *Staphylococcus aureus* and *Streptococcus albus*—have been found, both separately and together, in osteomyelitic exudations. These have been cultivated in suitable media, and have, by inoculation, reproduced in animals a pathological condition similar to that existing in the primary disease.

Undoubtedly these organisms gain access to bone through the circulation. Why they should attack this structure in preference to other organs is not clearly understood. Various authors mention a "*locus minoris resistentiæ*," indicating by this term that certain portions of the body offer less resistance to the onslaught of germs than others, every part of the body being equally subjected to their attacks. Certainly, whenever the integrity of bone is disturbed by traumatism, that particular portion is more likely to become the seat of an osteomyelitic process than any other part of the bone. Then, too, in children, who are most frequently subject to this disease, the primary foci are found near the epiphyseal line, and surely this part of the bone, being constantly in an active state of development, is less capable of resisting the attack of germs than other more perfectly organized portions, for the blood-vessels in the epiphyseal vicinity are imperfectly developed and afford more abundant facilities for the lodgment and collection of germs than do similar channels in perfectly vascularized bone. When the inflammatory process is once excited by the presence of these germs its onset is severe and its course is rapid. This is readily accounted for by a

\* Read before the Hospital Graduates' Club, December 17, 1891.

consideration of the normal anatomical peculiarities of bone, together with the virulent qualities of the micrococci.

Bone, to fulfill its function of support, must be practically unyielding. Consequently the walls of the cavities that contain the blood-vessels are inexpandible. The exudation resulting from the inflammatory process through the walls of these blood-vessels collects between the bony, unyielding wall of the cavity and the yielding wall of the blood-vessel. The force exerted by this exudation soon overcomes the counter-resistance of the arterial pressure in the nutrient vessel, the lumen of which gradually diminishes in size, until finally the blood ceases to flow through it, and that part of bone to which it imparts nutrition dies. This process of disintegration is still further assisted by the comparatively poor anastomotic circulation that exists in bone. To be sure the vessels in the Haversian canals communicate freely, but this is more of a capillary net-work, and is totally inadequate to supply any particular part of a bone which has been deprived of nutrition by the inflammatory process.

It is not, therefore, surprising that acute osteomyelitis, beginning near the epiphysis, should rapidly involve the major portion of the shaft of a long bone, and, on the other hand, it is very fortunate that the epiphyseal cartilage, owing no doubt to its lack of vascularity, should act as a barrier, and so prevent the inflammatory process from involving by contiguity first the articular extremity, and subsequently the joint structures themselves; and it is also very fortunate that after the soft parts immediately overlying the inflamed bone are involved, the capsular ligament of the different joints attached to the bone within the epiphyseal line should, in virtue of its strength, resist the disintegrating character of the inflammatory process, now at its height in the soft tissues, and exclude it from the joint proper.

There is one joint in the body, and that a very important one, which proves to be an exception to this general rule. I refer, namely, to the hip; and it is not difficult to explain this exception if we consider the attachment of the capsular ligament and its relationship to the epiphyseal line. In front this ligament is attached to the spiral line running around the inner aspect of the upper extremity above the lesser trochanter, and behind it is attached along a line at the junction of the outer third and inner two thirds of the posterior surface of the neck, including in its attachment, therefore, the head of the femur, the epiphyseal line, the entire neck in front, and posteriorly the inner two thirds of the neck. Hence any inflammatory process near the epiphyseal line, in extending outward, must soon reach the synovial membrane that lines the inner surface of the capsular ligament and the bone itself within the above limit, and necessarily involve the joint in a suppurative, infectious process. The treatment of this, in itself a most serious condition, demands special consideration, and will be discussed subsequently.

But, although, as we see, the involvement of the joint nearest the focus of inflammation does not usually take place by contiguity, yet in a certain number of cases this same joint, or even others more remote, may become swollen, their synovial cavities filled with a serous or at times

even with a purulent fluid, and subsequently the whole joint may become seriously involved in destructive inflammation.

This condition is readily explained by the fact that the micrococci, having found a favorable soil for development, are multiplying rapidly, and are being carried in constantly increasing numbers by the circulation to the different parts of the body. Whether joints, to which by this way they gain access, become involved, depends upon the kind of micrococcus. It can be incited artificially more frequently with the streptococcus than with the staphylococcus, but as an attack of osteomyelitis is usually due to both of these germs acting together, the occurrence of joint inflammation in this disease is not unusual.

If severe cases remain untreated, the occurrence of metastatic abscesses in the different viscera, especially in the kidney, may result from the lodgment of micrococci in these organs.

With this understanding of the cause of osteomyelitis, and of the serious consequences that may result, it is not difficult to formulate a rational method of treatment which may be applied to the great majority of cases.

In the first place, we should endeavor to prevent a possible attack by suitable prophylactic measures. In all exanthemata and other infectious diseases, when convalescence is established the patient should not be allowed to walk until a considerable interval has elapsed subsequent to the fall of the patient's temperature to normal, and afterward, when walking, the patient should be careful not to subject himself to any blows or contusions, either from coming in contact with furniture or from possible falls, from too sudden exertion, or from any cause whatsoever, no matter of how trivial a character.

When, however, prophylactic measures are not successful in preventing an attack of acute osteomyelitis, or when a case presents itself, apparently spontaneously, without known cause, the proper method of treatment may be a subject of dispute. Some advocate the expectant plan of treatment. Applications of poultices are advised, with absolute rest in bed. Usually the administration of a brisk cathartic follows, and then a general waiting-for-development policy is pursued, which usually means waiting for the soft parts to become involved in suppuration.

It must be said, however, that this general plan of treatment is only employed by practitioners in that class of cases where obscure symptoms make the diagnosis difficult, and that, either when the diagnosis is easy or has been made by skillful men, the radical method of treatment is usually preferred. The expectant plan of treatment is the oldest, and was very generally employed in pre-antiseptic times when operations of all kinds were dangerous; superseded by radical measures, it still shows its influence upon the treatment of this disease, in that surgeons are inclined to wait one, two, or three days before proceeding to operative interference. Delays are dangerous, and more especially in acute osteomyelitis, where every additional hour means just so much more necrosis in the early stages and greater liability to general septic infection in the later stages of the disease. Consequently, now that antiseptics has removed the danger of incisions, it would certainly be a ra-

tional procedure to perform an exploratory operation at the outset, in place of waiting for the symptoms to become of such a marked character that the diagnosis no longer remains doubtful.

If, after such a procedure, the diagnosis is confirmed, further operative means should be resorted to to prevent the death of the bone and the infection of the system. The main indication for treatment may be expressed in one word—namely, drainage, with, if possible, the removal of the original focus of inflammation.

This is accomplished with either a trephine or a chisel, by means of which, as soon as the periosteum has been divided and reflected to one side, the medullary cavity, as well as the cancellous spaces between it and the surface of the bone, are thoroughly exposed by an opening at least an inch long and a quarter to half an inch wide, according to the normal dimensions of the bone affected. This opening should be made in that part of the bone where the inflammatory process is most intense, for the reason that the original focus is situated in this part, and it is desirable that this focus should be removed with a Volkmann spoon, or, at all events, that it should have a free exit, and so be enabled to come away with the discharge as soon as the process of ulceration has separated the dead from the healthy bone beneath.

Great care should be taken that this opening is made close to and on the shaft side of the epiphyseal line, but not through it, in order that the natural growth of the bone may not be disturbed, which, as is well known, depends for its increase in length upon the epiphyseal cartilage.

One or more similar openings may be made at some distance from this, the essential one, in the inflammatory area, but the intervening portions of bone need not be removed, as such a procedure might lead to unnecessary weakening of the bone without insuring any better result. The cavities thus exposed should be well irrigated with a strong antiseptic solution, preferably the bichloride of mercury, and packed loosely with iodoform gauze—the wounds being treated openly. After the application of a heavy Lister dressing, the whole limb should be kept absolutely at rest by immobilizing the joints both above and below the bone involved.

By this means the exudation that has collected outside the walls of the blood-vessels, in the Haversian canals, readily flows into the antiseptic dressing, carrying with it a large number of the micrococci. The blood-vessels, relieved of an enormous pressure, once more are permeable. The bone receives its usual nourishment, and thus practically a "resolution" takes place, except in those portions of bone which, having been deprived too long of their blood supply, are dead and must separate gradually from the healthy bone before granulations can be formed and the process of repair be completed.

The integrity of the epiphyseal cartilage also is preserved by this radical treatment, and the growth of the limb continues undisturbed when convalescence is established. This is of paramount importance, for deformity would surely result if this epiphyseal layer of cartilage were destroyed

and the bone ceased to grow. The degree of deformity depends upon the bone inflamed, and also upon which extremity of this bone is involved. In the humerus or femur disintegration of the cartilage causes merely shortening of the corresponding limb. Inasmuch as the growth of these bones depends chiefly upon the epiphyseal cartilage in the upper extremity of the humerus and the lower extremity of the femur, the amount of shortening with destructive inflammations in this vicinity is very much greater than in case of involvement of the opposite ends of these same bones.

In the bones of the forearm and leg the growth of the corresponding limbs depends upon the development of the cartilages in the upper extremities of the tibia and fibula, but the lower ones in the radius and ulna. Consequently, if any portion of these bones entering into formation of elbow and ankle joints, respectively, are involved, the growth of the limb is but slightly retarded; but if the opposite extremities to those above mentioned are involved simultaneously, the growth of the limb is seriously curtailed. If one extremity alone is involved, and this is the rule, the unaffected bone continues to grow, and very marked lateral deformities of wrist joint, especially, may render the hand useless and demand surgical interference for its relief.

After the primary operation the subsequent treatment of the wound is conducted on ordinary surgical principles. If the disintegrating process has been so extensive as to result in a fracture of the bone, the limb must be immobilized until, after the subsidence of the disease, new bone is formed and firm union takes place between the broken fragments. With the destruction of a large portion of the shaft of a long bone, immobilization must surely be enforced until sufficient new bone is formed to enable the part to resume its normal function without danger of fracture. Ordinarily an interval of from several weeks to as many months must elapse before the bone in which the inflammatory process has occurred can resume its normal function.

In addition to the surgical treatment that we have just described are several indications that demand medical means for their relief. In the earliest stage of the disease pain is not only a very prominent symptom, but also a very disagreeable one, which requires the exhibition of an anodyne, preferably morphine. The patient should naturally be in bed, on a fluid diet, and some benefit may follow the use of various antiphlogistic remedies.

After operative measures have relieved the condition of tension in the bone, the subsequent discharge from the wound is most profuse. Large dressings, with abundant absorbent cotton, are usually well soaked at the end of thirty-six to forty-eight hours. Such a drain upon the patient's system, especially if it exists for any time, must necessarily be followed by rapid progressive emaciation, and demands some supportive treatment, preferably the administration of malt and sherry, in generous amounts, several times daily. The dose can gradually be decreased as the discharge becomes less abundant, and finally stopped altogether when the patient fully regains his lost strength.

In no place in the body is the importance of early oper-

ative interference more clearly demonstrated than in the treatment of acute osteomyelitis of the neck of the femur, near the epiphyseal line. I have previously alluded to the anatomical reasons which render the involvement of the hip joint an absolute certainty, and it is only by an early operation that this can be prevented.

In this class of cases we endeavor to remove the inflammatory focus before the destructive process incited by it has reached the surface of the bone. If this can be accomplished, the periosteum may be preserved, while the inflammatory area is removed *en masse*, and, after new bone is formed, the joint will resume its normal function of support, with, in all probability, a certain amount of stiffness, the operation consisting practically in a subperiosteal resection of the head of the bone. If, however, the periosteum is found in a necrotic condition and bathed in pus, the most thorough removal of the dead bone, with subsequent drainage and irrigation, combined with rest, will alone save the limb, and, after a tardy convalescence, the head of the femur, if not actually dislocated, will be held in place by the comparatively weak support of strong bands of connective tissue, the result of the process of repair.

Unfortunately, in neglected cases, when septic symptoms have developed, our treatment can only be supportive. Large doses of stimulants, with antipyretics, are administered, and certain patients, especially those with a strong constitution, may eventually recover. Such a fortunate termination is very exceptional, and, inasmuch as death does occur from a general infection of the system, certainly that plan of treatment should be followed that has for its purpose the elimination of the micro-organisms that cause the trouble, when these are localized and before they have an opportunity, after great increase in number and under undue tension, of entering the general circulation and terminating the life of the patient.

## MASSAGE AT RAPID OR VIBRATORY RATES.

BY GEORGE H. TAYLOR, M. D.

THE prevailing idea that massage is necessarily manual in mode of application, and therefore limited to the motory resources of a masseur, is an error that has served to restrict the study of the most beneficent phases of this medical recourse. The chronic invalid, even the very feeble, has receptive capacity for rates of massage far beyond that of the medium and comparatively neutral scope of manual power. We have seen that rates of massage much *slower* than the hand can supply corresponds to certain spontaneous or auto-processes of the vital organism, and that these slow rates therefore comply with fundamental therapeutic requirements. But to secure the proper rate, and to adjust its applications to parts of the body difficult of access, mechanism is necessary. This shows that therapeutic advantages may be derived from sources which, without mechanism, are incapable of being even tested. The remedial capabilities of slow massage being thus rendered available in therapeutics, naturally suggests the possibilities which may lie hidden in untried higher rates of the same agent

waiting to be tested, studied, and exposed to professional judgment and service.

Massage at rapid rates—those beyond the limits of the hand to execute—likewise requires the intervention of mechanism for the purpose of multiplying the *rate* of the motor processes. Mechanical adaptations are also required to adjust the applications to the different regions of the trunk and extremities, to adapt the degree of the force to special curative requirements, and to give instant control of the action, especially as regards degree, to the person to whom it is applied, for only by this provision can he always derive agreeable and no other sensations from the applications.

Quick massage is simply *vibration* of the fleshy mass receiving it, without reference to its form, degree, or source. The essential peculiarities of vibration are shortness of the linear extent of the motion, and the consequent frequent reversal of its direction. This causes very numerous *endings* of the motion, which returns over the same line. Vibration may be compared to the blows of an infinitesimal hammer, under continuous and very rapid action. To show the significance, physical and physiological, of this mode of delivering energy is the purpose of the present article.

Apparatus suitable for communicating vibration, quick massage, to the body and its parts admits of considerable variety of form. The physical nature of flesh, being soft, yielding, and elastic, permits vibratory waves to pervade its mass. The action is propagated in flesh as it is in fluids, and reaches all its innermost parts at the same rates and in nearly equal degree. Such applications are by no means superficial. Structural parts, cells, membranes, fluids, whether interstitial or coursing in different directions in appropriate channels, vital organs, and non-vital ingredients are pervaded alike by this agency.

The vibrations thus mechanically transmitted to the vital system are lost only in appearance, being, in fact, changed without loss to other forms of energy, and subject to identification by other tests than the direct senses. Both the vitalized and the non vitalized ingredients encountered by this agent present fields for its transformation. As the motion of a meteor, on striking the atmosphere, becomes not only retarded but changed to its equivalents, so does the motion transmitted to tissues, on being retarded therein, become changed in *several* ways, according to the nature of the ingredients obstructing its pathway.

The study of the effects of vibration or quick massage becomes of interest from the following separate and distinct considerations:

It is of *scientific* interest to determine just what equivalent forms of energy arise in the vital organism under the different forms and rates of vibratory action, and what conditions, on the part of the organism, serve to promote, restrain, or modify its physical effects.

It is of *physiological* interest to determine whether the different classes of vital functions may be increased, transposed, or diminished by means of directing motor energy from outside sources to their respective vital organs. Also to determine whether such transformed energy is identical in form with that developed by the organism, and whether

that arising from the two sources is capable of becoming merged and physiologically undistinguishable.

And it is of high *medical* interest to determine the *consequences* of the effects of vibration above suggested in pathological states of the organism, the therapeutic values derivable therefrom, and the conditions and cautions necessary for rendering such therapeutic influences practical.

It hence appears that a wide and almost virgin field for exploration is opened by the proposition to subject the vital organism and its non-vital constituents, its diverse functioning activities, and its varied incorporated and spontaneous chemical tendencies, to the influences flowing from transmitted vibration.

The difficulties which this study has presented have arisen chiefly from the fact that the inquirer is very apt to seize upon some *one* effect or fact, and neglect others even more worthy his attention. It shall be my endeavor to place before the reader such facts as seem to establish *principles* available for the physician. The nature of the case does not permit of a strictly scientific order in the arrangement of the subject; the topics embraced therein will therefore be presented in the order of the presumed interest of the inquirer.

*Vibration as an Anæsthetic.*—This agent is somewhat known as a means for securing the suspension of pain, and even for permanently removing chronic neuralgic affections which have proved intractable to other remedies. Notwithstanding the well-proved efficacy of this agent, its restricted use for this purpose is easily accounted for by the fact that facilities for its proper administration are not usually at hand, and the necessary practical details are unfamiliar to the physician. Most physicians have seen references to the efficacy of this agent in their reading, especially of English medical periodicals of a dozen years ago. In these days of prevalence of neuralgic disorders and of much seeking of remedies adapted to ameliorate if not to obviate pain, this effect of vibration is entitled to renewed consideration, and a just estimate of its nature and value should be acquired. Is this special remedial effect temporary or permanent? Is it to be classified with the so-called sedatives, or with some heretofore imperfectly investigated class of remedies?

Different investigators have arrived at radically opposite conclusions respecting the remedial effects of vibration in painful nervous disorders. Some have accepted the easily demonstrated fact as a fundamental principle; others regard suspension and even the radical cure of pain as secondary and dependent on certain changes superinduced in the ordinary physiological activities, which are neglected by the sedative-seeking inquirers. These differences are doubtless due to prepossession of opinions or their absence on the part of the investigator. Experimenters are apt to find what they are seeking, especially when the search is obscure. Very much depends on the kind of instruments employed, and their adaptation to determine the facts sought.

A better understanding of this interesting subject may be attained by bringing forward some of its historic as well as its scientific particulars. Medical literature is indebted

to Dr. J. Mortimer Granville, of London, England, for setting forth his experience and conclusions in a book published in 1884, entitled *Nerve Vibration and Excitation, or Stimulating Percussion for Functional Nervous Disorders*. The applications are described as light, rapid blows of a *percuteur*—a small hammer with an ivory point, which, under the reciprocating motion imparted to it, transmitted vibratory action to the skin and flesh underneath. The operator's hand was evidently the source of power in the earlier experiments, but irregularities of rate and degree, and the very limited time it was possible to sustain the action, rendered the effects uncertain, and so clockwork mechanism, operated by a spring, was substituted. The apparatus while in action was moved about upon and near the painful region, and therefore communicated rapid waves of vibration to the flesh underneath. There is no statement of the vibratory *rate*. The action was frequently interrupted by necessity for rewinding the machine, and irregular from the varying force of the spring. A small electro-motor was, in a few instances, substituted for the spring, but no hint of its superiority appears, or that the conclusions previously made were in any way modified by this motor recourse.

The purpose in view in these vibratory applications was avowedly the single one of *arresting pain*. There was absence of expectation of other effects, and such others as necessarily accompanied the suppression of pain were quietly ignored. A long array of cases of neuralgic and other painful chronic affections, successfully treated by vibration, are given in support of the claim for the therapeutic power and efficacy of this agent.

Dr. Granville engaged the attention of several physicians of eminence, among them Sir Hugh Campbell, who repeated the experiments, apparently without attempting any variations, and added confirmation to Dr. Granville's views. At about the same time similar experiments were conducted by M. Boudet and M. Vigoureux, of Paris, leading to the same conclusion; not, however, without a vigorous dispute as to priority of discovery of what was regarded as a remedial principle. Readers of the medical literature current a dozen or more years ago will doubtless retain some memory of these discussions. Most remarkable is the unanimity with which these inquirers *excluded* all consideration of other effects of the agent whose powers they examined, except the single one of suspending *pain*. They did not even intimate that sensations of an *agreeable* kind are also suspended by the same agent.

The above statements respecting the control of pain in chronic affections by proper applications of vibration (or quick massage) are fully supported by my personal experience in employing this agent for the class of invalids mentioned. This experience, it is due to say, has unquestionably been more extended and varied than those which have above been referred to. This statement will, I hope, be sufficient justification for presenting facts additional to those with which the medical profession is most familiar, and which lead to far different as well as broader conclusions respecting the nature and effects of the agent under discussion.

Dr. Granville and his associates adopted a theory respecting the nature and effect of vibration which is best explained in words quoted from his book, written for this purpose. He says: "All nerve action is vibratile . . . the neuralgic state consists essentially in an abnormal set or series of vibrations into which the nerve has been thrown, perhaps by cold, or a mechanical or chemical irritant. This state may be changed by mechanical vibrations, propagated to the nerve sheath and its contents." Again, "we deal with the nerve and *not* with its surroundings"—an evident mechanical impossibility. "No force is communicated by the hammer of the *percuteur*." What, then, is communicated? "The sole effect of vibration is to excite the centers and call out their potential energy, converting it into kinetic force. It can act only through the nerves." "Vibration, artificially supplied, introduces discord into the rhythm of the morbid vibrations of the painful state, and a change that brings relief," etc. Dr. Granville's subsequent difficulties in securing the desired relief of pain by this means ought to have shaken his faith in the theory, for he says: "Great care and tact are necessary in treating pain by vibration." "By continuing the process too long, *painful* vibrations may be set up"; hence directions are given to approach the painful region *slowly*, first subjecting non-painful, contiguous parts to the process—details of cases being given in which the non-success of previous treatment was changed to success by adopting this change of method.

If these investigators had reflected that it is physically impossible to vibrate nerve tissue separately from its surroundings; that the *other* tissues and the fluids included in a fleshy mass exceed, according to trustworthy authorities, by a *hundredfold* that of the nerve filaments it includes; and, further, that the fluid and solid, organized and unorganized, vitalized and non-vitalized, contents of the mass include ingredients strongly predisposed to chemical changes—that, in fact, such changes, either normal in consonance of physiological purposes or in opposition to those purposes, are inevitable—these factors would undoubtedly have influenced their conclusions.

Historical accuracy, the curiosity of the reader, and possibly justice, unite in requiring that certain *dates* be here recorded. In a correspondence, claiming priority over Dr. Boudet and the French claimants of the "discovery" of the pain-relieving power of vibration, Dr. Granville says: "As a matter of fact, nerve vibration by percussion with instruments furnished by myself was tried at the National Hospital, in Queen Square, London, in January and February, 1878, these trials having been led up to by previous experiments by less satisfactory methods."

My personal investigations of the destiny of vibration in the vital organism, and the physiological and therapeutic effects flowing from this agency, assumed practical forms in 1863-'64, and very soon led to diversifying the mechanism whereby the effects may be varied and duly tested. The conclusions drawn from my experience were embodied in my article in the November, 1869, number of the *New York Medical Journal*, entitled *Inquiries relating to the Therapeutic Effects and Uses of Vibratory Motion*. The succeeding

March number of the same journal contained a second article, a sequel to the above, entitled *On the Use of Force as Vibratory Motion in the Treatment of Diseases of the Nerves*. My book, bearing a title nearly identical with that of Dr. Granville's book, was published in 1870.

The foregoing account of transatlantic experiments determining the anæsthetic effects of vibration proves the detrimental influence of preconceived theory in the recognition and appreciation of facts. The experimenters, in discovering what they sought, neglected to observe facts of even greater importance. No evidence is shown that nerve energy is vibratory in its development or transmission; or that, if vibratory, such form of action bears any relation to that of any mechanism. No allusion is made to ultimate nutritive sources of nervous energy; to its possible deterioration from nutritive faults; to the consequences of imperfect *denutrition*, for nutritive waste is even more liable to defects which react on the sensorial powers than nutritive supply; of suffering caused by maldistribution, as well as from faulty development of nervous powers; of impressions of the consciousness from general and local excess, as well as from insufficiency of nervous energy—all of which are topics inseparable from that of pain, its modifications, suspension, and remedies.

My purpose in devising means for subjecting the organism and its parts to vibration was less that of subduing pain than that of reaching the nutritive sources of pain by an adequate remedy. It seemed to me that the disagreeable and the painful impressions of the consciousness which invalids experience *may be legitimate*, denoting either faults of nutrition in the parts to which the undesirable sensation is referred, or obstacles in the line of sensory conduction. It is also notable that *pain* is intimately connected with appreciable defects of the other forms of energy which the vital organism coincidentally develops, all of which depend on nutritive processes as their sources. True remedies therefore must extend to the fundamental seat of energy, to the tissues wherein its distinctive forms are assumed. It follows that to correct morbid impressions in the seat of the consciousness, it is essential to rectify the nutritive source whence they spring, which, as we all know, may or may not be in nervous tissues.

Now, nutritive acts necessarily include two considerations, both of which are equally involved in the consummation of the nutritive purpose, whatever the function or the tissue concerned in the nutrition may be as a whole. Nutrition implies the supply of ingredients *to*, and the removal of the same *from*, the local point at which energy is evolved or other purpose complied with. Nutrition is far from consisting of accumulation of substances, vital or otherwise; it implies an equal amount of outflow or *denutrition*. The first is largely associated with *motor* physics; for the latter, *chemico*-physics are indispensable. The supply and convoy of ingredients to the vital arena are of no account, while the changes due their elemental constitution are unprovided for. In fact, the controlling phase of nutritive purpose is the *denutritive*, chemico-physical excluding process. Now, since the energy for conducting these indispensable factors of nutrition is in health developed

within the organism, and since defects of health are manifested in these factors, the suggestion of re-enforcing them by direct supply of energy from exterior sources when their insufficiency becomes apparent arose very naturally.

This suggestion is strengthened by direct experiment which any one commanding sufficient manual dexterity may repeat and verify. By widely separating the fingers of the right hand so that when a smart blow is given the stroke of each finger falls distinctly separate, the rate of the impact or percussion is quadrupled, and vibratory waves are made to pervade any fleshy part subjected to the process and may be felt at its opposite side. In a proper case for vibratory treatment not only is pain abated, but the accompanying soreness and swelling also. On account, however, of the impossibility of *sustaining* the required rate of motion, the recourse described is impracticable.

Two direct effects of vibration serve to explain the salutary consequences of its application to the vital organism. One of these is the contribution it affords in aid of the defective *motor* physics of the physiological system; the other is the ready and abundant contribution it brings in support of the *chemico*-physics of the organism whenever this department of physiology is faulty—a department whose defects are the chief concern of the average therapist.

How the mechanical or motory purpose is served by vibration is so obvious, even to the superficial inquirer, that but little explanation is required. The motor energy communicated from the exterior travels *as such* in the fleshy parts. But flesh is pervaded by conduits streaming with fluids (blood) in directions predestined by the mechanism of organization. The local aspect of chronic disease is marked by areas of *detention* of these fluids, by local mechanical obstructions, and by defective operation of the causes to which the outflow of these fluids is due. Now, *vibration* affords a succession of impulses *direct* to the contents of the vessels, urging them forward in the several directions required, thus becoming an effective auxiliary to pre-existing causes of the circulation. The same cause also restores the natural contractile powers of the circulatory vessels, and these causes unite in impelling forward whatever mechanical obstacles these motory defects may have superinduced, or which previously existed.

The consequences of outflow of the contents of obstructed vessels are immediately apparent in surrounding parts. Fluids of whatever quality, normal interstitial juices and those loaded with morbid materials, return directly to the venous vessels to become resubjected to the corrective chemistry of the organism as a whole.

Important as these effects may be considered therapeutically, they are in reality the least of those superinduced by vibration.

These experiments and observations were begun in 1862-'63, and soon led to others through amplified means and diversified methods. The physiological inquirer is not content with generalizations; he insists on specific tests for the facts he seeks. He submits each tissue, secretion, function, or other object of investigation to separate and to conjoint experiment, and thus assures himself of the circumstances which influence the behavior of each part and of

each to all. The mechanical scope of the human hand was evidently too restricted, and incapable of bringing further facts to light; its narrow field has been occupied and understood for ages, and is comprised largely of motor physics. What other important relations of therapeutic significance might be opened by a survey for which mechanism is required remained to be developed.

*The Mechanical Apparatus.*—A proper investigation of the higher rates of motor energy or vibration requires apparatus capable of complying with the following particulars:

It should transmit vibration at variable but known rates to any selected part of trunk and limbs.

It should impart this action in diversified forms.

It should be capable of limiting the action and its effects to designated parts while other parts are omitted.

It should be capable of confining its action to distinct classes of functioning tissues.

It should be operated by adequate and untiring sources of mechanical power.

In pursuance of these purposes above outlined, I constructed (1864-'65) the several pieces of apparatus shown below. The first (Fig. 1) imparted rapid alternating mo-

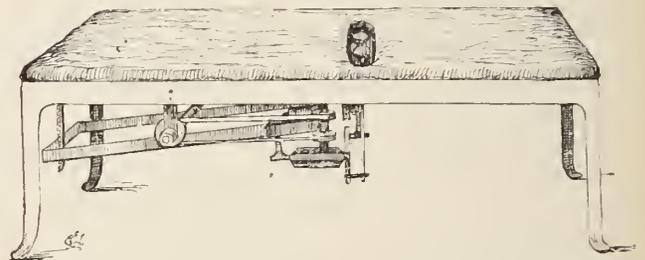


FIG. 1.

tion to two *percuteurs* in close proximity, which act upon any part exposed to them by means of necessary mechanism through an opening in the couch upon which the patient rests. The position of the patient is shifted at will, or as may be agreeable, and the *degree* of the impulse is controlled by the patient.

The *percuteurs* are set in action by a very short crank, rapidly revolved by a multiplying wheel, operated by a light motor or by hand or foot power.

The most effective rate for this and other forms of mechanism for similar purposes was found to be in the vicinity of a thousand waves or strokes a minute. Diminution or entire suspension of pain was a pretty constant effect, provided the conditions before stated were complied with. The term then thought to afford a satisfactory explanation of this effect was *revulsion*, which referred to its mechanical rather than its physiological scope. Experience, however, brought to light other reasons for considering this term a proper one.

Fig. 2 represents a form of apparatus made at this time in which the effect of impact or percussion upon the nerve centers through surface impressions is *wholly eliminated*. Even a much larger amount of motor energy may be transmitted than by the apparatus shown at Fig. 1, but entirely without percussion and the effects arising therefrom in either

the reflex or the sensory nerves of the part. The nerves of the skin, and for a distance regulated at option beneath it,



FIG. 2.

are neither impinged upon nor traversed in the application of this process. The apparatus imparts very short, perpendicular motory excursions to the fleshy mass compressed against a very soft elastic pad. The mechanical conditions are such that the pad grasps the flesh, which moves as a whole, while interaction of distinct anatomical parts is mainly prevented. The superficial nerves therefore wholly escape mechanical disturbance, and they convey no impressions to the nerve centers. Nervous irritability becomes suspended while the muscles, or at least their deeper portions, are subjected to passive motions in the direction of the axes of their fibers. In short, muscle action, and consequently muscle nutritive changes, are in this way incited in opposition to nerve incitation and its consequences. This effect is nearly the reverse of that caused by No. 1. For distinction, this consequence of this application may be called *functional revulsion*. The evidence of this effect is shown by diminished or suspended pain and inclination to sleep, effects which increase day by day as the treatment is pursued.



FIG. 3.

attention to the part which is to receive it.

A similar process can be applied to the arms, legs, and even the trunk, by including either of these parts between

two pads to which reciprocating action is given. Fig. 3 shows the application to the arms of this form of vibration, the effects of which are intensified by pressure. The pressure is given by means of a lever under the hand of the patient and under instant control. Relaxation of pressure diminishes or suspends the action. It is perfectly safe to leave the control to the option of the recipient, the feelings in this case being a safe guide. The double pads do not increase the rate, but insure contact of molecular constituents, and thus secure the transformation of motor to other forms of energy. In this case also the superficial endings of nerves are neither traversed nor impinged upon, as in Fig. 1, but other functional processes are incited, to be subsequently explained.

Vibration is transmitted to parts of the organism by still another method, which may be called *oscillating*, and is readily understood by reference to Fig. 4. A foot is snugly held by an appropriate device at the end of a shaft, which, by suitable mechanism, is made to oscillate on its axis. The bone of the leg, being practically a continuation of the shaft, participates in the same action to which it in turn subjects the flesh and the fluids of the limb. A similar device (Fig. 5) applies to the hand and arm.



FIG. 4.



FIG. 5.

In this use and form of vibration (the same rate as before stated being preserved) both percussion and compression are eliminated. It follows that the effects of vibration are secured in such a manner that nervous impressions are entirely absent, and all nerve functions—either afferent, efferent, or central—are in abeyance.

The principal effects inure to the morphological elements, and especially to the chemical phase of all the constituents of the parts. Motor energy encounters various orders of resistance, compelling it to assume other and different forms.

The above are samples of many forms of apparatus devised by me at the period above referred to for transmitting motor energy in vibratory form to parts of the vital organism, and which enabled me not only to determine approximately what forms were assumed by it under different circumstances, but also what physical, physiological, and therapeutic effects were superinduced, as well as the positive and relative value of these effects in differing pathological states.

*The Chémico-physics of Vibration.*—The foregoing de-

scription of apparatus affords a necessary preparation for understanding what is clearly the most important effect of the transmission of motor energy to the vital tissues, whether considered in its physical, physiological, or therapeutic aspect. For the attending conditions are such that the motor energy of the vibration is largely transformed to *chemical* activity, and results in elemental changes and transpositions of matter in conformity with physiological purposes.

These effects also accord with the purposes of therapeutics, especially in chronic cases. Cures are largely sought through remedies which have been proved by experience to re-enforce the chemical phase of physiological activity, or which naturally tend to increase this form of action. This ultimate principle appears whenever the operation of remedies in the cases referred to is fairly analyzed, and is sustained by experience, however empirical.

Pathology, whether its manifestation be general or local, is easily understood to have its source in some form or degree of *incompleteness* of the chemical phase of physiology. For it is only through this cause that injurious ingredients, tending to retrogression and to impair the vital structures and processes, can be retained by the vital organism to exert their destructive influence. And the correctness of this assumption is proved whenever the chemical phase of physiological activity is properly and judiciously promoted.

Primarily, vibration consists of very short motory excursions between two endings or turning points. The motory force is resisted by whatever it meets or collides with at these endings; at these points the motor energy is imparted to whatever objects or ingredients may be present to receive it. Each distinct wave-ending is therefore comparable to the blow of a light hammer; and vibratory applications become the continuance of such infinitesimal blows, having the shortest possible intervening time. The energy expended at each impact is taken up by the atomic elements of the ingredients thus forced into intimate relations.

While blows of a hammer develop heat and rend cohesion, those of the *percuteur* and the other vibratory methods described are expended under radically different circumstances. The collision between ingredients of complex chemical constitution and of extreme instability is produced. The component atoms of these ingredients are very unlike in their nature, and are therefore receptive of the suddenly imposed energy in different degrees. The inevitable consequence is a destruction of the weak chemical equilibrium, and a new distribution of chemical affinities resulting in new compounds less unstable in chemical character. In short, the effect of vibration in vital structures is largely chemical, arising from the transformation of *motor* to *chemical* physics, and the reduction of unstable, therefore incomplete and injurious products, whatever their source in the organism, to physiologically completed and therefore normal and innocuous products which find immediate egress.

The school lecture-room affords abundant and apt illustrations of the principle above stated; as when phosphorus is made to ignite when the motion of a rapidly revolving

wheel, to whose periphery it is attached, is suddenly stopped; and when gun-cotton, nitroglycerin, and many similar bodies are exploded by sudden arrest of motion or concussion, although, perhaps, capable of burning on being ignited in the ordinary way.

These are apt illustrations, derived from inorganic chemistry, of what occurs in the vital organism under similar conditions—namely, that forceful contact is even more provocative of chemical change than any other circumstance; that the development of chemical energy is simultaneous with the disappearance of motor energy; that unstable compounds subjected to chemical change from this cause are inevitably reduced to more stable forms; that vital energy arises coincidentally with the passage of an unstable body from a state of *more* chemical energy to one of *less*; that unstable ingredients, in becoming stable, are rendered indifferent, consequently innocuous; that the vital endowment of matter in affording protection against the influence of chemico-physics is equivalent, for the time, to chemical stability; and that vibration or concussion of elements secures the extreme degrees of chemical products contemplated in the physiological purposes.

Turning now to the vital organism, we find in it a most admirable field for the physical processes and for insuring the physical consequences above indicated. Its components are exceedingly heterogeneous, and the differing classes of ingredients are largely diffused. The vitalized components are, for the instant, under protection of vitality. The non-vitalized are in various orderly stages of resolution. Everywhere are residual or *waiting* ingredients, and everywhere imperfectly and improperly employed materials, in which chemical reduction is due and in which chemical change is inevitable. Whether such change be in the progressive physiological order, or become disorderly and deteriorative, is determined by the extent and the degree of the chemico-physics whose influence is brought to bear on the impending act. All components of the vital organism occupy stages of a career; all are passing forward to the next stage; and all are predestined to the chemical change which signalizes the evolution of either heat or other form of energy. Pathology is necessarily associated with imperfect fulfillment of the chemical change wherein energy is liberated for the advantage of the individual.

*Oxygen, its Uses by the Vital System, and what determines its Consumption.*—Of the oxygen introduced by the respiratory process from the unlimited and ever-ready supply afforded by the atmosphere in which we dwell, just so much is taken in health as is required by the chemico-physics of the organism. Food of all kinds has definite composition; the completed products of its chemical change which pass from the vital system are also definite in composition, but increased by the exact amount of oxygen taken from the air of respiration.

The purposes of oxygen in the vital system thus become clear, and the consequences of its defective use by the vital system are intelligible, although the pathological states which the physician is called upon to correct are often referred to some intermediate circumstance which has little to do with the use or non-use by the vital system of oxy-

gen. *Why* the system takes up less of this ingredient than is required to dispose of its waste and superfluous ingredients is seldom inquired. The pathology which arises from faults of use being attributed to secondary causes, other than direct remedies are apt to be chosen for its correction.

There has, indeed, been a vast amount of experimenting based on the therapeutic need and artificial supply of oxygen, thus palpably connecting its defects with pathology. Among these devices is that of increasing its proportion in the air respired; that of condensing by pressure the air for respiration; that of liberating oxygen from chemicals in the air respired and in the digestive organs; that of increasing the air space in the chest by developing its muscles, etc. These methods only promise increase of *supply to, not use by, the system* of this element—things very different in practice. These devices all prove disappointing, not only because the supply thus afforded is necessarily temporary while the need is continuous, but more emphatically because *none* of these devices are capable of supplying the thing wanting—that degree of chemico-physical action which insures the appropriation by the unstable residuals of the system of the oxygen which, though present, remains unappropriated.

Oxygen is appropriated at all points where heat or other form of energy is disengaged, because, under these circumstances, the systemic ingredients are passing into higher and usually into emergent forms of oxidation. It is clear that both motory physics and chemico-physics are required to secure the effect desired; the one to transport ingredients to the several points of use; the other to effect the forceful contact whereby motory is transformed to chemical energy by its transfer to the elementary constituents of the changing materials.

These effects arise spontaneously in health, and, though appearing to be causeless, are, in fact, intimately associated with the involuntary and the voluntary motory functions. The first have also the reciprocating form, and in the arterial department, which conveys oxygen on its being demanded, approaches the vibratory rate, while the voluntary motions seem to incite and perfect the involuntary.

The therapeutic uses of vibration consist, therefore, in securing such higher degrees of perfection in the faulty activities of the organism as shall remove the consequences of previous defective mechanico-physics and chemico-physics. The effects of applications of vibration extend primarily to the oxidizable ingredients, whatever be the name of the affection of which such ingredients are a fundamental factor. For reasons stated, those ingredients of the blood, interstitial fluids, and solids which possess the highest instability are the first to become destroyed on forcible contact with the oxygen, always in readiness for this physiological purpose, and always effective when the conditions prescribed in the organic mechanism are complied with, whether these be classed as hygienic or remedial.

The substantial reason now appears why vibration allays pain and proves a trustworthy remedy in chronic neuralgias and other painful affections. This agent, by promoting physiological oxidation, removes the essential *cause* of pain, so far as this depends on impressions received by the nerv-

ous system from morbid environment. The pain is *not* the disease; local or general; it is the evidence of the presence of unstable ingredients, embarrassing nutrition, compromising the development of energy in other forms, defeating organic purposes, and affording timely warning of a severer fate. Pain is the disagreeable consciousness superinduced by these and similar physical circumstances. It is *these*, rather than the notification of their existence, which should be removed.

The vital system necessarily at all times contains *intermediate* products in various stages of progress toward the final goal of the physiologically perfected stage of oxidation, which stage is represented mainly by carbonic dioxide, water, urea, and salines. Faulty conditions diminish the degree attained by the oxidizing process; and the intermediate products, well known to chemical investigators, necessarily increase, and thereupon assume abnormal and morbid phases and strange chemical forms. The discharge from the system of the above-named perfected products is diminished, but their equivalents are retained in some noxious form, awaiting bettered conditions, which shall render them inoffensive.

If we may consider chronic neuralgia and other painful affections as resulting from the impressions the nerves and consciousness receive from the presence of adventitious ingredients inimical to vitality, the morbid condition may be understood by the term *auto-poisoning*, and bears an analogy to the poisoning arising from accumulation of oxidizable ingredients accidentally or willfully ingested. The effects of alcohol, opium, ether, and the alkaloids and sedatives in general will answer for illustration. Experience proves that the most trustworthy remedial recourse in these cases is to promote and to intensify physiological oxidation by maintaining the respiratory process by every means available till the poison, if the dose be not too large, is neutralized by oxidation. The effect of vibration proves that the same principle is practically available for removing the cause of chronic neuralgic pains, and the rapidity and certainty of this effect indicates that oxidation, the cessation of pain, and the production of heat are synchronous in the part subjected to the process.

*Other Physical Effects of Vibration and their Physiological Consequences; Heat.*—It is clearly provable by many conclusive tests that heat-production is very much increased by vibratory applications. The glow of warmth produced in the skin, soon reaching the previously habitually cold extremities, affords satisfactory evidence of this effect. The temperature of the body, however, never rises above the normal standard, since the regulative powers, having their seat in the nervous system, are in effective operation. The increased heat becomes equally diffused; in part because the circulation is also diffused, but in greater part because the process of heat development is no longer limited to the central parts, but is restored in normal degree to peripheral parts.

The rapid restoration of heat by vibration arises from two causes. One is the direct transformation of the motor energy to heat by *friction* of anatomical components of the organism—the fibers and membranes, down to the minutest

morphological ingredients, being compelled, by the motory waves, to glide with pressure upon each other—as when a piece of rubber is repeatedly stretched, or even rubbed, it becomes heated *without* chemical change. The other cause of heat arises from chemical acts arising from the increased consumption of oxygen.

The sources of heat are the muscle cells, whose rate of heat development is greatly quickened by vibration, even though the motor function be suspended, and also the non-vital fluids which pervade all tissues. These contain unstable and highly oxidizable ingredients, which only wait a due impact or collision of elements to be rendered stable, and necessarily yield heat in the act.

The evidences of therapeutic oxidation are patent to the least scientific observer. These are of two kinds. One is the palpable increase of *completed* products of oxidation, whose emergence is due to the process. The urine becomes increased, assumes its natural odor and color, and ceases to yield a precipitate on cooling. This change is due to diminution of *extractives*, another word for the various products of defective oxidation. The quantity of watery vapor transpired and exhaled is likewise sensibly increased, as we know must happen, since water is part of the product of the resolution of the same ingredients that also afford the urea and carbon dioxide which is disengaged.

The *other* class of evidences consists of positive appeals to the senses. These are indications through the feelings and the muscular powers of returning health, the most significant of which is subsidence of pain and increase of volitional manifestations of energy, mental and physical. The mutuality of these relations appears to imply that *pain* is at the expense of the energy-evolving functions—that such energy requires guidance, not abatement or destruction; in short, that the central idea of remedying pain, legitimately, should be that of affording it more useful, and therefore agreeable, scope, through other than nervous channels of expenditure.

The principle of *transferring* manifestations of energy from one to another functioning seat, which I have above shown to be practicable, is invested with deep scientific and physiological interest, since it appears to open the way for radical change of therapeutic purposes. The desire to *suspend the consciousness* of disagreeable impressions, instead of abolishing their source, has greatly increased the number of drugs whose principal claim of merit is the possession of this power, which experience proves to be liable to enormous abuses. The practicability of changing painful to agreeable manifestations of nervous power by rectifying the nutritive source whence such powers emanate naturally supersedes, to the extent the method is practiced, the demand for drugs whose chief value lies in preventing painful impressions from reaching the powers of the consciousness.

Vibration, aside from the mechanical and chemical physics it introduces, is, however, entirely capable of *suspending* pain and the sensory powers of any local portion of the body. This effect appears to arise from the fact that when a part is subjected to vibration, its sensory nerves, each and all, thereby receive *exactly the same* impression. No differences exist and none are perceptible. The dis-

criminating power of the consciousness is therefore abolished, because the effect of impressions is abolished, and with it feeling, both agreeable and disagreeable, including local pain. The fact stated is easily proved to the most incredulous, who is at liberty to adopt other reasons than those assigned. The well-attested effects of what is called *hypnotism*, in respect to pain, may be susceptible of similar explanation. The vibratory subject does not, however, need to have a special susceptibility. It is probable that this incidental effect of vibration arrested and held the attention of the transatlantic investigators referred to in another part of this article.

We may now briefly review some of the physiological and therapeutic effects superinduced by quick or vibratory massage:

1. Vibration may be so applied as to impress the sensory nerves principally. This is when the impingement is on the skin. By this means the nutrition of sensory nervous tissues, conductors and centers, is increased, and therefore their product of sensory nervous energy. This effect is easily carried to a morbid degree, to the detriment of other functioning parts.

Vibration may also be so applied as practically to *omit* the nervous sensory tissues. In this case the motory physics, but more especially the chemico-physics, of the vital organism are increased, while the excess of nerve nutrition and the irregular, obstinate, excessive, and morbid manifestations of nervous power are thereby diminished and permanently remedied. This effect of vibration has extensive application in nervous affections and the chronic diseases which are the usual accompaniments of nervous diseases.

2. The remedial effects of vibration are by no means restricted to functional diseases. Its chief sphere is in the motory and chemico-physics of the organism. The curative powers of this agent, through reduction by oxygen of injurious ingredients which spontaneously arise from faults of what may be called motory hygiene, require personal investigation by the inquirer, to be understood or entitled to belief.

Vibration is not exercise, and, since the will is not engaged, causes no fatigue. The rate of vibratory motion is incompatible with muscular nutrition, which requires a slower rate.

3. Vibration may be regarded as *specific* in all chronic inflammations of whatever part of the organism, and whatever may be the morbid product developed therefrom.

The several effects of vibration which are conjoined in producing this remedial consequence may be noted. One is thorough *diffusion* of the circulation—increasing the amount of blood at will in any desired region of the body, and correspondingly diminishing it in other regions, especially in that suffering from inflammation. The caliber of the capillaries is increased and contracted, in compliance with the disposition of their contents. Another is the urging forward, *from* the affected region, the obstructive contents of capillary vessels, including both morbid chemical and other materials, thereby allowing interstitial, effused materials to return to the circulation, and so to remove the

swelling. A third effect is the submission of these morbid ingredients to the chemico-physics of the organism, while this function is exalted to high efficiency by the addition from motor energy. Intimately connected with these is the modification of pulse-rate. The rate is *never* quickened, and in all cases of abnormally high pulse the rate is diminished—in pulmonary affections to the extent of fifteen or twenty beats a minute, and often this effect becomes permanent.

## GONORRHOEA OF THE RECTUM.

A REPORT OF THREE CASES.

BY JAMES P. TUTTLE, M. D.,

LECTURER ON RECTAL DISEASES IN THE NEW YORK POLYCLINIC.

SINCE the famous experiments of Bonnière, showing the comparative immunity of mucous membranes covered with cylindrical epithelium from blennorrhagic infection, the existence of gonorrhœa of the rectum has been seriously questioned by many observers. The discovery, by Neisser, of the *Bacillus gonococcus* has, however, put to rest all contention upon this point. It is not my intention here to discuss the subject of gonorrhœa of the rectum, but simply to report three cases of the disease. They were all observed in my clinic for diseases of the rectum and anus at the New York Polyclinic, and were seen by several members of the classes during the past two years.

CASE I.—M. R. appeared at the clinic on April 10, 1891. He complained of pain and burning about his rectum, frequent desire to go to stool, and inability to sleep, on account of the intolerable itching at the anus. The stools, he said, were sometimes solid, but usually composed of thick mucus. He confessed to the practice of sodomy, but thought that had nothing to do with the case. The anus and the contiguous surfaces of the buttocks were red and swollen. The anus was not funnel-shaped, and the mucous folds were not obliterated. The parts were bathed with a muco-purulent discharge, and there were several little cracks in the muco-cutaneous border, resembling fissures. The rectum was hot and tender to the touch and covered with a slimy-feeling secretion. Through the speculum it appeared red, inflamed, and bathed with a thick, yellowish pus. There were no ulcerations observed, and no hæmorrhoids whatever. Microscopic examination of the pus, after straining, showed Neisser's gonococcus in abundance.

The method of collecting the pus for these examinations being of importance, it may be described here. The anus is wiped off as gently and thoroughly as possible with absorbent cotton, and then washed with a solution of salicylic and boric acids—Thiersch's solution. An O'Neil's speculum is then introduced closed, and the sliding bar on the upper side is withdrawn, the patient lying on his left side. The specimen is then taken from the surface of the rectum, and not from the discharge which flows down into the speculum, lest by any chance some of the secretion from the anus should have been carried up on the end of the speculum. Several specimens are then examined, to corroborate one another, and to avoid, as far as possible, the error of mistaking disease of the rectum for that of the anus. The solutions used for staining in these cases were gentian violet and ammoniated carmin, and the results were practically the same with both.

The treatment in this case was by injections of bichloride of mercury (1 to 20,000) and the separation of the inflamed but-

tocks by a pledget of lint dusted with a powder of oxide of zinc and starch, equal parts.

The patient made a good recovery after four weeks' treatment.

CASE II.—F. S., aged twenty-three, presented himself at the clinic on November 10, 1891, complaining of pain, itching, burning, and occasional hæmorrhages in the rectum. He has too frequent stools, and has noticed of late a small lump on the edge of the anus. He confesses to habitual sodomy, and has had a discharge from the rectum for several weeks. There are two small condylomata about half an inch from and posterior to the muco-cutaneous border of the anus. The anus is infundibuliform, the sphincters are relaxed, and the mucous folds are obliterated. The rectum is hot and tender to the touch; through the speculum it appears red, swollen, and rather excoriated than ulcerated in patches of considerable area. The pus was not very thick, rather of a creamy yellow, and not very profuse. The patient said it had decreased of late. The pus cells contained gonococci.

The condylomata were removed with the scissors and their bases cauterized with nitric acid. The rectum was then irrigated, by means of my rectal irrigator, with a saturated solution of boric acid. The advantages of this irrigator are its cleanliness and the facility with which a constant stream of fresh solution can be passed through the rectum without wetting the couch, while at the same time it distends the folds of mucous membrane so as to cleanse and medicate them.

This patient made a good recovery in ten days.

CASE III.—D. K., aged twenty-one, a domestic, came to the clinic on February 12, 1892. She complained of severe pain in the rectum, with itching and burning. She denies pæderasty, but confesses to illicit intercourse. She has no venereal disease of the vulva or vagina. The anus is much inflamed, red, and swollen. The funnel shape is not marked. There are four shallow ulcers around its border, and a profuse, thick, greenish pus exudes from the parts. She says that she noticed the discharge before the ulcers. The rectum is hot and tender to the touch and more or less filled with the greenish pus, which follows the finger as it is withdrawn. The pus cells contain gonococci in abundance.

The ulcers were washed with the boric-acid solution and touched with a ten-per-cent. solution of nitrate of silver. After irrigating the rectum with the boric-acid solution the ulcers were dressed with pledgets of lint dusted with a powder of equal parts of oxide of zinc and calomel.

The discharge had ceased and the ulcers were granulating satisfactorily when, at the end of two weeks, she disappeared.

These cases are not unique, but they are interesting on account of the few which have been reported as verified by the examination for gonococci.

35 WEST FORTY-FIFTH STREET.

## SOME OBSERVATIONS UPON THE RIVIERA.

By FREDERICK PETERSON, M. D.

In the issue of the *Journal* for June 13, 1891, I published some notes upon Southern Health Resorts in the United States, the result of travels and investigations made during the late winter months of last year. Having just spent some two months along the Riviera, which is the chief winter sanatorium of Europe, I have thought some words upon this subject might not prove uninteresting to such of

your readers as have not visited this favored locality, and who are not in a position like myself to draw contrasts between these foreign health resorts and our own.

The Riviera, as is well known, is the region upon the Mediterranean coast extending from Toulon in France to Leghorn in Italy. It is sometimes divided into the Western and Eastern Riviera, the former, the more important, comprising the district between Toulon and San Remo; the latter, that between San Remo and Leghorn. The chief invalid stations are, in their order from west to east, Hyères with Costebelle, St. Raphael, Cannes, Nice, Mentone (French), San Remo (Italian). All of these places are upon the tideless Midland Sea and nearly at sea-level. Back of them are lofty mountains, some of them snow-capped, the Maritime Alps, which give the coast a rugged and magnificent aspect. Immediately behind Hyères are the Maures Mountains of moderate height, separating this place from the Alps to the northeast. The great Rhône valley, beginning in Switzerland, sweeps southward through France to the sea immediately west of Marseilles, and therefore west of the Riviera. We now have some of the elements that go to make up the climate of the Littoral. The ordinary moisture of the atmosphere at sea-level is abstracted by the mountains, so that its relative humidity is small. The prevailing winds must either come from the mountains or the sea or be a hybrid from both. A purely south wind, which is not common, would come from the Sahara across the long stretch of warm water, and would be quite warm and dry. It is the *sirocco*. A purely north wind must sweep directly down over snowy mountains and cold valleys. It is cold and piercing and is called the *mistral*. When a great depth of atmosphere is not included, it does not come over the mountains, but, sweeping down the great valley of the Rhône, breaks over to the Riviera from the northwest or west with almost equal intensity and rigor. A direct *mistral* is not frequent. It blows perhaps twelve days in the season. But it would seem to be very common as an indirect assailant. It is seldom that winds of some kind do not blow, for here are some figures of M. Teyssie's for a year in Nice: 88 days more or less strong winds, 257 days mild winds, 21 days of absolute calm. To judge by my own experience in the early months of the winter season, all of the winds have that penetrating, "nipping and eager" character which leads one to the shelter of a wall or hedge if he intends to sit still. In walking they are not unpleasant. I had no experience of warm southerly winds. Rainfalls and cloudiness are comparatively rare. For instance, taking the average in twenty years, the following figures are given for Nice (which are applicable to the other stations also) during the six months' winter season: Clear days, 102; cloudy days, 41; rainy days, 36.

Dr. Cornack, of Hyères, called my attention to the fact that rain there in at least one third of the cases falls at night, and this I corroborated during my stay. The porous soil rapidly absorbs it, and the next day is clear, sunny, and dry under foot as usual.

As to temperature, perhaps more can be understood practically by examination of the flora than by reference to the dry statistics. Although the Riviera lies in about lati-

tude 43° to 44°, corresponding to that of Saratoga and Portland, yet here the oranges are ripening through the winter, and the gardens are all abloom with roses, violets, jonquils, mimosa, jasmine, and other flowers. From the olive forests the crops are gathered in December. The roads and streets are lined with the eucalyptus and palm. The Japanese medlars, the yuccas, the agaves, the aloes, the cacti, and the cork oak flourish luxuriantly. The climate is therefore semi-tropical, and yet you may stand in the midst of this vegetation and shiver with cold. The sun is hot, sometimes unendurable. But in the shade a chill strikes you to the marrow. As soon as the sun sets, on with the overcoat! Entering an unshaded room is like a visit to the catacombs.

But climate is never quite enough for invalids. More important still are the creature comforts. Thanks, not to French or Italian enterprise, but to English and American requirements, these places are all supplied with good water, good sewer systems, and hotels and villas providing every comfort. The plumbing is mostly of London installation. All rooms may be well heated with good wood fires, the fireplaces and fuel being quite adequate, which is not true of many other continental regions. Of course, in the old parts of these towns, with their rambling, narrow, gloomy, foul-smelling streets, the proverbial uncleanness of the Italian and French people prevails, the pavements serving the two purposes of sidewalk and common sewer. Providence protects them from disease and the rain acts as scavenger. Strangers, however, reside far from the older portions of the cities, and only go there when the love of the picturesque gets the better of their sanatory judgment. The old towns must be unhealthful in summer. There are marshes about Hyères and St. Raphael which are said to be malarial in summer. Every town has its parks or botanical and zoological gardens, its open-air concerts, its libraries and reading rooms, its casinos for concerts, theatricals, balls, and the like, magnificent macadamized roads in every direction for drives, beautiful wood and mountain paths for walks, and baths of some sort, it being naturally considered a part of the duty of a health resort to provide more than the climate to make a place attractive and draw money into the pockets of its inhabitants. The mind must have its amusements or occupations while the body is recovering its health.

Much has been written concerning differences of climate between the towns of the Riviera, and very fine distinctions have been drawn which really have no existence. They are all much alike. They have the same semi-tropical flora, the same sea before them, the same mountains behind them. When the *mistral* blows they feel it about alike, for in each town certain hillsides protect at one time and not at another. They are all equally warm, equally dry, equally sunny, equally tonic, equally stimulating.

From what has been written above, it may be understood that the Riviera has a delightful winter climate for all healthy people and for some sick people. But it is a climate not to be recommended without due care and many precautions to delicate invalids. Quite recently Dr. Thomas Linn, an American physician, practicing in Nice, has printed in a little book some excellent rules to be observed by Riviera patients, some of which I can not for-

bear to repeat here, since they have their application also to some of our own American climates. They are as follows:

"Do not travel South too quickly.

"Do not put off coming South until too late in the year.

"Do not hurry away from the South too soon in the spring.

"The regimen must be changed in the South.

"See that the sanitary arrangements are good in the house.

"Insist on having a room facing the south.

"All invalids should go indoors before the sun sets and not go out before it rises.

"When going from the sun into the shade, put on additional covering.

"It is necessary to carry a sun umbrella.

"It is advisable to wear smoked eye-glasses in the bright sunshine.

"One should not overdress or walk too fast.

"On entering the house, do not remove outer wraps at once."

The Riviera climate, being the driest in Europe, is a good place for rheumatism and rheumatic neuralgias and for bronchitis and consumption in its early stages. Being stimulating, it is a good place for apathetic forms of mental trouble, like mild melancholia, and for certain forms of neurasthenia, but insomnia is always a contra-indication. Hyères is the best station on the Riviera for several reasons. It has mountain walks and paths through forests of cork oak in greater number than any of the other places can boast. The town is so small that one is practically in the country, whereas in a place like Nice (with nearly 80,000 inhabitants) it is difficult to get out of the city. If one does not sleep well in Hyères, he can go to Costebelle, which is several hundred feet higher and only a mile away. Hyères is three miles from the sea and has, perhaps, more days of absolute calm than the other littoral towns. Hyères is the nearest winter station to Marseilles, and hence is the most accessible from London or Paris, while one may make one's escape from the Riviera at this point in very short order by rail or boat should the climate prove to be hurtful in any degree. In a few hours one may be sailing from Marseilles to Malaga, Oran, Tangier, the Canary Islands, Algiers, or Egypt in search of more suitable winter climes.

Now, when we seek in America some homologous climate we meet with difficulties. We have certainly nowhere just the same juxtaposition of lofty mountain and warm sea. We may discover a similar flora in parts of Florida and in southern California; the dryness in Aiken, Thomasville, and Colorado; the equable temperature and cloudless skies in many places; but the exact combination of isotherms and isobars is not to be found.

I do not think any good climatologist would say so, but I have heard Colorado Springs, Asheville, and Aiken each spoken of as the "Hyères of America." For my part, I have no doubt that in Colorado and New Mexico we have climates which, if not comparable to that of the Riviera, are not so because they are so much better. As for Asheville, it is not exactly a winter resort, though an excellent health station for the nine months of the year preceding January 1st. We have yet to learn authoritatively

whether it is a particularly dry climate. The Riviera resorts are mostly about at sea level and littoral, Asheville being several hundred miles inland at an elevation of 2,400 feet. The contrast of the semi-tropical flora of the Riviera with the seasonally varying northern flora of Asheville is still more pronounced. Aiken has neither mountain nor sea, but depends for its dryness upon its miles of piny sand-hills. Its flora, too, is northern.

The climate of southern California is, perhaps, the nearest akin to that of the Riviera. It is akin to it, but is better. It has not the night and day temperature variations of the Littoral. It is quite as sunny and clear. It is, perhaps, warmer. It may not be so dry. The flora is quite the same. The mountain panorama is not so beautiful, and the villas and villages are not so picturesque. It is not so dangerous and treacherous, for it has no mistral to pounce upon and make easy prey of unsuspecting victims. It does not stimulate you to walk fast or pour the poison of its subtle chills through your pores when you stop to rest a moment. In California, in New Mexico, in Aiken, and in Thomasville we have far better climates than can be found in the south of France, and it seems to me a grievous wrong that American invalids should be sent, as they seem to be in considerable numbers, so far from home when better climatological remedies lie so near at hand.

The Riviera certainly has been, and is still, the great resort for consumptives from all parts of Europe, and is full of Russians, Germans, Swedes, British, and the like; but Teneriffe, Algiers, and Egypt are beginning to deflect from it large portions of that annual tide of phthisical hibernants. So, too, many go to the higher Alpine stations for that "cold" treatment that has come into vogue of late years and which, it seems to me, we Americans misapply when we try to substitute Minnesota and the Adirondacks for the rare, cold atmosphere of high altitudes in southern countries like Switzerland. It is not yet fashionable in Europe to send consumptives to Norway or Siberia for the winter.

When one sees how much is done for the entertainment of visitors and invalids in these European resorts, one can not but regret that lack of local enterprise in America which blinds the tax-payers and voters to their own advantages. How much might they not do to increase the value of their town property to attract visitors, to stimulate the trade of the community, if they would but see the indices before their eyes!

Suppose that Asheville should pave all her streets, should macadamize her country roads for several miles from town, should construct paths along her picturesque mountains, should lay out a public park with swimming baths by the French Broad, should establish a botanical and zoological garden, should line her avenues with rare trees, should build a casino with restaurant, parlors, reading-rooms, library, solarium, concert-hall, theatre—but the imagination halts at the metamorphosis. She might make herself the most beautiful, the most charming, the most attractive (and the best-paying) health resort in the United States. She could defy bad winters and make herself happy and enjoyable all the year round.

THE  
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THE TREATMENT OF ENDOMETRITIS.

AT a recent meeting of the Philadelphia County Medical Society a paper was read in which the author advocated the use of intra-uterine injections for the cure of chronic endometritis. In the discussion that followed, Dr. Charles P. Noble made some remarks that seem to us most judicious.

A mere discharge from the uterus, he said, did not indicate endometritis. We were indebted to Dr. Emmet and others for disproving the idea that every uterine discharge indicated endometritis. This might come from various constitutional derangements, such as a feeble heart, general debility, phthisis, constipation, or a sluggish portal circulation, and if these were remedied the discharge would disappear. This class of cases must be eliminated strictly when discussing endometritis. Some even went so far as to deny that there was such a disease as endometritis. The speaker had not studied the endometrium microscopically, but clinically he believed that there was such a thing as endometritis. Another important point in the study of endometritis from the therapeutic standpoint was whether the disease was or was not complicated. Treatment that was beneficial in uncomplicated endometritis might be and was dangerous where complications existed. Endometritis was often the forerunner of salpingitis, which was the forerunner of peritonitis. Patients with chronic peritonitis generally had endometritis. It was apparent that the treatment of such cases should be essentially different from the treatment of uncomplicated endometritis. Where the endometritis was uncomplicated, treatment directed to the uterus was moderately safe, although even here one might produce complications from intra-uterine applications, and especially from intra-uterine injections. The experience of our predecessors had proved this, and had shown that most cases of endometritis could be cured without treating the endometrium directly. When the cervix was dilated widely, as after curetting, the danger of intra-uterine injections was probably slight; but without such dilatation they were distinctly dangerous—how much so any old book on gynecology would prove.

THE BROOKLYN METHODIST EPISCOPAL HOSPITAL.

This institution—better known as the Seney Hospital, from the name of its founder, Mr. George I. Seney—has been open for patients but little more than four years. The *Fourth Annual Report*, for the year ending October 31, 1891, shows clearly that in this short time it has done a noteworthy amount of good work, not only in its primary sphere of relieving the sick, but also in contributing to the advancement of the medical art,

in training young physicians and surgeons, and in fitting young women to act as efficient nurses.

The *Report* is an octavo of nearly a hundred and fifty pages, and the greater portion of it is taken up with statistical accounts of the work done in the medical and surgical divisions, interwoven with brief but unusually well prepared outlines of the clinical histories of interesting cases. This is a feature that we should be glad to see in the annual reports of more of our large hospitals. The fundamental object of hospitals, of course, is to shelter the sick and injured and to afford them the best attainable treatment of their ailments, but it is not only legitimate, but positively desirable, for them to devote a considerable part of their resources, even if they are not ample, to publications of this sort, for they serve far better than mere tables of figures to spread among the medical profession and, through its members, among the community a realizing sense of what the institutions are really accomplishing and of the degree in which they are respectively worthy of additional benefactions. Moreover, by such a course the members of the medical staff are encouraged to strive harder than ever for continuous improvement in their work, and men of the best attainments are led to seek the office of physician or surgeon.

The plan of teaching given the pupil nurses is outlined in the *Report*, and we must say of it that it seems excellent.

MINOR PARAGRAPHS.

THE EFFECT OF LEAD POISONING UPON THE PERISTALTIC ACTION OF THE INTESTINES.

PROFESSOR BOKAI, of Budapest, during a series of experimental studies regarding the pathology of the peristaltic action of the intestines, produced lead poisoning in a number of rabbits by the administration of from one to five cubic centimetres of sugar of lead for from five to forty-six days, and the *Deutsche Medicinal-Zeitung* furnishes us with a brief *résumé* of the results. The positive results were that he found the intestines deficient in blood, the mucous membrane dry, and the large intestine filled with numerous dry balls of fæces which could with difficulty be moved onward. The intestines were highly hyperæsthetic and hyperalgesic, and the peripheral motor intestinal nerves were in excellent nutritive condition. The negative results were that the reaction of the intestinal muscles showed no change, the nervous system about the intestines showed no special condition of irritation, intestinal movements were not inhibited by section of the vagi, and there appeared no special condition of irritation of the central nervous system. These results lead Bokai to conclude that the obstipation of lead poisoning is due to the dryness of the mucous membrane and of the fæces rather than to paresis or spasm of the intestine or irritation of the splanchnic nerve. The diarrhœa which sometimes occurs is due to the irritation produced by the scybala. He is also inclined to consider attacks of lead colic to be usually of a reflex nature, for he has found that they occur pretty frequently after errors of diet, mechanical irritation, or the administration of laxatives. The spasm of the abdominal muscles during an attack of colic also seems to be of reflex origin. The tension, hardness, and slowness of the pulse he ascribes to the irritation of the vaso-motor nervous system by the chronic lead poisoning, and its elasticity during an attack of colic to a reflex contraction of the blood-vessels.

**THE EXAMINATION OF THE EYES SEPARATELY FOR COLOR-BLINDNESS.**

MR. SNELL calls attention in the *British Medical Journal* to the importance of testing each eye separately for color-blindness. He details a case which came under his observation in which there was green color-blindness of the left eye alone, and a second in which there was red blindness in the right eye and incomplete green blindness in the left. With both eyes open both patients correctly sorted Holmgren's wools, and would probably have passed an ordinary examination for color-blindness. The importance of sufficient examination of every person who may occupy a position where good color vision is requisite can not be too firmly insisted on, and every means should be employed to make such examination perfect. Such a condition is probably rare, for Fontenay, in the *Archives of Ophthalmology*, in 1881, states that he examined two hundred and seventeen persons, and found the two eyes in each case always alike. But this is insufficient to prove that such cases as those here mentioned exist, in which the exclusion of the use of one eye, even for a brief period, might be attended with the possibility of disastrous results.

**THE NON-MEDICAL USES OF POISONOUS DRUGS.**

THE *Pharmaceutical Record* states that enormous quantities of strychnine are used in the Western States for non-medical purposes. The county commissioners of Spokane, Washington, recently made a purchase of 1,500 ounces without entering into competition. The favored drug house gets the contract at a high figure, while the rest of the drug trade is left with huge stocks of the drug—enough to last many generations, according to ordinary demands. The mystery seems to be that there should be a public demand on the part of a county of not more than 25,000 population for so large an amount of poison, when a single ounce of it will last most drug stores many months, if not years. The non-medical sale of poisons in the West is very great, and it is believed that most of the strychnine produced, for example, is consumed in the work of destroying animal life. To kill game and destructive animals, such as wolves, foxes, squirrels, rabbits, etc., the farmer and the hunter find the poisonous drugs useful, whether they are in pursuit of bounty money or the animals' pelts.

**ETHER AS A STIMULANT.**

THE *Lancet* is the authority for the statement that in a certain English temperance hospital ether is allowed as a stimulant, instead of alcohol. Referring to the ether drinking vice in Ireland, it is truly said that it is "affectation to regard the use of such an agent as morally or physically better than the use of approved forms of alcohol."

**THE PHYSICIANS' MUTUAL AID ASSOCIATION.**

It is announced that the membership of the New York Physicians' Mutual Aid Association now amounts to a thousand, and that when it reaches eleven hundred the association will be able to pay \$1,000 on each death. This sum is the limit fixed by the by laws, and it ought to be reached soon.

**THE FLINT CLUB.**

BALTIMORE has an organization of physicians bearing the title of the Flint Club, named after the late Dr. Austin Flint. The membership numbers over thirty of the most social and clever of the rising generation of doctors. The meetings are

held monthly for the purpose of increasing the members' gas-tronomic knowledge and of forgetting for the time being everything of a medical nature. Feasting and a flow of wit rule the hour one night out of every thirty for the members of this ingenious coterie.

**ITEMS, ETC.**

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 29, 1892:

DISEASES.	Week ending Mar. 22.		Week ending Mar. 29.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	2	6	0	0
Typhoid fever.....	9	6	13	5
Scarlet fever.....	215	28	206	22
Cerebro-spinal meningitis....	4	4	4	3
Measles.....	282	23	423	16
Diphtheria.....	109	37	124	34
Small-pox.....	4	1	3	0
Erysipelas.....	2	0	0	0
Varicella.....	10	0	0	0
Pertussis.....	2	3	0	0
Mumps.....	2	0	0	0

**The Association of the Alumni of the New York Hospital.**—At the meeting for organization, to which we referred last week, the following officers were elected: President, Dr. Thomas M. Markoe; vice-president, Dr. William Gilman Thompson; secretary, Dr. Edwin T. Doubleday; treasurer, Dr. Henry A. Griffin; executive committee, Dr. Frank P. Foster, Dr. George R. Lockwood, and Dr. C. R. Garrison; committee on entertainment, Dr. John L. Adams, Dr. Paul Kimball, and Dr. Percy Bolton; committee on admissions, Dr. C. S. Cole, Dr. W. F. Martin, and Dr. George H. Cobb. Meetings are to be held on the second Friday of February, April, October, and December.

**To Deodorize Iodoform.**—The following combination is allowed by the Addendum of the *Netherland Pharmacopœia* to deodorize iodoform: Carbolic acid, one part; oil of peppermint, two parts; iodoform, one hundred and ninety-seven parts.

**Meetings of State Medical Societies for the Month of April.**—Florida Medical Association, Key West, 5th; Medical Society of the State of Tennessee, Knoxville, 12th; Medical Society of the State of California, San Francisco, 19th; Medical Association of Montana, Butte, 20th; Mississippi State Medical Association, Natchez, 20th; Medical and Surgical Faculty of Maryland, Baltimore, 26th; Texas State Medical Association, Tyler, 26th; Louisiana State Medical Society, New Orleans, 27th; South Carolina Medical Association, Georgetown, 28th.

**The Brooklyn Dermatological and Genito-urinary Society** has been organized with Dr. Samuel Sherwell as president, Dr. A. E. Smylie as vice-president, and Dr. George D. Holsten as secretary and treasurer. The meetings, which are private, are held on the first Friday of each month, except July, August, and September.

**Changes of Address.**—Dr. Birdette P. Craig, to No. 258 Montgomery Street, Jersey City; Dr. J. M. Hays, to No. 826 Fourteenth Street, N. W., Washington; Dr. M. J. Roberts, to No. 122 West Seventy-first Street.

**The Doctor's Retort.**—The *Evening Post* quotes the following from the *Leviston Journal*: One of the brightest physicians of Portland and one of the ablest theologians of Bath were in the physiological room at Bowdoin Medical School, not long ago, examining, in company with others, microscopic slides, showing certain peculiar glands of the intestines. The physician at once launched out into a brilliant discussion of the glands and their relation to various diseases. The theologian grew tired after a time, and finally said: "You doctors know so much about the uncertainties of this world that I should think you would not want to live." "You theologians," came the quick reply, "tell us so much about the certainties of the next that we don't want to die."

**The New York Otological Society** has recently been organized. The meetings are held upon the third Tuesday of November, January, March, and May. The work of organization was completed at a meeting held on March 22d, at the house of Dr. Gorham Bacon, at which time the following officers were elected: President, Dr. Albert H. Buek; vice-president, Dr. Emil Gruening; secretary, Dr. E. B. Dench. The first regular meeting will be held on Tuesday, May 17th, at 8 P. M.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from March 13 to March 26, 1892:*

TOWN, FRANCIS L., Lieutenant-Colonel and Surgeon, while on duty at Headquarters, Department of California, in charge of the office of the Medical Director, will, in addition to said duty, examine recruits at the rendezvous in San Francisco, Cal.

DE WITT, THEODORE F., First Lieutenant and Assistant Surgeon, is granted leave of absence to include May 16, 1892, at which date his resignation has been accepted by the President to take effect.

JOHNSON, R. W., Captain and Assistant Surgeon. The leave of absence granted for seven days is hereby extended fourteen days.

MUNDAY, BENJAMIN, Captain and Assistant Surgeon, is granted leave of absence for one month, with permission to apply for an extension of one month.

#### Promotions.

BAILY, JOSEPH C., Lieutenant-Colonel and Assistant Medical Purveyor, to be Surgeon, with the rank of Colonel, March 9, 1892, *vice* Norris, retired from active service.

WOLVERTON, WILLIAM D., Major and Surgeon, to be Assistant Medical Purveyor, with the rank of Lieutenant-Colonel, March 9, 1892, *vice* Baily, promoted.

SKINNER, JOHN O., Captain and Assistant Surgeon, to be Surgeon, with the rank of Major, March 9, 1892, *vice* Wolverton, promoted.

#### Appointments.

WINTER, FRANCIS A., of Alabama, to be Assistant Surgeon, with the rank of First Lieutenant, March 9, 1892, *vice* De Hanne, retired from active service.

PURVIANCE, WILLIAM E., of Illinois, to be Assistant Surgeon, with the rank of First Lieutenant, March 9, 1892, *vice* Steimmetz, retired from active service.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending March 26, 1892:*

HOELLING, A. A., Medical Inspector. Ordered as President Naval Medical Examining Board.

NEILSON, J. L., Surgeon. Ordered as member and Recorder of Naval Medical Examining Board.

WALTON, T. C., Medical Inspector. Granted six months' extension of leave, with permission to remain abroad.

BAGG, CHARLES PERRY, of Los Angeles, California, commissioned an Assistant Surgeon in the Navy.

#### Society Meetings for the Coming Week:

MONDAY, *April 4th*: New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; Coming, N. Y., Academy of Medicine; Boston Society for Medical Observation; St. Albans, Vt., Medical Association (annual); Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society (annual).

TUESDAY, *April 5th*: Florida Medical Association (first day—Key West); New York Obstetrical Society (private); New York Neurological Society; Elmira, N. Y., Academy of Medicine; Buffalo Medical and Surgical Association (private); Ogdensburgh, N. Y., Medical Association; Medical Societies of the Counties of Broome (quarterly) and Niagara (quarterly—Lockport), N. Y.; Hudson, N. J., County Medical Society (Jersey City); Essex, N. J. (annual—Newark) and Union, N. J. (annual—Elizabeth), County Medical Societies; Androscoggin, Me., County Medical Association (Lewiston); Chittenden, Vt., County Medical Society; Baltimore Academy of Medicine.

WEDNESDAY, *April 6th*: Florida Medical Association (second day); Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Bridgeport, Conn., Medical Association; Penobscot, Me., County Medical Society (Bangor); Philadelphia County Medical Society.

THURSDAY, *April 7th*: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington); Washington, Vt., County Medical Society.

FRIDAY, *April 8th*: New York Academy of Medicine (Section in Neurology); Yorkville Medical Association (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.

SATURDAY, *April 9th*: Obstetrical Society of Boston (private).

#### Answers to Correspondents:

No. 377.—An examination has to be passed. For particulars you had better write to the Board of Regents of the University of the State of New York, Albany.

No. 378.—The organs removed were undoubtedly subject to the husband's disposition.

## Letters to the Editor.

### AN IMPOSTOR.

56 EAST TWENTY-FIFTH STREET, NEW YORK, *March 25, 1892.*

*To the Editor of the New York Medical Journal:*

SIR: Some months ago a person calling himself Dr. Goodman, and pretending to have been my schoolmate, friend, and benefactor, succeeded in extracting various sums of money from a number of professional men in several Western cities. His method was to sell a gas-burner of his invention, but never to deliver it. Dr. F. M. Bauer, of 225 East Eighty-sixth Street, has informed me, in a letter dated yesterday, that a Dr. Goodman tried the same game on him. I beg to notify the members of the profession to be on their guard against this person, whom I do not know, and who apparently is a common swindler. Have him arrested.

ARPAD G. GERSTER, M. D.

## Proceedings of Societies.

### NEW YORK ACADEMY OF MEDICINE.

*Meeting of March 3, 1892.*

The President, Dr. ALFRED L. LOOMIS, in the Chair.

**Cases of Appendicitis illustrating Different Forms of the Disease, with Remarks.**—Dr. CHARLES MCBURNEY read a paper with this title. He urged the importance of opening the peritoneal cavity in cases in which this condition existed, differing in this respect with Treves, who was in favor of avoiding such a procedure. There were cases, however, in which it was preferable to avoid the danger of a peritoneal incision if it was at all probable that the abscess would approach the surface, especially in very fat persons, in the very old, and in the very young. Cases were narrated illustrating the various complications that might accompany the disease. The author did not believe that the temperature was a safe guide in determining the severity of the disease. Thus it was not infrequently the

case that the temperature would fall from 101° to 98° F., and a recurrence of bad symptoms would indicate that an operation was required. An incision having been made, it was not always possible to see the diseased structures: the fingers would often discover the lesion when the eyes did not. If the adhesions were very firm, they should be cut; those which were less firm could be torn. A gangrenous condition of the tissues developed early in some cases, and this fact emphasized the necessity of early operations. In other words, a diagnosis having been made early in the history of the disease, an operation must be done early to insure success. Of fifty cases in which the operation had been one of election, only one had resulted fatally. Some writers had asserted the reliability of examination through the rectum. This method was not approved of by the author. It was not desirable to wait until perforation through the rectum was imminent. Recurrent or relapsing appendicitis in patients who had not been operated upon were of frequent occurrence, one attack being frequently followed by others, and each being more dangerous than the previous one, besides involving loss of time, etc. Moreover, the recurrences might take place at a time when surgical relief was not available. Operations in recurrent attacks were likely to be much more difficult, and therefore more dangerous, than under the primary conditions of the disease. It was not deemed advisable to operate while the patient was suffering from shock, as in cases in which perforation had occurred. It was well to wait until the patient had rallied, and then perform the operation as quickly as possible. The author believed that the operation had established itself as a reliable and justifiable procedure, and that it had been so established more quickly than was usual with operations of equal magnitude.

Dr. FRANCIS DELAFIELD defined the province of the physician in the condition under discussion as that of making the diagnosis and saying what should be done, while the surgeon was to act upon the physician's recommendation. The responsibility of the one differed from that of the other, and he believed that there might be an honest difference of opinion between the two attendants. He thought it probable that in some of the cases that had been narrated permanent recovery would have occurred if an operation had not been performed, but in these doubtful cases he admitted that it was very difficult to decide as to the proper course to pursue. It must also be admitted that after an operation the abdominal wall was weakened on account of the presence of cicatricial tissue. If gangrene of the appendix was present, a fatal issue was inevitable, unless an operation was performed. In such cases general sepsis occurred very quickly, the phenomena resembling those of malignant diphtheria. In recurrent appendicitis the diagnosis was very difficult, and the question as to the propriety of operating could not be easily decided. He believed that many cases in which the diagnosis was that of recurrent appendicitis were not appendicitis at all. If there was perforation, an immediate operation was imperative, but in some cases he believed that the area of perforation was quickly shut in by adhesions.

Dr. LEWIS A. SRIMSON referred in a complimentary manner to the services of the author of the paper in increasing our knowledge of the subject of appendicitis, and congratulated him on the excellent results that had attended his efforts. He thought there should be no question as to the propriety of operating in cases of appendicitis, in view of the serious character of the condition. There was still misunderstanding as to the scope of the remedy which was proposed. The risks of the operation had been alluded to; the risks of the disease should also be seriously appreciated. The patients that died without operation were not reported. Again, the merits of the operation were too often judged by cases in which it had been delayed until

general peritonitis occurred. In cases in which a cure was supposed to be effected by medical treatment there was usually only a temporary cessation of the condition. The only way to be sure of the existing condition was to make an incision and find out by examination.

Dr. A. JACOBI was not sure that a diagnosis in doubtful cases should always be made by means of the cutting operation. It was possible to make a diagnosis by other means. The anatomical lesions causing the symptoms of appendicitis might be various and might not always require an operation. There were at least three conditions which presented similar symptoms—namely, perityphlitis, paratyphlitis, and appendicitis. If all the customary symptoms were present with the exception of swelling, an operation would be indicated. If swelling was present at the outset of the disease, he would be inclined to wait before advising an operation. In paratyphlitis the abscess was entirely outside the peritonæum, and the appendix was not involved. He had seen many cases of that character in which recovery had occurred without an operation. The disease would also differ with the age of the patient. In infants and children the appendix was very large, and appendicitis was of common occurrence. In the aged the appendix was small, and hence with them appendicitis was relatively infrequent. Sonnenburg, of Berlin, had advised operating very early in the history of the disease, the tissues being divided only as far as the peritonæum, and a secondary operation being performed if the condition required it. For doubtful cases it seemed to the speaker that such a course was advisable.

Dr. F. P. KINNICUTT had seen thirteen cases of the disease in the past twelve months, and some of them he had studied from their very inception. Of these cases, resolution had taken place in three without an operation, and in nine cases operations had been performed. In nine of the cases there had been recurrent attacks, and he had reached the conclusion that in catarrhal appendicitis recurrences were frequent and probable. For such cases medical treatment was unavailing. If perforation occurred, there was usually severe pain with vomiting. There might be a remission of the bad symptoms for twenty-four hours, followed by recurrence. The treatment of such cases with laxatives was deemed unavailing and unwise; opium might be given for the relief of the pain.

Dr. ROBERT ABBE believed that appendicitis began as a catarrhal inflammation, and that gangrene was not the first manifestation, though it might occur very quickly in the history of the disease. He believed that the condition was identical in children and in adults. It had been stated by some writers that suppuration did not occur in the recurrent conditions, but clinical investigation did not sustain such a statement. He believed that suppuration and a fatal issue might occur in such cases. The gravest responsibility rested with the physician, who frequently delayed in calling the surgeon to his assistance until the disease was too far advanced to be curable. A period of quiescence might begin on the second day of the disease, when the inflammatory mass had been shut in by plastic lymph. Subsequently this barrier was broken down and the severe symptoms recurred, possibly with a fatal result. In some of the cases in which the speaker had operated he had found it advantageous to make counter-openings in the loins, thus obtaining thorough drainage. He concurred in the statement that purgation was not to be recommended in this disease.

Dr. A. G. GERSTER thought it was now admitted by physicians that early operations in appendicitis were or might be necessary. He concurred in the statement that those cases in which swelling was prominent in the early history of the disease were not necessarily the ones to be operated upon. He saw no reason why a diagnosis should not be made by means of an ex-

ploratory incision, just as it was made in other diseased conditions. Like the author of the paper, he objected to operating while the patient was in shock; it was better to wait until the symptoms had improved. It was true that hernia was a possible sequel to an operation, but such an accident could usually be obviated if special care was exercised. The operation should not be performed by one who was without skill or experience in this line of work. The incision might be made in the median line, and if this did not enable one to reach the abscess, a second incision might be made in the loin.

Dr. W. H. DRAPER thought that the physician should have the responsibility and direction of cases of appendicitis, the surgeon being subject to his guidance. He appreciated the statement that it was often very difficult to diagnosticate appendicitis, and there were several conditions which might be confounded with it. Among such conditions might be mentioned salpingitis, oophoritis, and stricture of one or another portion of the intestine. He admitted the value of exploratory incisions for this disease, and believed that patients who recovered without an operation were very likely to be subject to recurrence.

The PRESIDENT believed that patients might recover from this disease without an operation and be free from recurrence. This had been shown by post-mortem statistics. Clinically, one should recognize mild cases and severe cases, and much was to be learned in this particular from the aspect of the patient. He believed that the first attack of the disease was usually mild; subsequent ones might be more severe. With the first appearance of sepsis or shock the assistance of the surgeon should be sought. In general, he would say that if improvement were not apparent within forty-eight hours from the inception of the disease, consultation with a surgeon should be sought. Medical treatment was not usually efficient in secondary attacks. As long as induration in the diseased area was present there was a condition of danger. If there was doubt as to the existing condition of affairs an exploratory incision was indicated.

Dr. McBURNEY admitted the possibility of hernia as a sequel to an operation for appendicitis, but he thought that improved methods of operating would overcome this objection. As to the method of operating at two different periods, it was neither new nor would it be generally useful. It had been practiced years ago by the late Dr. Sands, and there were many cases in which the abscess was too deeply seated to be influenced by an incision which extended only to the peritonæum.

#### SECTION IN ORTHOPÆDIC SURGERY.

*Meeting of February 19, 1892.*

Dr. HENRY LING TAYLOR in the Chair.

#### Rotary Lateral Curvature of the Spine after Empyema and Poliomyelitis.—

Dr. W. R. TOWNSEND presented a girl, fourteen years of age, with rotary lateral curvature of the spine. At the age of three years, and after whooping-cough, she had had an empyema on the left side, which had opened spontaneously. The sinuses had continued to discharge for five years, and the three cicatrices—one to the left of the nipple and two slightly below and to the right—showed the points where the openings had occurred. When she was five years old, it had been noticed one morning that there was a complete loss of power in the left upper extremity. The mother said there had never been any curvature of the spine before the attack of paralysis, although the child had always slept on the left side, and the curvature had been steadily increasing since then. The circumference of the chest at the nipples was twenty-four inches, the right side measuring fifteen, and the left nine inches. There was a very marked lateral rotary deviation of the spinal column

to the right, extending from the seventh cervical to the tenth dorsal, with compensating curves above and below. There was no torticollis. The breathing space was good, considering the amount of the deformity. The heart was not displaced. There was complete loss of reaction to faradism in the left supraspinatus and infraspinatus and in the deltoid, and a reversal of the formula with the galvanic current. There was no anæsthesia, but marked atrophy of the shoulder and upper left arm. There was a partial loss of reaction in the pectoral, but the biceps, triceps, and forearm muscles reacted well. The interesting feature was the relation of the rotary curvature to the empyema and the poliomyelitis. The speaker's opinion was that the empyema had probably caused a slight curvature, and that the paralysis had helped to increase it, but that there was no connection between the empyema and the paralysis; in other words, the paralysis was not produced by the scoliosis, but was separate and distinct and due to a poliomyelitis. He had presented the case chiefly because it was of interest in connection with the first paper announced for the evening.

Dr. ROYAL WHITMAN also presented a little girl as an illustration of a pure rotary lateral curvature caused by anterior poliomyelitis.

Dr. H. W. BERG said that he had had an opportunity of seeing this patient, and had obtained a somewhat different history. According to this version, the patient was still in bed with the empyema when the family first noticed that she was lying more upon the left side. The occurrence of the paralysis had been sudden, and the attending physician had allowed her to get out of bed, and at this time the extreme lateral curvature had first been noticed. If this curvature was the result of the poliomyelitis, it would not have been so extreme at this early stage, for it took time for muscles to contract and cause deformity. In this case the paralyzed muscles were on the left side of the body and the primary curve toward the right, while in cases of lateral curvature due to paralysis the healthy muscles must necessarily be on the concave side of the deformity. The only way in which poliomyelitis could possibly produce a curvature on the concave side of the deformity would be in the third stage of this disease—*i. e.*, in the third or fourth year after the paralysis, when the muscles began to contract into firm fibrous cords.

Dr. ROYAL WHITMAN thought that, if the long supporting muscles were paralyzed, it might be as the previous speaker had said; but in these cases where only the muscles supplying the shoulder were paralyzed, one would expect the curvature to be toward the opposite side.

Dr. BERG replied that the intrinsic muscles were not alone paralyzed in this case. Lateral curvature must follow contraction of the intrinsic muscles of the spine, and not of the long muscles.

Dr. R. H. SAYRE had seen a number of cases of lateral curvature dependent upon poliomyelitis with paralyzes of the external muscles on the concave side, and hence, he thought, the statement that the convexity was always on the side of the paralyzed muscles could not be accepted without qualification. He had been surprised that German writers took it for granted that empyema curves were not rotary.

Dr. S. KETCHUM was not prepared to indorse the view that the curvature was mainly due to the empyema; on the contrary, he thought the patient had that form of curvature usually found as a result of anterior poliomyelitis. Undoubtedly the empyema tended to exaggerate this curvature.

Dr. N. M. SHAFFER said that, so far as he knew, the first reported case of lateral curvature due to poliomyelitis had been published in his book in 1876 or 1878. That case had been examined by Dr. Seguin, Dr. Draper, and himself, and they had

found the paralysis on the hollow side. On general principles, he believed that Dr. Berg was correct in his statement. In 1881 he had called attention to the fact that a rotary element existed in empyematous curves. It was exceptional for him to find a lateral curvature of the spine, due to empyema, which was not associated with a greater or less degree of rotation. The error probably arose from the fact that Dr. W. J. Little, of London, who had first described it, had made this mistake, and other writers had perpetuated the error.

Dr. MARY PUTNAM JACOBI called attention to the monograph by Eulenberg on lateral curvature of the spine, in which he stated very categorically that in ordinary typical cases of lateral curvature the muscles on the concave side were necessarily the stronger, and explained on this principle the mechanism of the production of lateral curvature. His idea was that it was due to a disturbance in the balance of the muscles of the two sides, whether extrinsic or intrinsic.

Dr. A. B. JUDSON said that in his earlier studies of lateral curvature he had adopted, without due verification, the statement of foreign observers that rotation was absent from the curvature caused by pleural disease. At present he believed that it did not occur, but in a very modified and unimportant degree. The collapse of the chest wall would weaken the action of some of the muscular and fibrous structures which caused rotation by holding the spinous processes nearer the median line than the bodies of the vertebrae. For this reason we might well expect the rotation to be less marked. In the case shown there was little difference in the diagonal diameters, which was the chief feature of rotation, and was caused, in an ordinary case, by the prominence, posteriorly, of the right back of the chest, and the complementary prominence, anteriorly, of the left front of the chest. Here we had prominence before and behind on the right side, and depression before and behind on the left side, with but little difference in the diagonal diameters, a condition very unlike the effect of rotation. Still there might be, and probably was, some rotation in the vertebral column of this patient, although its effect on the deformity was not easily recognizable.

Dr. TOWNSEND said that, owing to the fact that in this case one was compelled to rely wholly upon the varying statements of the parents of the child, who were not very close observers, it would be well to be cautious in drawing conclusions from a study of this case alone. He did not agree with Dr. Berg as to the relation of the paralyzed muscles to the concave side.

**Voluntary Subluxation of the Knee produced by Muscular Action.**—Dr. R. H. SAYRE showed a child of fourteen months presenting this condition. The mother had first noticed this condition when the child was eight months old. When he was excited, the right knee was pushed in and out with a distinct click. The child had been born after a normal labor, and there was no history of injury. The speaker proposed to apply a splint, in order to retain the knee in position.

**An Appliance for the Prevention of Deformity in Hip Disease.**—Dr. WHITMAN presented a case illustrating this appliance. He believed that the long traction brace was the most useful appliance in these cases, for it assured as a perineal crutch a protection which could not be removed by the patient. This was the principal objection to any brace which depended on axillary crutches for its usefulness. Simple fixation of the joint, allowing the patient to walk about on the affected limb, as practiced by Thomas and others, did not afford this protection, which he considered the most important element in the treatment of any joint affection. On the other hand, with the simple long traction brace, gradual and increasing flexion of the leg was a very common and troublesome complication. This was the weak point of the brace, and the one most constantly

attacked by its opponents. He had therefore attempted to combine the merits of two braces as follows: The limb having been brought into perfect position, a slender steel bar, attached above to an encircling thoracic band and terminating just above the knee in a thigh band, was closely applied along the posterior aspect of the joint, after the manner of Thomas. The long traction brace was then applied as usual. Thus flexion was prevented and additional fixation assured, combined with effective protection. By dividing the function of the two braces, the posterior or miniature Thomas brace could be made very light and comfortable; it, however, was not to be used as a lever to correct deformity. This should first be overcome by traction in bed or otherwise. He believed this division of labor to be more practicable than the addition of perineal bands and traction to the ordinary Thomas brace, as suggested by Lovett and De Pass.

Dr. JUDSON commended the use of one apparatus, the hip splint, to protect the joint, and another, the antero-posterior lever, if apparatus was necessary for this purpose, to oppose flexion. In general, it was better not to attempt too many things with one and the same apparatus. He thought the antero-posterior lever, for combating flexion and maintaining fixation, was the essential element of the Thomas splint.

Dr. SNAFFER said that where supplementary apparatus was employed to limit the motion of the dorso-lumbar spine and the motion on the acetabulum, unnecessary traumatism was inflicted upon the acetabulum. He had studied this subject quite closely, and, in his opinion, this motion of the dorso-lumbar spine was one of the greatest aids in the treatment of this condition. It was better to treat flexion by recumbency and rest until the flexion was overcome, than to apply an apparatus which antagonized the very strong action of the flexor muscles.

Dr. WHITMAN said he recognized the force of what Dr. Shaffer had said about the flexibility of the lumbar spine, but he was inclined to think that the motion of the diseased joint which the simple traction brace permitted, and the deformity which it did not prevent, were more important considerations than the theoretical objection which Dr. Shaffer had presented. This fixation apparatus was applied before there was any flexion, and in the case presented there was no spasm of any of the muscles.

#### Does Scoliosis ever give rise to Pressure Myelitis?—

Dr. H. W. BERG read a paper with this title.

Dr. R. H. SAYRE thought there was no doubt that the differences in mammary development observed in cases of rotary lateral curvature were the result of trophic change, but the cause of this disturbance was still uncertain. In advanced cases he had been inclined to attribute this disturbance to pressure on the nerves at their exit from the bony canal. Pathological specimens showed not only a narrowing of the bony canal, but also large exostoses at the points where the vertebrae joined; it was quite possible that these might project inward as well as outward. The case described in the paper had at one time been under his care, and he had considered it as closely resembling disseminated sclerosis, although it was not typical of any diseased condition with which he was familiar. Dr. Spitzka had held the same position. The case had been diagnosed as lateral sclerosis by one neurologist, and as hysteria by another eminent neurologist, who had employed hypnotism upon the patient, though unsuccessfully. She had been referred to the speaker with the idea that there was some pressure on the cord at about the tenth dorsal vertebra, which might possibly be relieved by a surgical operation. He had been unable, however, to detect any mass pressing upon the cord, and, from the effects of momentary suspension, he did not think this method of treatment would prove beneficial. He did not associate the cord lesion with the lateral curvature. The

trophic changes were probably due to disturbance of nutrition external to the cord.

Dr. SHAFFER considered that the author's case of lateral curvature differed only in degree from almost every case of this condition. It was rare to find lateral curvature without an exaggerated tendon reflex, a non-deforming club-foot, or various trophic changes, and the latter occurred in incipient cases, before there could be any pressure on the cord. Girls suffering from lateral curvature were usually peculiarly nervous, and oftentimes seemed to assume the responsibilities of their entire family. This was the direct result of the central nervous lesion—one which pertained more to the psychical condition than to the spinal-cord condition. Our clinical studies drove us by analogy to look in the motor tract of the brain for the cause of the condition.

Dr. KETON looked upon the trophic changes as an element in the ætiology of lateral curvature, rather than the result of this condition. It was probable that, at a very early period in life, there was a disturbance of the nervous system, most probably of the brain, which produced the lateral curvature. Boys having lateral curvature showed atrophy of the limbs, but the general nervousness was not so marked. For example, he had at present under observation a robust boy, fifteen years old, with lateral curvature, who was supernaturally strong and supernaturally slow and apathetic. He thought it highly improbable that pressure myelitis ever occurred in these cases.

Dr. L. W. HUBBARD could not understand how the paraplegia of Pott's disease could be said to be due to cord pressure from change of position, as clinically it seemed to bear no relation to the amount of curvature or the situation of the lesion, and it was present when there was no curvature, and, moreover, recovery took place without any change in the curve of the spine. He saw nothing in the case reported analogous to the myelitis of Pott's disease.

Dr. JUDSON would eliminate muscular contraction as a factor in the causation of lateral curvature, believing that rotation and the curvatures, primary and secondary, were only the mechanical result of muscular failure to sustain the weight of the trunk. He would welcome with extreme pleasure any advance in our exact knowledge of the ætiology of lateral curvature.

Dr. V. P. GIBNEY had never seen pressure myelitis in an uncomplicated case of rotary lateral curvature.

The CHAIRMAN agreed with Dr. Hubbard that the analogy of the case under discussion to the myelitis of Pott's disease was not very strong, as, according to the view advanced by Dr. Hoffa at the last meeting of the American Orthopædic Association, and generally accepted by those present, the paraplegia was due to the pressure of inflammatory products. Personally, he had never seen a case of lateral curvature complicated by paraplegia or symptoms of lateral sclerosis. Last autumn he had had a case of very moderate curvature, with a very peculiar ataxic gait, but a careful examination had excluded organic disease of the spinal cord, and it had been decided to be a case of functional nervous disturbance, possibly produced by masturbation. It seemed strange that such a mild case as the one described in the paper should produce such marked nervous symptoms, while the much more severe cases so often seen had no analogous symptoms. He looked upon the cord lesion as merely a coincidence.

Dr. BERG thought the diagnosis of disseminated sclerosis very improbable, and this diagnosis had probably been made because a primary sclerosis of the cord was such a rare condition that whenever a neurologist saw a spastic paralysis in an adult and could find no cerebral symptoms, or symptoms of pressure upon the cord, he made a diagnosis of disseminated sclerosis. Dr. S. Weir Mitchell had given it as his opinion that the case

was one of primary lateral sclerosis. There was no doubt as to the sclerosis and the lateral curvature; the only doubt was as to the connection between the lateral curvature and the sclerosis. Pott's paraplegia was caused by a variety of conditions, but he believed that in nearly seventy-five per cent. of the cases the paraplegia was due to pressure resulting from flexion of the cord at the angle of the curve. He had no doubt that hundreds of cases had been seen where the lateral curvature had been considered the result of paralysis, where it was really the cause.

**Femoral Abduction, Adduction, and Flexion.**—Dr. JUDSON presented a convenient method of observing the degrees of motion in cured and convalescing cases of hip disease. The subject was illustrated by boards on which dolls were fixed, the center of motion at the hip in each case being surrounded by a graduated arc, with the degrees numbered from zero, in the natural posture of supine recumbency, with a slight lordosis, up to the widest limit of normal motion. In practice the region of motion was first to be found, and then the extent to which it might be pushed, without disturbing the natural and symmetrical position of the lumbar vertebrae and the iliac spines, was to be noted on the goniometer. The degrees of motion in flexion and laterally might thus be readily recorded. The presence of considerable motion warranted a serious effort to reduce whatever deformity might exist. He cited two cases in which the patients, being considered cured, relief had been sought for the deformity. Enough motion had been found to encourage hope, and good results had been recorded in a few months in each case after the application of a hip splint, and, later, a simple ischiadic crutch, and the return of the patient by instruction and drill to the natural rhythm of walking. The improvement had been readily measured in degrees, from time to time, and the deformity had been almost completely reduced.

**A New Method of making Plaster Casts of the Thorax in Cases of Rotary Lateral Curvature.**—Dr. MARY PUTNAM JACOBI exhibited a series of models which she had prepared by an original method. It had been suggested to her by observations made with the cyrtometer upon the condition of the thorax after empyema. An outline of the thorax at the desired level was first taken with a cyrtometer (which was an instrument consisting of two soft strips of lead united by a hinge), which was placed over the vertebral column, and the lead strips closely applied to the chest walls. The lead was next placed upon a slab of marble, where it served as a sort of shallow frame, into which the plaster-of-Paris cream was poured and allowed to set. This gave practically a thin plaster cast, representing a section of the thorax. She called attention to the ease with which the diagonal diameter could be obtained, and also to the way in which these casts brought out small degrees of curvature.

## Book Notices.

*A Treatise on the Ligation of the Great Arteries in Continuity. With Observations on the Nature, Progress, and Treatment of Aneurysm.* By CHARLES A. BALLANCE, M. B., M. S. Lond., F. R. C. S., Assistant Surgeon to St. Thomas's Hospital, etc., and WALTER EDMUNDS, M. A., M. C. Cantab., Resident Medical Officer, St. Thomas's Home. Illustrated by Ten Plates and Two Hundred and Thirty-two Figures. London and New York: Macmillan & Co., 1891. Pp. xxviii to 568. [Price, \$10.]

It is rare that the medical reader is offered a volume so elegantly prepared as this is; but a slight widening of the page

margins, and another quality of paper, and this work, with its delightfully distinct typography, its numerous and excellent illustrations and plates, would be the peer of any *édition de luxe*. It is a pleasure to commend the enterprise of the publishers in these particulars, and the character of the work done by the authors justifies such a presentation of their topic. For seven years Mr. Ballance and Mr. Edmunds have been engaged in the researches on which this volume is founded, and they conclude that in ligation in continuity, in experimental work as well as in human surgery, "the method of rupture leads, with certain arteries, almost inevitably to the dread sequel of hæmorrhage and death; and, further, that the rise of Listerian surgery has not abolished the danger." This last statement will probably be a surprise to some surgeons and will be questioned by others. And yet the various statistics published during the past decade seem to substantiate the statement, and Billroth is quoted as stating that the statistics of hæmorrhage after ligation in continuity probably understate the case.

As a preliminary study of the subject the authors investigated the physiological occlusion of arteries occurring in the circulatory changes at birth and the pathological occlusion that happens in certain diseases. In the former instance they show that Nature does not think it necessary, when occluding the ductus arteriosus, to rupture the inner coats of that vessel, and that it is not divided in order to reduce the longitudinal tension; and yet it is rare that failure to occlude occurs, and hæmorrhage is unknown. So, in pathology, a vessel may be obliterated without either of those supposed necessary features being called into play.

It is demonstrated that the plasma cells of the arterial wall, and not the leucocytes of the blood, form the scar tissue that occludes the artery, and the authors' experiments corroborate Ziegler's to the effect that the connective-tissue corpuscles are the sole active agents in the formation of cicatricial tissue, the leucocyte possessing no fibroblastic power. They found that one of the first results of ligation was a multiplication of the endothelial cells to twice or three times their usual depth; soon the connective-tissue corpuscles in the middle coat became active and subdivided, and the daughter cells of these corpuscles passed through the openings in the membrane of Henle and entered the clot that had formed in the artery. The red corpuscles at the periphery of the clot first lost their sharpness of outline, breaking down into granular masses and becoming oval or fusiform, while those at the center of the clot retained their appearance and shape for a considerable time. Fibrin nodes were formed, about which the invading plasma cells formed islets from which elongated cells were thrown out, uniting with similar processes from other islets. About the fourth week capillaries appeared in the clot, and ultimately the artery became converted into a mere cord of fibrous tissue. This result refutes Bruns's statement that clotting does not take place unless the coats of the artery are ruptured.

They quote from Paré, Monro, Heister, Platner, Bell, John Hunter, and Scarpa to show that these fathers in surgery did not advocate rupture of the internal walls. And to Abernethy they attribute the renaissance of the operation of Celsus, and to Jones the prevalent idea of the necessity of rupturing the internal walls in ligation in continuity.

Their experiments show that the ligature selected should be round, smooth, strong, inelastic, pliable, and not easily absorbed. Even chromated catgut ligatures were easily penetrated by the leucocytes and plasma-cells, the intestinal villi facilitating their entrance into and consequent softening of the ligature. But in kangaroo tendon its homogeneity permitted its absorption from the surface only. Next to kangaroo tendon, ox peritonæum,

boiled floss silk, and silkworm gut proved to be most suitable for ligatures.

In tying the ligature they consider that the reef, granny, or surgical knot may be converted into a slip knot, and they advise a stay knot formed by two or more ligatures tied separately, as in the first half of a reef knot, and then completed by all the ends on each side being tied as in completing a reef knot. The force to be employed in tying the ligature is about the same whatever material is used, and averages about a pound of traction to occlude the vessel without rupture.

In seventy-one experiments on sheep, asses, and horses of ligation of arteries under strict antiseptic precautions they found that the vessels could be permanently occluded without rupture of their coats, and that secondary hæmorrhage did not occur if a suitable ligature was tied in a suitable knot with appropriate force.

The concluding chapter, on the conduct of the operation and the fate of the patient, is one that will prove of interest to all surgeons.

*Surgical Anatomy for Students.* By A. MARMADUKE SHEILD, M. B. (Cantab.), F. R. C. S., Senior Assistant Surgeon, Aural Surgeon, and Teacher of Operative Surgery, Charing Cross Hospital. New York: D. Appleton & Co., 1891.

This little volume is based upon a series of demonstrations that the author has delivered to his students, and, as it is to be used with the living body, it will be found particularly serviceable to students for the purpose of demonstration. The various chapters treat of the different surgical regions of the body, and the practical considerations in each include allusions to the more frequent operations and injuries. It is a compact and satisfactory manual.

#### BOOKS, ETC., RECEIVED.

*The Principles and Practice of Medicine.* Designed for the Use of Practitioners and Students of Medicine. By William Osler, M. D., Fellow of the Royal College of Physicians of London; Professor of Medicine in the Johns Hopkins University and Physician-in-chief to the Johns Hopkins Hospital, Baltimore. New York: D. Appleton & Co., 1892. Pp. xvi to 1079. [Price, \$5.50.]

*A System of Practical Therapeutics.* Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Assisted by Walter Chrystie, M. D., formerly Instructor in Physical Diagnosis in the University of Pennsylvania. Vol. II. Fevers—Diseases of the Respiratory System, Circulatory System, and Hæmatopoietic System—Diseases of the Digestive System. With Illustrations. Philadelphia: Lea Brothers & Co., 1892. Pp. 6-17 to 1158.

*A Practical Manual of Diseases of the Skin.* By George H. Rohe, M. D., Professor of Materia Medica, Therapeutics, and Hygiene, and formerly Professor of Dermatology in the College of Physicians and Surgeons, Baltimore. Assisted by J. Williams Lord, A. B., M. D., Lecturer on Dermatology and Bandaging in the College of Physicians and Surgeons, Baltimore. Philadelphia and London: The F. A. Davis Co., 1892. Pp. viii to 303. [No. 13 in the *Physicians' and Students' Ready Reference Series.*]

*The Mediterranean Shores of America.* Southern California: its Climatic, Physical, and Meteorological Conditions. By P. C. Remondino, M. D., Member of the American Medical Association, etc. Fully illustrated. Philadelphia and London: The F. A. Davis Co., 1892. Pp. xiv to 160.

*Abdominal Surgery.* By J. Greig Smith, M. A., F. R. S. E., Surgeon to the Bristol Royal Infirmary; Lecturer on Surgery, Bristol Medical School, etc. Fourth Edition. Philadelphia: P. Blakiston, Son, & Co., 1891. Pp. xviii to 806.

Lectures on Pathology delivered at the London Hospital by the late Henry Gaven Sutton, M. B., F. R. C. P., Physician and Lecturer on Pa-

thology at the London Hospital, etc. Edited by Maurice Eden Paul, M. D., and revised by Samuel Wilks, M. D., LL. D., F. R. S. Philadelphia: P. Blakiston, Son, & Co., 1891. Pp. xviii to 503.

Practical and Analytical Chemistry. A Complete Course in Chemical Analysis. By Henry Trimble, Ph. M., Professor of Analytical Chemistry in the Philadelphia College of Pharmacy. Fourth Edition. With Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xiii-17 to 119.

The Book of Prescriptions, containing upward of 3,000 Prescriptions collected from the Practice of the most Eminent Physicians and Surgeons, English and Foreign; comprising also a Compendious History of the Materia Medica, Lists of the Doses of all Official or Established Preparations, and an Index of Diseases and Remedies. By Henry Beasley. Seventh Edition. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xx to 599.

A Manual of Diseases of the Nervous System. By W. R. Gowers, M. D., F. R. C. P., F. R. S., Consulting Physician to University College Hospital, etc. Second Edition, revised and enlarged. Volume I. Diseases of the Nerves and Spinal Cord. With One Hundred and Eighty Illustrations, including Three Hundred and Seventy Figures. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xvi to 616.

A Manual of Autopsies. Designed for the Use of Hospitals for the Insane and other Public Institutions. By I. W. Blackburn, M. D., Pathologist to the Government Hospital for the Insane, Washington, D. C. Illustrated. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. x-17 to 84.

The Pathology and Prevention of Influenza. By Julius Althaus, M. D., M. R. C. P. Lond., Senior Physician to the Hospital for Epilepsy and Paralysis, Regent's Park. New York: G. P. Putnam's Sons, 1892. Pp. 7 to 64.

Epidemic Influenza: Notes on its Origin and Method of Spread. By Richard Sisley, M. D., Member of the Royal College of Physicians of London. London: Longmans, Green, & Co., 1891. Pp. xi to 150.

Traité clinique et thérapeutique de l'hystérie d'après l'enseignement de la Salpêtrière. Par le Docteur Gilles de la Tourette, ancien chef de clinique des maladies du système nerveux à la Salpêtrière. Préface de M. le Dr. J. M. Charcot, Professeur de clinique des maladies du système nerveux, membre de l'institut. Hystérie normale ou interparoxystique. Avec 46 figures dans le texte. Paris: E. Plon Nourrit et cie., 1891. Pp. xv to 582.

Lehrbuch der Hebammenkunst. Von Dr. Bernhard Sigmund Schultze, Gehcimhofrath öff. ord. Prof. der Geburtshülfe, etc. Zehnte Auflage. Mit 98 Holschnitten. Leipzig: Wilhelm Engelmann, 1891. Pp. xxiii to 380.

Official Transactions of the National Association of Railway Surgeons, 1891.

Transactions of the New Hampshire Medical Society at the Centennial Anniversary, held at Concord, June 15, 16, and 17, 1891.

A Study of the Sputum in Pulmonary Consumption. By E. L. Shurly, M. D., Detroit, Mich. [Reprinted from the *Climatologist*.]

Inaugural Address to the Physiology Class in Anderson's College. Session 1891-'92. By D. Campbell Black, M. D. Glasgow: Hugh Hopkins.

Obstetric Problems: Being an Inquiry into the Nature of the Forces determining Head Presentations, Internal Rotation, and also the Development of the Amnion. By D. T. Smith, M. D., Louisville, Ky. With Illustrations. Louisville: John P. Morton & Co., 1892.

Observation and Experiment in Phthisis. A Reply to Professor Tyndall. By Thomas J. Mays, M. D., Philadelphia. [Reprinted from the *Climatologist*.]

A Study of the Processes which result in the Arrest or Cure of Phthisis. By Henry P. Loomis, M. D., New York. [Reprinted from the *Medical Record*.]

On the Collection of Samples of Water for Bacteriological Analysis. By Wyatt Johnston, M. D., Montreal. [Reprinted from the *Canadian Record of Science*.]

Nomenclature of Diseases to be followed by Physicians in the Indian Service in making Reports to Indian Office. Washington: Government Printing Office, 1892.

A Quarter of a Century's Retrospect of Laryngology. By Lennox

Browne, F. R. C. S. Ed. [Reprinted from the *Journal of Laryngology, Rhinology, and Otology*.]

A Statistical Review of the Proportion and Cause of Blindness in Thirty-two Thousand Eyes consecutively treated in the Jefferson College Hospital. By Howard F. Hansell, M. D., and James H. Bell, M. D., Philadelphia. [Reprinted from the *Archives of Ophthalmology*.]

The Therapeutic Aspect of some Ovarian Disorders. By Edward W. Jenks, M. D., LL. D., Detroit, Mich. [Reprinted from the *Transactions of the American Gynecological Society*.]

The Bicycle in the Treatment of Nervous Diseases. By Græme M. Hammond, M. D., New York. [Reprinted from the *Journal of Nervous and Mental Disease*.]

Seventh Annual Report of the New York Post-graduate Hospital (and the Babies' Wards) for the Year ending September 15, 1891.

Third Annual Report of the Babies' Hospital of the City of New York.

Annual Report of the Board of Managers of the Maryland Hospital for the Insane, November, 1891.

Fourteenth Annual Report of the Presbyterian Eye, Ear, and Throat Charity Hospital, Baltimore.

Additional Report of the Commissioners of Capital Punishment of the State of New York. Transmitted to the Legislature January 19, 1892.

Transactions of the American Association of Obstetricians and Gynecologists. Vol. IV. For the Year 1891. Philadelphia: W. J. Dornan, 1892.

Some Points in the Diagnosis and Nature of Certain Functional and Organic Nervous Diseases. By J. T. Eskridge, M. D., Denver, Colorado. [Reprinted from the *Alienist and Neurologist*.]

Subacute Recurrent Multiple Neuritis. By J. T. Eskridge, M. D., Denver, Colorado. [Reprinted from the *Journal of Nervous and Mental Disease*.]

The Indications for Colotomy. By Charles B. Kelsey, M. D., New York. [Reprinted from the *Therapeutic Gazette*.]

Transactions of the American Surgical Association. Volume the Ninth. Edited by J. Ewing Mears, M. D. Philadelphia: William J. Dornan, 1891.

Transactions of the American Otological Society. Twenty-fourth Annual Meeting. Arlington House, Washington, D. C., September 22, 1891. Vol. V. Part I.

A Text-book of Nursing, for the Use of Training Schools, Families, and Private Students. Compiled by Clara S. Weeks-Shaw. Second Edition, revised and enlarged, with Illustrations. New York: D. Appleton & Co., 1892. Pp. 8-11 to 391. [Price, \$1.75.]

The Pocket Pharmacy, with Therapeutic Index. A *Résumé* of the Clinical Applications of Remedies adapted to the Pocket-case, for the Treatment of Emergencies and Acute Diseases. By John Aulde, M. D., Member of the American Medical Association, of the Medical Society of the State of Pennsylvania, etc. New York: D. Appleton & Co., 1892. Pp. 16-17 to 204. [Price, \$2.]

The Year-book of Treatment for 1892. A Critical Review for Practitioners of Medicine and Surgery. Philadelphia: Lea Brothers & Co., 1892. Pp. vii to 486.

The Miitter Lectures on Surgical Pathology. Delivered before the College of Physicians of Philadelphia, 1890-'91. By Roswell Park, A. M., M. D., Professor of Surgery, Medical Department, University of Buffalo. [Reprinted from the *Annals of Surgery*.]

Traitément des maladies de la peau, avec un abrégé de la symptomatologie, du diagnostic et de l'étiologie des dermatoses. Par le Dr. L. Brocq, Médecin des hôpitaux de Paris. La partie pharmacologique a été revue par M. L. Portes, Pharmacien en chef de l'Hôpital Saint-Louis de Paris. Deuxième édition, corrigée et augmentée. Paris: Octave Doin, 1892. Pp. ix-894. [Prix, 15 francs.]

Traité de médecine. Publié sous la direction de MM. Charcot, Professeur de clinique des maladies nerveuses à la Faculté de médecine de Paris; Bouchard, Professeur de pathologie générale à la Faculté de médecine de Paris, et Brissaud, Professeur agrégé à la Faculté de médecine de Paris. Par MM. Babinski, Ballet, Brault, Chantemesse, Charrin, Chauffard, Gilbert, Guinon, Legendre, Marfan, Marie, Mathieu, Netter, Octinger, André Petit, Richardière, Roger, Ruault, Thibierge,



During 1890 the enteric deaths numbered 1,008; in 1891, 1,997; corresponding to the death-rates of 0.9 and 1.6 respectively. It was pointed out that the general death-rate of Chicago was by no means high, and that the excessive mortality from enteric fever was in ominous accordance with what was known of the danger of pollution of the water supply by sewage. The city stands, as everybody knows, on the shore of Lake Michigan, and takes its water supply from that source. It seems that the sewage of some 180,000 persons passes directly into the lake; and that further pollution is brought about by means of the Chicago River, which communicates with the Mississippi as well as Lake Michigan, and delivers its polluted waters in either direction, according to circumstances. The water intake is at different points in the lake which do not seem to be sufficiently far removed from the sources of pollution to afford any satisfactory assurance of safety. A proposal to construct a water tunnel four miles in length has not yet been carried out.

The statements made as to the prevalence of fever were at first met with flat contradiction. According to the health commissioner for Chicago the assertions were ridiculous; there was not, and had not been, any epidemic; it was simply a scare intended to frighten people from coming to the World's Fair. His view was supported by the published statements of several medical practitioners. There was very little fever, and that little was due to atmospheric conditions, to close alleys, to faulty drainage, to decaying refuse kept in cellars, to catching cold, to "grip," to everything, in short, except water. The water was all right, except after rain, and then it should be filtered. It was stated by the health commissioner that analysis showed the water to be pure. Nevertheless, Dr. Ranch was instructed to investigate the facts on behalf of a higher authority—the Illinois State Board of Health—and his report will be awaited with eager interest. Meanwhile, the official denials from the Chicago authorities appear to have ceased, but not the epidemic. It seems now to be admitted that there has, in truth, been alarming prevalence of enteric fever, as stated by Messrs. Sedgwick and Hazen, and that in January, 1892, there were no fewer than 311 deaths.

Unless the facts have been grossly misstated in the papers which have reached us, the action of the Chicago authorities is open to two explanations only—either they were culpably ignorant of local facts and records of the gravest importance to the public health, or else they disputed them knowing them to be substantially correct. It is difficult to say which hypothesis is the less creditable or the more calculated to destroy all confidence in their future statements or efforts.

On the evidence before us, we may point out that the *prima facie* case for water infection is a convincing one. The sewage of a vast city, a city in which enteric fever abounds, is poured into an inland sea. The drinking-water of that city is taken from points which are admittedly in unsafe proximity to the sewage outlets; moreover, it is open to question how far safety could be secured by merely increasing the distance. Enteric fever of a mild type has been for two years epidemic among the population supplied with this water. The alleged mildness of type only increases the terrible significance of the high mortality, and is a familiar phenomenon in water epidemics in this country. Under such conditions chemical analysis of the water can never prove safety, but may confirm the suspicion of danger, and it is announced that a recent official analysis was followed by an emphatic recommendation from the analyst that the water should always be boiled before use.

It is said that vigorous efforts are now being made to remove the intake to a point four miles from Chicago, far beyond any probable range of sewage pollution, and that the river-borne part of the sewage is to be prevented from entering the lake. The success of the World's Fair is likely to depend in no small degree upon the sanitary history of Chicago during the next few months. We may therefore assume that no endeavor will now be spared to discover and remove the causes of the epidemic, and to provide a supply of water which shall be free from danger of pollution by sewage. Dr. Ranch's high reputation is a sufficient guarantee that his part of the investigation will be thorough and complete; but, even if he should fail to find proof of the theory that the epidemic has been water-borne, the danger of the present mode of sewage disposal and water supply is manifest.

The evidence that the lake water is at present the source through which the typhoid fever prevalent in Chicago is conveyed convinces physicians generally, and the heavy typhoid mortality of January emphasizes the danger. There is a great demand for "pure" drinking-water derived from sources other than Lake Michigan, but it adds a new element to the danger of the situation that evidence is forthcoming in the local papers that in the localities from which "the peddlers of pure water" are observed to draw their supplies its purity is more than doubtful. What is sold as distilled water is declared to be "lake water" or its equivalent. A good deal of this is described as "sent out in tin cans or iron tanks," obviously dangerous methods of even attempting to carry pure water. It illustrates the extremities to which Chicago is reduced that there is much discussion as to the propriety of licensing retailers of "pure water" in order to have facilities of inspection. It is obvious that the drinking-water supply of Chicago is in a state exposing visitors as well as residents to great danger, and that those who visit Chicago for the "World's Fair" will do well to bear this danger in mind, and to be very sure that they do not drink "lake water," or any of the doubtful substitutes which are, it is alleged, being palmed off upon consumers who have taken the alarm, but are yet too easily satisfied with anything that is sealed in a bottle and calls itself pure.

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Original Communications.

THE TROUBLESOME SYMPTOMS CAUSED BY ENLARGEMENTS OF THE EPIGLOTTIS,

AND THE ADVISABILITY OF REDUCING THE SIZE OF THIS CARTILAGE BY OPERATIVE MEASURES.\*

By CLARENCE C. RICE, M. D.,

PROFESSOR OF DISEASES OF THE NOSE AND THROAT IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL,

This subject is not a large one, nor is it one to which any great amount of attention has been paid by this association. Enlargements of the lingual tonsil and contact between such lymphatic hypertrophies and the epiglottis have been thoroughly studied and elaborated in recent writings.

The condition of the epiglottis in tuberculosis, in syphilis, and in lupus has received due consideration, and since the lesions of these diseases are frequently limited in a characteristic manner to the epiglottis, the epiglottis has probably been examined as carefully as any other portion of the respiratory tract. Great progress was made in the treatment of catarrhal affections of the top of the larynx when it was recognized that contact between the base of the tongue and the epiglottic cartilage occasioned such symptoms as tickling in the throat, a feeling of fullness in the lower pharynx, a disposition to swallow, and eventually paroxysms of coughing. It was found also that contact between the tongue and epiglottis was a sufficient irritant to cause a chronic catarrhal laryngitis.

In a paper entitled Unusual Causes of Coughing,† read before the Medical Society of the State of New York in February, 1886, at a time when I believe this subject had not been brought before this association, I noted that in the frequent condition of contact between the tongue and epiglottis, sometimes it was enlargement of the lingual tonsil which was the primary source of the difficulty, and sometimes it was some abnormality of the epiglottis which was at fault.

It was found that an enlargement of the lingual tonsil which overhung and rested upon the epiglottis caused at first a temporary congestion, and very soon a permanent congestion and enlargement of the epiglottis. I believed then, and my opinion has not been changed, that the contact of the epiglottis, either with the tongue in front or with the lateral walls of the pharynx, was the most frequent cause of those peculiar epiglottides which are the subject of this paper—epiglottides which are sometimes enlarged vertically, sometimes laterally, which are always congested, and which are prone to attacks of subacute inflammation.

To say that such epiglottides are simply an exhibition of a chronic catarrhal process which has affected the entire larynx does not satisfactorily explain the condition, for we have all noted that the enlargement and congestion of the kind of epiglottis here described are much more marked than are the evidences of a catarrhal inflammation within

the larynx proper. This epiglottis is frequently found enlarged when the remainder of the larynx is practically normal. And, again, whereas the appearances of congestion and swelling in the larynx will disappear when properly treated, the chronically enlarged and congested epiglottis either is not benefited at all by treatment, or, if improved, it quickly returns to its condition of congestion.

The fact that the epiglottis becomes congested and enlarged when the larynx remains in a healthy state, and also that these epiglottides are constantly fluctuating from a slight to a large degree of congestion, and even changing in the degree of thickening and lateral enlargement, the larynx as a whole remaining in a quiescent condition—these facts point strongly to the conclusion that the cause of the annoyance to the epiglottis is very limited in its action and is applied directly to the epiglottis, and is not one of the sources of general catarrhal inflammation which are to be found without the body.

In addition to the enlarged lingual tonsil which is the most frequent cause of enlargement and congestion of the epiglottis, there are a number of other factors to be mentioned as causative in the production of such enlargement. It is quite proper here to lay some stress upon predisposing causes and to say that the congenital formation of the epiglottis as regards size, shape, curvature, length, and breadth, determine largely whether it will be exposed to contact with neighboring parts or to external irritants. It is unnecessary to describe the normal epiglottis; we know that its direction is vertically upward and that its free extremity is curved forward toward the base of the tongue. It is undoubtedly true, as Merkel\* demonstrated by experiment, that the length of the epiglottis in man stands in a fixed relation to the antero-posterior diameter of the larynx, so that when the epiglottis covers the larynx during deglutition its margin escapes the posterior wall of the pharynx by the distance of a quarter of an inch. An epiglottis which is compressed laterally (see Fig. 1) can hardly be rubbed against by those lateral bands of



FIG. 1.

lymphatic tissue which form a connection between the faucial and the lingual tonsil, though its compressed corners may rest against the posterior wall of the pharynx, while a broad epiglottis—that is,

one of long diameter from side to side—is very apt to come in contact with the sides of the pharynx if there is any lymphatic enlargement (see Fig. 2).

Some epiglottides have such a sharp anterior curvature at their superior margin that they can hardly escape friction with the base of the tongue (see Fig. 3). We see the op-

\* Read before the American Laryngological Association at its thirtieth annual congress.

† *Med. Record*, May 1, 1886.

\* Merkel. *Die Functionen des menschlichen Schlund und Kehlkopfes*. Leipzig, 1865.

posite position of the epiglottis occasionally in health, when the laryngeal mirror shows it to be fallen over backward, covering the aperture into the glottis and resting against the posterior wall of the pharynx. This is the pendulous epiglottis (see Fig. 4), and Camalt-Jones\* says: "It is not a normal one, and its position is generally on account of

some throat trouble." In an interesting monograph written by Sir George Duncan Gibb,† in which he gives the results of his study of the effect of the pendulous epiglottis upon the voice and upon the general health, he states that



FIG. 2.

eleven per cent. of four thousand six hundred people examined were found to have this variety of epiglottis, and that every one of two hundred and eighty natives of India, China, and Africa had a pendulous epiglottis.

He thinks this is due to the relaxation induced by living in a hot climate. He emphasizes the evil effect of the pendulous epiglottis upon voice and health in that it causes a slight dyspnoea. I have quoted from this article only because it is an unusual one.

The large pendulous epiglottis is seen most frequently in disease, and the faulty position is due largely to the increased weight of the margin of the cartilage. In tuberculosis laryngis, for example, where the edge of the epiglottis is thickened many times, it is not uncommon to find the

cartilage lying far backward. The epiglottis will assume a more erect position as fast as the inflammatory weight is removed. This fact was shown to be true in a case of fibroma of the epiglottis; as the growth increased in size the cartilage was carried backward and downward, but it returned to its normal position when the growth was removed.

We see, too, epiglottides which are not symmetrical, one side of which extends nearer the lateral wall of the pharynx



FIG. 4.

than does the other side. More commonly we find a prolongation of the cartilage at either one of the superior corners (see Fig. 5). Occasionally there is a spur extending from a point midway in the superior margin of the epiglottis. I have always thought that these elongations of the epiglottis were due but slightly to congenital causes, but, commencing perhaps in this way, were irritated by contact with neighboring parts, and so the elongation became much more prominent than it otherwise would.

I do not know whether Dr. Donaldson\* was referring to the inflammatory epiglottis in his article on the Functions of the Epiglottis in Deglutition when he says:

"The epiglottis is frequently out of proportion to the size of the rima glottidis. The free edges of this various-shaped cartilage are of such different contour that they can not fit the margin of the glottis accurately."

The epiglottis normally and pathologically presents not more than five or six radically different shapes, but each of these has numerous shades of variation in form. Browne † says the epiglottis may be looked upon as the distinctive feature of the larynx, for no part is so variable in shape and size. Audubert, ‡ in Moure's clinic, made careful record of the different-shaped epiglottides, and published his results in twenty-eight plates.

Epiglottides of such curvatures, shapes, and sizes as noted in the illustration are strongly predisposed to congestive enlargements, on account of the injury they invite from contact with parts in the neighborhood. Undoubtedly there are other factors present which make it difficult, if not impossible, to diminish the congestion or to reduce the epiglottis in size.

An unusually high position of the epiglottis in the pharynx particularly exposes it during deglutition, and impurities in the respiratory current are more harmful to it than to an epiglottis of normal size placed lower down. These enlarged epiglottides always seem to be especially congested and irritable in people who use tobacco and alcohol freely. The degree of the congestion of the epiglottis seems to bear a very intimate relation with the condition of the middle pharynx. The color of the mucous membrane is apt to be of the same shade in both these locations. Disturbances in digestion, gastric disorders, are apt to fire up the chronically enlarged epiglottis. In fact, the epiglottis when in this condition seems to be more nearly related to inflammatory exacerbations of the pharynx than to those of the larynx. It is possible that the enlarged epiglottis owes something of its size to either venous or arterial congestion caused by pulmonary, cardiac, or hepatic disease. In two



FIG. 5.

\* Jones. *Trans. of the Internat. Med. Congress*, p. 112.

† *Trans. of the Anthropological Society*, vol. iii.

\* Donaldson. *Trans. of the Am. Laryng. Assoc.*, vol. viii, p. 53.

† Browne. *Diseases of the Throat*, p. 63.

‡ Audubert. *Annal. de la Polyclinique de Bordeaux*, January, 1888.

of my most marked cases, both occurring in men about fifty-five years of age, one suffered with emphysema and chronic bronchitis, and the other had a weak, fatty heart.

The variety of epiglottitis which I have tried to describe is not commonly seen. I am not speaking of epiglottides which have become moderately congested and slightly enlarged by the pressure of the lingual tonsil, but of marked hypertrophies of the epiglottis. I should say that I had seen ten or twelve cases, and three fourths of them in men. We should expect this preponderance in men, because of their having a larger degree of catarrhal inflammation of mucous membrane than women, and also because of the use of tobacco and stimulants.

Enough has been said as to the manner in which the epiglottis becomes at first congested and eventually permanently enlarged. As to the pathology, a single sentence will describe the condition: It is a pure hyperæmiosis effected by an abnormally large blood supply. The mucous covering becomes somewhat thickened, the superficial blood-vessels are increased in number and size, there is seldom any œdema, the enlarged epiglottis is hard and cartilaginous throughout its entire extent. No matter how much enlarged the epiglottis is, it always presents the appearance of the normal cartilage as regards texture so well described by Collier,\* who says that "on looking at the epiglottis from behind it is seen to be covered by a thin mucous membrane continued from the inner aspect of one aryteno-epiglottic fold to the other. Through the mucous membrane the well-defined and sharply cut edges of the epiglottis can be seen."

There are certain *peculiar* symptoms which are occasioned by an hypertrophied epiglottis, but it will hardly be necessary to depend upon any characteristic symptom, as the diagnosis of this condition will readily be made the first time a laryngeal mirror is introduced into the mouth. The constant tickling and feeling of fullness in the larynx, the hard, unsatisfactory paroxysms of coughing, which may be followed by glottic spasm or by vomiting, and the partial loss of voice which remains for a time—these point to laryngeal irritation and reflex phenomena. The symptom of "empty swallowing," spoken of by Gleitsmann † in cases of enlarged lingual tonsil, is common also where an enlarged epiglottis is present. These patients frequently give the history of having swallowed foreign bodies, and they have a strong belief that the uncomfortable feeling in the throat is due to their lodgment in the pharynx. These outbreaks of coughing occur upon the slightest provocation, when the patient is talking, singing, laughing, or eating, when he lies down or when he rises, and when he first goes out of doors. Paroxysms of coughing are not so easily produced in any other disturbance of the larynx or of the lungs. The long-continued mechanical violence caused by the cough usually gives rise to a very irritable mucous membrane throughout the upper respiratory tract, and in this condition the smallest external irritant is suffi-

cient to cause an explosion. It is not an encouraging task to control the unpleasant symptoms caused by an enlarged epiglottis in any patient, but it is especially difficult to do so in singers and in public speakers. Patients of this class are particularly unfortunate if their epiglottides are permanently enlarged, for not only will the use of the voice produce tickling, but the patient is so afraid of coughing that he holds the throat stiffly by muscular power, and this gives rise to a bad quality of tone. Fatigue of the voice is another symptom produced by an enlarged epiglottis.

Reflex cough caused by a very sensitive nasal mucous membrane, by accumulations in the auditory canal, by elongated uvula, by enlarged lingual tonsils, and by bronchial and pulmonary disease, should be distinguished from the cough due to an hypertrophied epiglottis.

It is only within the last year that I have treated these cases of large catarrhal epiglottides with any degree of satisfaction. If there is any astringent application which will cause any permanent reduction in their size, I have not found it. The atomization of the old mineral astringents and of tannic acid seems only to increase the irritation. Solutions of cocaine are of far more service, and I know of no better medical treatment than the application by spraying of a two-per-cent. solution of cocaine hydrochloride, followed by a coating of some one of the oily products, such as liquid vaseline, albolene, or benzoïmol; but these are only temporary in their benefit, and the constant use of cocaine in the larynx is to be avoided. I have tried strong solutions of silver nitrate after the spray of cocaine, but have made little progress. Patients of this class always return to the physician after a short interval. A slight change in the weather is usually sufficient to renew the disturbance in the top of the throat.

In my first case of operative treatment upon the epiglottis I used the galvano-cautery to diminish the size of an enlargement after I had in the same instance reduced the size of a lingual tonsil by the same method. But I would state strongly that burning is not the proper way of reducing the epiglottis. This cartilage resents such treatment to a remarkable extent; it becomes very much inflamed, œdematous, and painful, and weeks will elapse before the epiglottis recovers from the burning. The patient will be hoarse, but it is a little singular that, in spite of the fact that the epiglottis is so much swollen, the cough is less severe.

I operated with long-handled scissors in two cases, in both instances cutting off perhaps an eighth of an inch from the sides of the epiglottis, where they rested against the pharynx. The epiglottis was reached by using the tongue depressor alone. One of these two cases bled rather freely, but was checked by the application of a sixty-grain solution of silver. The inflammation following the scissor-cutting was moderate in both cases, and subsided in two weeks. The larynx was sprayed with a one-per-cent. solution of cocaine in oil. In view of the bleeding which is likely to follow the use of sharp scissors, curved or right-angled cutting forceps may be employed for removing a little from the sides or the top of the epiglottis. And here let me emphasize the direction that only a narrow margin of the epiglottis should be excised. The indication is

\* Collier. *Lancet*, 1889, i, p. 882.

† Gleitsmann. Hypertrophy of the Tonsil of the Tongue. *Medical Record*, December 17, 1887.

simply to prevent contact between the epiglottis and neighboring parts.

If both an hypertrophied lingual tonsil and an enlarged epiglottis exist, the lingual tonsil should first be reduced in size. When this source of irritation is removed the epiglottis will frequently lose something of its swelling and congestion. It is only as a last resort that the epiglottis should be reduced in size.

I quote an interesting case reported by Stookes\*—that of a child one year old who suffered for six months with paroxysms of glottic spasm and choking. Death followed, and it was found that the laryngeal obstruction was caused by an epiglottis which was a third to a half as long again as normal. Sir Morell Mackenzie, in one of his editions, speaks of his epiglottotome. I have not seen it, but believe an instrument of the proper curve, acting on the same principle as the tonsillotome, would be a useful one for this operation. There are a number of laryngeal cutting instruments where a knife is drawn across a circle which might answer the purpose. Dr. William Porter,† of St. Louis, in an article on Excision of the Epiglottis, refers to a case of growth upon the epiglottis which involved a large part of the cartilage. The epiglottis was removed with cutting forceps, and the inconsiderable bleeding was checked by applying a sponge wet with Monsel's solution.

In closing, let me repeat that there are many cases where such troublesome symptoms as fullness in the throat, tickling, voice fatigue, violent paroxysms of coughing, vomiting, and glottic spasm are caused by an enlarged, congested, irritable epiglottis. In most of these cases this condition of the epiglottis has been caused by an hypertrophied lingual tonsil, removal of which will afford relief. But in some few cases the epiglottis has become so enlarged as to rub against the lateral and posterior walls of the pharynx; and as no medication will reduce the epiglottis in size, it will be found necessary to take away a small portion of the margin of the epiglottis in order to prevent frictional irritation.

123 EAST NINETEENTH STREET.

## FRACTURE OF THE RADIUS.

NON-UNION.

RELIEF AFFORDED BY AN EXTENSION APPARATUS.‡

By CHARLES A. POWERS, M. D.

Miss C. M., a woman of fifty-three years, was brought to me some two years ago by Dr. W. H. Dustman for advice regarding a painful and partially disabled hand.

She had sustained a simple fracture of the right radius twenty-seven years previously, the repair being perfect and attended by complete restoration of function.

Sixteen years thereafter, or eleven years before I saw her, she had again broken the same bone, the seat of this latter fracture being approximately at the junction of its middle and

lower thirds. Union followed in this second instance, but the radial nerve became involved in the callus, and the fragments united with very considerable deformity. She suffered marked and continuous pain in the parts supplied by the radial nerve, and for the relief of this underwent an operation at the hands of a surgeon in the West, who cut down upon and freed the nerve.

Thinking to relieve the deformity in the radius, he made at the same time a section of the bone, adjusted the fragments, and wired them. Unfortunately, this operation was attended by suppuration and non-union of the fragments, although the freedom given to the nerve relieved the former pain. As time went by, the hand became more and more drawn to the radial side, the lower end of the ulna became quite prominent, and the patient suffered very considerable pain in the hand over the region supplied by the ulnar nerve. This pain was relieved by grasping the fingers and "drawing the hand down."

Her condition when she was brought to me was as follows: The right radius was an inch and a half shorter than the left; there was a false point of motion at about the junction of its middle and lower thirds. The fragments were freely movable, both dropping toward the ulna at the seat of fracture, the lower end of the upper fragment being somewhat behind the upper end of the lower fragment.

There seemed but little overriding; rather a loss of substance. Pronation and supination were short of complete. The grasp of the hand was less forcible than on the unaffected side. The hand was thrown well to the radial side, the deformity being shown in Figs. 1 and 2. The patient's chief complaint was of pain in the ulnar side of the wrist and hand. This was at times excessive, especially when she was fatigued, and at such times it occasioned almost complete disability. For its relief she was accustomed, as said, to draw the hand downward and to the ulnar side.

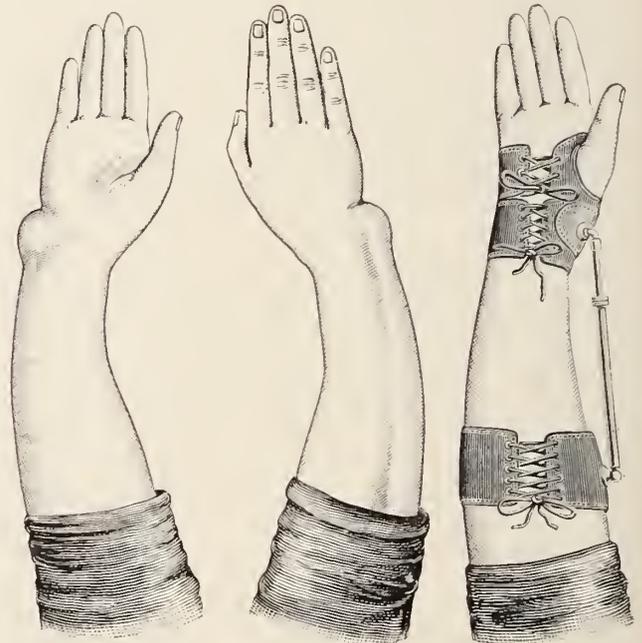


FIG. 1.

FIG. 2.

FIG. 3.

I was loath to advise an operative procedure, as it would very probably have necessitated resection of the ulna opposite the seat of fracture in the radius, and suggested the extension apparatus shown in Fig. 3, details in the manufacture of which were kindly cared for by Dr. Dustman.

It consists simply of two laced leather bands connected by a

\* Stookes. *Brit. Med. Jour.*, November 17, 1888.

† Porter. *Am. Jour. of the Med. Sciences*, April, 1879.

‡ The patient was exhibited some months ago, before the Orthopaedic Section of the New York Academy of Medicine.

double bar which is so arranged that it can be lengthened or shortened by a screw which traverses it. The upper of these bands grasps the swell of the forearm below the elbow; the lower goes about the wrist and upper part of the hand. The bar is inserted at each end in a joint which allows motion in all directions. By lengthening it the hand can be carried downward to a desired extent, and, as the chief pressure is at the base of the thumb, it is at the same time carried to the ulnar side. Reference to the cut will show that pronation and supination are easily effected.

The patient wore the apparatus continuously at first and averred that it gave her complete relief. She was able to resume duties which had hitherto been impossible. She has of late been able to dispense with it a part of the time, wearing it when fatigued or when obliged to use the hand more than usual.

35 WEST THIRTY-FIFTH STREET.

## CONCERNING THE ADENOID TISSUE OF THE PHARYNX AND NASO-PHARYNX.

BY JOHN DUNN, M. D.,  
RICHMOND, VA.

IN the fall of 1890 Mr. S., aged twenty-six, came to see me about his throat. History as follows: Seven or eight years previously he had had "an acute attack of sore throat," for which at the time he had undergone the treatment usual in such cases, including removal of part of the uvula. Since that time he had never been free from a sense of discomfort in his throat, which, often for months at a time, would remain acutely painful. The pain was not referred to any one place in the throat, but the "whole throat was painful." During these years he had submitted to all kinds of treatment, including "having the skin several times burned off his throat with caustic," removal of part of the left tonsil with cautery, and all the anti-sore-throat remedies of the pharmacopœia, and without relief. Examination at this time showed the mucous covering of the pillars of the fauces, soft palate, uvula, tonsils, pharynx, and part of the nasopharynx to be fiery red. There was no swelling of the parts; no exudation. Scattered over the pharyngeal wall were a few so-called "enlarged follicles." The left tonsil had been in a ragged manner destroyed by the application of the cautery, which had also removed part of the posterior pillar of this side. The right tonsil lay flat against the posterior pillar of the right side; this tonsil was enlarged, but not enough to protrude beyond the edge of the pillar; its epithelial covering, like that of the rest of the pharynx, was fiery red. I asked Mr. S. when his throat hurt him. His reply was: "It hurts all the time. It aches. It has been this way for years." There was no nasal complication, no upper pharyngeal complication, to account for this state of affairs. There had been some rheumatism in his family, but not enough to make its existence a part of the family history. In other respects Mr. S. was healthy. (I have since then discovered that Mr. S.'s skin is exceptionally liable to inflammatory action after the application of bichloride solutions or of any similar applications.) I advised the removal of the right tonsil, telling Mr. S. that there was a bare possibility that it might be the cause of his throat trouble, though I could not assure him that it was, or that its removal would afford him the relief he sought, as I had never seen a case similar to his (*i. e.*, a case of apparently acute inflammation of the coverings of the pharynx, including the soft palate, uvula, and pillars of the

fauces, which acute inflammation at the same time was chronic.)

He declined to have the tonsil removed, saying that it gave him no more pain than the rest of his throat. I then put Mr. S. on antirheumatic remedies, including salicylate of sodium. His throat got a little better after a time, probably as a result of time and not of the medicines.

In October, 1891, Mr. S. returned to my office saying that he could stand the pain in his throat no longer. If there was any possibility of the tonsil being the cause of his trouble he wanted it removed; something had to be done. Examination of the fauces showed exactly the same condition that existed a year before—the fiery redness of the mucous membrane. The right tonsil seemed to have decreased somewhat within the past twelve months, although it was still considerably hypertrophied. Examination of this tonsil showed that it was firmly adherent to, if indeed it had not been in part developed from, the outer part of the posterior faucial pillar. With the aid of a snare and a knife to loosen some of the adhesions, the tonsil was removed. After a day or two the throat began to lose its inflamed appearance and the pain in it to disappear. At the end of two weeks Mr. S. said his throat felt better than it had for months. There were, however, slight recurrences of the inflammatory condition of the mucous membrane during these two weeks, though of less severity than the attacks had been prior to the removal of the tonsil. Further treatment consisted in destroying with the cautery point the remains of the tonsil, which, owing to their position and adhesions, could be removed thus more easily than with a snare. Mr. S. also mentioned that, concomitantly with this sore throat, there comes a sore feeling in his chest just beneath the sternum; this soreness lasts all the time that the throat is inflamed, and seems to increase under exercise or exposure. Furthermore, Mr. S. says that the hearing of his right ear is not so acute as that of his left. Examination showed some retraction of the drum-head on this side. Three months after the removal of the tonsil Mr. S. says that the painful feeling in his throat has virtually disappeared; his throat, however, still tires easily, though he has not now the same desperate feeling in regard to it that he had when nothing he could do would relieve the aching misery that once proceeded from it.

Although the foregoing case at first glance bears only one point of interest—namely, a suggestion as to a relation between a hypertrophied tonsil and a chronic pharyngitis which remains for years more or less acutely painful—further consideration of its history brings up questions which, could they be answered correctly, would throw light upon the manner of disappearance of the hypertrophied adenoid tissue of the upper and lower pharynx, and the results upon the neighboring mucous membranes where this hypertrophied adenoid tissue has been allowed to disappear by natural processes. What constitutes a normal appearance of the upper part of the pharynx, the region of the so-called Luschka's tonsil, is still the subject of dispute. The well-known cut, after Luschka, given in Robinson's *Nasal Catarrh and Allied Diseases*, and in Bosworth's excellent work *Diseases of the Nose and Throat*, and elsewhere, gives no idea of what is to be considered a perfectly healthy upper pharynx; and a person possessed of a pharynx resembling this cut in appearance would be very grievously annoyed with "catarrh." Luschka's assertion that there is in the region of the pharyngeal vault always present a mass of this lymphatic tissue of about a quarter of an inch in thickness is not true. In the typically healthy upper pharynx

of the adult, at least, the mucous membrane is smooth, fits closely over the membrane beneath, and shows no such furrows and folds as are pictured in the above-mentioned cut. Judging from pathological conditions, these surface lymphatics of the pharynx are most numerous developed in the region of the vault, the chain extending to and even partly into the elevations of the Eustachian tubes on either side, running thence down the furrows behind the posterior pillars of the fauces. In severe cases of adenoids in the negro I have seen the lymphatics along the edge of the posterior pillars so hypertrophied as to give this edge a fimbriated appearance. (These cases have always been accompanied with phlyctenulæ and some form of facial eczema). While, naturally, the mucous membrane in which this lymphatic ring is found is less firmly adherent to the membrane below than that of the rest of the pharynx, I believe that whenever this lymphatic tissue is found in such amounts as to make "folds and furrows" there is some pathological condition present, either inherited or acquired. This, at least, seems to be true of the natives of this part of the United States. The typical Luschka's tonsil with its bursa pharyngea I have never seen but once, and then it occurred in a Prussian woman who had come to America to live. Whether true hypertrophy of these adenoids of the upper pharynx is ever congenital is to be doubted. One has as much right to expect to find congenital hypertrophy of the tonsils. This hypertrophy takes place most frequently in childhood, and not infrequently in early infancy. That, in some cases, the lymphatics of the upper pharynx are more developed at birth than in others is true, and it is further true that this adenoid tissue is in some individuals more liable to hypertrophy than in others; furthermore, it may not be doubted that in many, if not in the majority, of cases the tendency to hypertrophy of this pharyngeal lymphatic tissue is inherited. As Bosworth states, the stimulus of repeated colds seems, in these inherited cases, to be sufficient to cause hypertrophy of this lymph tissue. It may be asked, however, if the inherited tendency of this lymphatic tissue to hypertrophy is not itself sufficient to cause the hypertrophy; and, if so, is not the almost constant cold in the head, from which these cases suffer in childhood, the result of this hypertrophy? Apart from these inherited cases, this lymphatic tissue in other persons is liable to hypertrophy, especially under the stimulus furnished by measles and diphtheria. The worst of these cases are found after diphtheria, when the glands in the neck will be found also enlarged and will remain enlarged for years. It is not improbable in these cases that a specific poison is the cause of the hypertrophy rather than the inflammation to which the parts are subjected. The provision of Nature which prevents this adenoid tissue from growing indefinitely is to be commented on, though it can not be explained. Apparently there is no reason why, when this lymphatic tissue begins to hypertrophy, it should not grow until it fills all the empty space before it. In reality it does not do so, but when it has attained certain dimensions it begins to diminish in bulk. It is interesting to note that an acute inflammation of the third tonsil is rare. There are reasons for believing that it does occur in diph-

theria, in scarlet fever, and occasionally idiopathically. I have seen one case of acute inflammation of the pharyngeal tonsil following an operation for removal of a part of it. Rarely an abscess has been found in this tissue. I have seen one case. I have seen two or three cases of cyst which must have had their origin in this lymphatic tissue. At all events, this lymphatic tissue hypertrophies from various causes in childhood, often in early infancy. At what period of life it attains its greatest size depends upon the amount of this tissue present as a basis, inherited tendencies, and the circumstances attendant upon its development. I have seen these growths, under the stimulus of diphtheria, attain in a child where the inherited tendency was wanting several times the size it attained in another child who, from both father and mother, inherited this lymphatic throat. When once hypertrophied, if left to itself, this third tonsil disappears more or less slowly. I have seen marked amounts of it still present in a gentleman sixty years of age. In regard to the growth of this tissue there are some interesting points. In some cases, under the forceps, it feels almost like sponge, while on pressure it exudes a quantity of a juicy substance. In these cases there is probably an excessive development of lymphoid cells, great in proportion to the amount of the connective-tissue basis, and here there is little pain accompanying their removal. In other cases, the growths are more firm, cut readily under the forceps, and the cut piece comes away clearly, and is firm under pressure of the finger. In the third class these growths are tough, are very painful when removed, even under cocaine; have a tendency to tear under the forceps, and not infrequently one is forced to tear a small piece of the adjacent membrane of the pharyngeal wall with it. In these cases the pharynx is often painful after the operation. In the first two cases the patient suffers little or no inconvenience from the cutting. The third class of cases is generally found among those of the lymphatic temperament where the growths have existed for a long time, most generally in adults. There exists a tendency in all cases for these growths to decrease as the person gets older; in many cases to disappear. This latter occurs, it is probable, more rarely in the so-called "inherited" cases.

Having attained a certain size, these adenoid growths begin to diminish. Bosworth says: "Like other glandular hypertrophies, these growths show a tendency to apparently disappear at puberty. This may be explained by a diminution in the morbid activity of the tissues, and a certain amount of shrinking which occurs in this peculiar form of growth at this age, and also by the fact that they occupy a relatively smaller space in the now more widely developed pharyngeal vault." It is this "tendency to apparently disappear" that concerns us here, together with an endeavor to understand what is meant by "a diminution in the morbid activity of the tissues and a certain amount of shrinking which occurs in this peculiar form of growth at this age." Another point of interest for us is whether this so-called "tendency to apparently disappear" confines itself to the "adenoid growths," or whether it spreads to the adenoid layer, which is but the continuance of the layer from which these "growths" have their origin. The process by which

these growths disappear is in the majority of cases a slow one, continuing through years, so that we not infrequently find, and this especially in the "inherited" cases, it still incomplete in persons forty-five or fifty years old. In some cases the disappearance of these growths is much more complete and much less slow than in others. Many conditions seem to be here determining factors, and their relative importance is little well understood. It is probable that this "tendency to disappear" is not to be looked upon as the result of the "diminution of the morbid activity of these tissues," but as the result of the addition of repeated inflammations, whereby the lymph cells are partly absorbed and partly transformed into connective tissue; or, it may be that there results the formation of new connective tissue from the pre-existing connective-tissue cells, the basis of these growths, during which, in turn, the lymph cells are absorbed, while later the new formed connective tissue contracts. At all events, the relative amounts of lymph tissue and connective tissue in these growths change as the growths get older, the proportion of connective tissue continually increasing, and perhaps at the expense of the lymph tissue. It is probable, then, that repeated inflammations are the cause of this "tendency to apparently disappear." The surface position of these growths makes them especially liable to repeated inflammations, whereby there results a sclerosing process, which, when once established, is never at rest so long as there remains in them hypertrophied lymph tissue. In a certain proportion of these cases involution of these adenoids to the normal seems possible. In others, especially in the lymphatic constitutions, the sclerosing process sets in.

The reason why the involution to the normal of this hypertrophied lymph tissue takes place, and seemingly without ill effect, in the one, while in the other there sets in a sclerosing process accompanied by such unpleasant effects upon the hearing, must be sought to a greater measure in the difference of the constitution than in any process superadded by disease. This sclerosing process, however, occurs often enough in persons where the lymphatic tendency is wanting to show that certain conditions other than inherited ones can induce this sclerosis. The mucosa, lying beneath the epithelium of the pharyngeal mucous membrane and that lining the Eustachian tube and middle ear, is an adenoid tissue composed of loose cellular tissue infiltrated with lymphatic cells. This lymph tissue is of the same character as that of the lymphatic ring, except that it lacks in those aggregations of lymph follicles which characterize this latter. It is in this adenoid stroma that, it seems to me, must be sought the starting point of those changes which are the cause of deafness in the so-called "inherited" cases. Take, for example, a case which has inherited a tendency to hypertrophy of this lymphatic tissue of the upper pharynx. As a rule, the necessary stimulus to this hypertrophy, whether it be bacillus, the excess of blood in this tissue due to the process of "taking cold," or a chemical product the result of disintegration of the mucous secretions, is found early in life. Hypertrophy of this tissue follows, usually accompanied by a like hypertrophy of the faucial tonsils; when once hypertrophied, involution

does not occur immediately. These masses of hypertrophied lymph tissue, however, become smaller; the "tendency to disappear" makes itself felt. This "tendency" is, it seems to me, distinctly an inflammatory one, which is never at rest so long as there remains hypertrophied lymph tissue in these growths, and which is liable to exacerbations from time to time. The process resembles that occurring in cirrhosis of the kidney or liver. There are reasons for believing that this process of sclerosis, by which this hypertrophied tissue becomes smaller, is not confined to these hypertrophies, but spreads from them along the contiguous adenoid layer and thus reaches as far as the middle ear. It may be that the same causes that determine the hypertrophy of these adenoids of the naso-pharynx determine also an excess of cells in the adenoid stroma of the adjacent mucous membrane, in which case, when sclerosis of the growths sets in, it spreads or is determined more quickly in their adjacent mucous membrane. To sum up: The sclerosis in these growths, then, seems to me to be the direct result of repeated inflammations; this sclerotic process when once started does not cease as long as there remains lymph tissue in these growths; it usually continues for many years; its effects are not confined to the hypertrophies themselves; a similar process may be determined by it in the adenoid stroma of the mucous membrane lining the tubes and middle ear.

It may not be out of place just here to say a few words in regard to the views held as to the mechanism by which the deafness which often accompanies these adenoids, though it may not be complained of until these adenoids have existed for years, or until they have disappeared, is produced.

Bosworth, writing of adenoids of the naso-pharynx, says: "A plausible explanation of the (ear) symptoms is interference with the renewal of air in the middle chamber, caused by their presence in the pharynx. Any cause that interferes with free nasal respiration, if continued sufficiently long, is liable to cause impaired hearing. The method in which this occurs, I take it, is that nasal stenosis, arresting the to-and-fro current of air through the nasal passages, causes a stagnation in the pharyngeal vault, and necessarily a certain amount of rarefaction of air in this region. . . . As a result, rarefaction of air gives rise to a condition of hyperæmia of the mucous membrane, extending through the Eustachian tube to the middle ear; Eustachian orifice closed; air in the middle chamber rarefied; drum-head retracted." This is plausible, except that it is hardly ever, if ever, the case that the naso-pharynx has its exits so closed that there results a rarefaction of the air contained in it. Furthermore, I see no reason for believing that it is ever rarefied for such a length of time as to produce hyperæmia of the mucous membrane. The orifice of the Eustachian tube remains open, though the tube mucous membrane may be so swollen as to be impervious to air from the naso-pharynx; but in no case would I be willing to admit that this swollen condition of the tube mucous membrane is due simply to rarefaction of air in the naso-pharynx. Bosworth thinks it very questionable that in these adenoid ear cases the ear symptoms are due to

an extension of catarrhal inflammation, as advocated by Woakes, Fränkel, and others. If by "catarrhal inflammation" is meant the process in which there is an increase in proliferation and desquamation of the superficial mucous cells, with increased secretion, he is probably right, for, while deafness in these cases occurs frequently enough as the result of a catarrhal inflammatory process, I do not think it is the rule. That these growths are frequently sufficiently developed, and into the tube-mouth eminences to such an extent as to interfere with the movements of the tube mouth, and by their continued presence prevent development of the tubal muscles, no one will deny who has ever examined a sufficient number of cases of this affection.

The causes of deafness in these adenoid cases are more than one. In a not inconsiderable number of the cases it is due to acute catarrhal and purulent processes; but these cases do not concern us here. In another proportion of these cases it is the result of the development of this adenoid tissue into the tube eminences, and even into the tube mouths, preventing the normal movements of the tube mouth and producing closure of the tube, with its results, and this proportion of these cases is very much larger than one is led to suppose from the examination of the post-nasal space in adults. To give due importance to this cause of deafness from adenoids, one must examine the upper pharynx in young children, where there will be found, I should say, from one third to one half, probably more, of all the adenoid cases of any severity, this tissue so developed into the tubal eminences as to interfere with their movements. In the majority of these cases this excessive lymph tissue growth disappears from its encroachment upon the tube eminences, and there remains no trace of it in the adult; the damage to the hearing has been done—damage which, if left untreated in childhood, makes repair impossible in adult age.

In the third proportion of cases, where past closure of the tube can not be proved, where the acute catarrhal inflammation has not been present, the cause of the deafness, it seems to me, must be sought in a slow sclerosing process affecting the lymph cells of the adenoid layer of the tubal and middle-ear mucous membrane. This process varies in degrees of intensity and in the length of time requisite to produce marked change in the power of hearing. The length of time before and degree to which the hearing becomes impaired are dependent chiefly upon two causes: 1. The degree of resistance possessed by the lymph cells of the adenoid layer of the mucous membrane; this, the inherited part of the cause. 2. The character of the inflammations to which the hypertrophied adenoid tissue of the naso-pharynx is subjected, as well as that of the inflammations superadded in this layer itself. Here two phases of the question come up—the sclerosing process by which, in many cases, the hypertrophied adenomatous tissue disappears may, during its continued existence, cause the appearance of a similar sclerosing process in the adenoid stroma of the tube and middle ear and thus cause deafness; or the lymph cells of this layer may have so little resisting power that they take on a sclerosing process, not as a result of their proximity to a similar process in the adjacent hyper-

trophied adenoids, but as a result of repeated slight inflammatory attacks—*e. g.*, colds, etc.—the result in time of exposure. So it follows, in these third proportion of cases, if the deafness that accompanies adenoids of the naso-pharynx be due to a sclerosing process of the lymph basis of the tubal and middle-ear mucous membrane, caused by the persistent existence of a similar process in the adenoids of the naso-pharynx, then removal of these adenoids will prevent the deafness that follows when they are allowed to remain; if, on the other hand, the deafness be due to an inherited lack of resistance in the lymph cells of this adenoid layer of the tube and middle ear, although the removal of the hypertrophied adenoids be indicated for other reasons, we are not to hope that their removal will prevent deafness.

The case of Mr. S., related at the beginning of this article, shows in an exaggerated way how the whole lymphatic system of the upper throat may be affected by an inflammatory process at work in one part of the system where hypertrophy has taken place. Had we here to do with simply a painful throat and an acutely inflamed tonsil, the case would have nothing worthy of note; but we have a different thing—an enlarged tonsil (both having been enlarged, but one was removed), one which has been hypertrophied for seven years, accompanied by an apparently acutely inflamed mucous membrane of the whole throat, and a condition which for months at a time remained acutely painful. Removal of the tonsil does away, in a great measure, with the inflammatory appearance of the mucous membrane and altogether with the pain, while all other remedies proved useless. It is, then, fair to assume that in the tonsil was the cause of the inflammatory condition, and thus of the pain. The process that was going on in the tonsil was the development of connective tissue at the expense of the lymph tissue—an inflammatory process. The process affected the whole lymphatic layer of the upper throat, and it is not improbable that it had extended to the ear of the same side in which the tonsil existed.

## PERFORATION OF TYPHOID ULCER, WITH ADHESIVE AND PROTECTIVE PERITONITIS.\*

BY HENRY L. ELSNER, M. D.,

SYRACUSE, N. Y.,  
PROFESSOR OF CLINICAL MEDICINE, SYRACUSE MEDICAL COLLEGE.

IN presenting this paper to you for consideration I am prompted by the importance of the subject, the growing interest manifested by the profession for accurate clinical data relating to all unusual abdominal complications arising in the course of typhoid fever, and an appreciation of the fact that while much has been written and said, both by physicians and surgeons, on the indications for treatment of intestinal perforation, medical and surgical, the subject is still *sub judice* and requires a flood of light which can only be supplied by the study of many cases at the bedside and on the post-mortem table.

\* Read before the Medical Society of the State of New York at its eighty-sixth annual meeting.

While I am to report but a single case, I find, on consulting the literature of the subject, that it is sufficiently rare to demand your attention, and from it I feel that we can draw valuable deductions when associated with other experiences which have accumulated in the past.

On the 27th of October, 1891, Gottlieb G., German, shoemaker, aged twenty-seven years, was admitted into St. Joseph's Hospital, Syracuse, N. Y. Previously healthy, with negative family history. To all appearances he was a temperate man, well nourished, weighing about one hundred and eighty pounds. He was sent to the hospital by my assistant, Dr. Werfelman, whom he had consulted during the day and who diagnosed walking typhoid fever. We judged him to be well advanced in the second week of the disease, for there was already a well-marked and characteristic roseolar eruption on the abdomen. He had not been feeling well for three weeks, during which time he had nose-bleed at frequent intervals, felt nauseated, vomited several times, and had all of the usual manifestations of approaching disease. He had no chill, but had felt hot and feverish while at his work; had no diarrhoea before entering the hospital, but complained much of constipation.

On admission, we found the characteristic apathy of typhoid, tongue dry and heavily coated, abdomen slightly distended and tympanitic, with but little pain on pressure in the right iliac region. A considerable amount of hypostatic congestion was found at the base of both lungs. Temperature 103.2° F., pulse 93, respiration 22.

During the following seven days there were no noteworthy symptoms, the temperature was easily controlled, never rising above 103.8° F., the pulse rarely exceeding 100, usually between 90 and 100. There was but little delirium, no diarrhoea, and aside from the roseolar eruption which persisted, and the usual tympany found in like cases, no positive symptoms.

He had been carefully watched and nursed, kept on a liquid diet without antipyretics, treated with intestinal antiseptics. On the morning of November 3d, while making my daily visit, I noticed a decided change in the appearance of the patient. The facial expression denoted serious trouble; it was anxious, with eyes sunken. He was having constant hiccough, vomiting of a dark-green fluid, and complained of pain, not severe, however, in the upper right corner of the hypogastric region. His pulse, from 90 the night before, had by noon reached 120, while his temperature was 103° F. Physical examination of the abdomen gave increasing tenderness on pressure in the right inguinal and adjacent hypogastric region, while the neighboring regions were tympanitic. By afternoon a well-marked dullness on percussion was found in the right half of the hypogastric region, extending into the right inguinal region, though at this time palpation did not reveal the presence of a tumor. It was noticed that for eight hours there was anuria which was followed by scanty urination; no movement of the bowels during the day. At times during the night of November 3d his pulse reached 140, his hiccough and vomiting continuing without sufficient pain to demand administration of opiates.

On the morning of the 4th patient's general appearance was not improved. The anxious expression was still present, his extremities were cold, the hiccough and vomiting continued. It was now evident, on making a physical examination, that he had a tumor, the largest portion of which was situated in the right upper half of the hypogastric, slanting downward into the right inguinal region. This was plainly and easily outlined by palpation and percussion. It was not exactly in the position usually occupied by a tumor associated with disease of the vermiform appendix, and the McBurney point could not be found. The symptoms simulated an appendicitis so closely, however, that

one was almost tempted to make that diagnosis. On taking into consideration the rarity of such a complication with typhoid, in spite of the frequency with which it has been diagnosed, the presence of the tumor in a somewhat anomalous position, the absence of the McBurney point, the unusual amount of vomiting and hiccough, with at this time no evidence of perforation, and the general condition of the patient, a diagnosis of localized peritonitis over a typhoid ulcer, with adhesion to a neighboring coil of intestine, was made. Temperature 100.5° F., pulse 124.

During the day there was no material change in the condition of the patient. The pulse continued rapid, averaging 140, with rapid thoracic breathing, somewhat more tympany over lower half of abdomen; no movement of bowels. Urine scanty, not albuminous.

On the morning of the 5th he was brought before my class for clinic. His temperature had fallen to 97.2° F. and remained there during the day; his pulse was 111 to 140, respirations 30 to 40; extremities cold, wrists cold, less hiccough and vomiting. The tumor was still present, as easily outlined as the day before. His bowels moved during the day. A careful examination was made of the abdomen. In spite of the decided fall of temperature, no other evidence of perforation of typhoid ulcer was present. Liver dullness was not effaced. At the clinic it was concluded that we had a perforation of the ulcer, following the localized peritonitis, the escape of gas into the free peritonæum prevented by sufficient plastic exudate and recent adhesions. During the afternoon it was found that while tympanites in the lower half of the abdomen was increasing sufficient to make the detection of the original tumor impossible, there was still persistence of liver dullness.

*November 6th.*—Patient much more comfortable, with temperature 97.5° F., pulse 111. Lower half of abdomen still tympanitic; tumor lost; its position could no longer be determined, its previous area yielding tympanitic percussion. Toward night temperature gradually rose to 99.2° F., pulse 100. Bowels had moved during the day. No opiates were administered at any time, that the symptoms might not be masked; besides, there were no indications for their administration.

During November 7th and 8th there were no decided changes in the patient's condition. His temperature remained above normal, pulse improved in character, though equally rapid as before; his bowels moved; mind remained clear; tympany slowly subsiding, so that on the morning of the 9th, though his temperature was 101° F., pulse 123, he was looking much better and the original tumor was again palpable and in the same position as originally found. His hiccough and vomiting had ceased; he could lie on his side, while before he had rested on his back. We had now commenced to doubt the correctness of our diagnosis and were ready to take a more favorable view of the case than heretofore.

The morning of the 10th found our patient in better condition than we had left him the previous night; his temperature 99°, pulse 110, facial expression good, abdominal walls lax, no tympany, physical signs of original tumor present.

During the day, from 3 p. m. to 8 p. m., he had five large intestinal hemorrhages, and died almost exsanguinated at 8 p. m.

*Post-mortem* (made by Dr. F. W. Sears, pathologist, St. Joseph's Hospital, assisted by Mr. Hawley, student).—There was nothing noteworthy in the appearance of the body; our attention being called to the abdomen by the symptoms, it alone was examined. On opening the abdomen, the intestinal coils were considerably dilated, and the peritonæum was abnormally congested and lusterless, without evidences of general peritonitis, save in a few spots where a small amount of plastic exudate was noticeable. In the right half of the hypogastric and the right inguinal regions were found well-marked evidences of recent

plastic and circumscribed peritonitis. A coil of the ileum, beginning about five inches above the ileo-cæcal valve, had folded itself against the head of the colon laterally, and was there firmly held by the recent products of inflammation. Nowhere in the free peritoneal cavity did we find evidences of any escape of intestinal contents. This coil of ileum was everywhere surrounded by fibrinous and purulent material sufficient to incapsulate it and separate it from the free peritoneal cavity, while it rested against the colon on a pillow of almost completely organized fibrinous material. On raising this coil slowly and carefully from its resting-place without much force, the escape of air from the intestines was plainly audible. On closer examination, it was found that there existed in the portion of the intestines resting directly against the colon a perforation of a typhoid ulcer about two centimetres in length, and it was furthermore positive that the peritonitis had spent its greatest force around this ulceration.

Other portions of the intestines were examined, also the colon, with a view of determining the origin of the fatal hæmorrhages, without satisfactory result. Our clinical diagnosis, therefore, was corroborated by the anatomical appearances. So perfectly was the perforation sealed by the adhesive and protective peritonitis that no gas escaped during the post-mortem until the ileum was lifted from its resting-place, when it was found that the perforation itself had not closed, but was simply sealed by its fortunate position against the colon, where Nature's process held it.

There was no escape of fæces in the inclosure made by the adhesions.

It appears to me that in this case we have several features of unusual interest. The fact that a localized peritonitis over a typhoid ulcer may exist before its perforation and protect the free peritoneal cavity is in itself sufficient to claim more than passing notice.

The other interesting features of the case are the length of time that the patient lived after perforation, the gradual improvement preceding the fatal hæmorrhage, the continuation of the performance of intestinal function, the existence of the tumor, the absence of effacement of liver dullness, and the unhappy termination of the case by copious intestinal hæmorrhages.

Griesinger,\* many years ago, when he wrote his memorable article on typhoid fever, in Virchow's *Pathologie und Therapie*, spoke of just such cases as this. The following is a literal translation: "Evidently, in consequence of deep ulceration from within and sloughing, there frequently results, even before perforation, a localized inflammatory process, with adhesions of the inflamed patch to the neighboring intestinal coils. In such cases there is not at once perforation into the free peritoneal cavity. There is, however, a formation of circumscribed exudation, with or without supuration, which may ultimately lead to general peritonitis, though it may possibly remain circumscribed and gradually end in recovery. If there has been no adhesive process before the perforation, gas and intestinal contents escape into the free peritoneal cavity, and general peritonitis immediately results."

It was a similar case which first led Buhl † to suggest

the possibility of recovery after perforation of a typhoid ulcer. This, I believe, was in 1857. In Buhl's case death occurred on the forty-fifth day of the disease and twenty-three days after perforation. In this case, as in mine, the perforation was not the immediate cause of death, his patient dying as the result of hæmorrhage from a small artery opening into the intestine near the piece of mesentery which covered the hole. In Buhl's case, however, the hole was completely closed. The report of this case at my command does not mention the manner of closure.

There can be no doubt, and some of us could corroborate the fact by clinical experience, that a localized peritonitis without perforation around a typhoid ulcer may exist, giving rise to sufficient adhesion and inflammatory products to form a tumor which, for reasons which I will enumerate further on, simulates appendicitis.

In this connection I wish to say a few words in regard to the differential diagnosis between such tumor formation as was found in the case reported and appendicitis, and the prognosis of such cases. In a very interesting and instructive paper, recently read before the Association of American Physicians by Professor Fitz, of Harvard University,\* he says: "Most cases of recovery from symptoms of perforation of the bowel in typhoid fever are those in which an attack of appendicitis is closely simulated, while the fatal cases of perforation of the bowel in typhoid fever are, in the great majority of instances, those in which other parts of the bowel than the appendix are the seat of a perforation. Hence the prognosis of apparent perforation in typhoid fever is to be regarded as the more favorable the more closely the symptoms and course resemble those of an appendicitis."

You will kindly note that the author uses the words "simulate" and "resemble." This, it appears to me, is a happy use of the words.

While the diagnosis of appendicitis in typhoid fever has been frequently made, anatomical proof is wanting to establish such diagnosis. While there is some difference of opinion with regard to the exact proportion of cases of appendicitis occurring in conjunction with typhoid fever, anatomical evidence would not place the proportion above three per cent.; thus Fitz, † in collecting one hundred and sixty-seven cases of perforated bowel in typhoid fever, found but five cases, or a little less than three per cent.

Murchison ‡ found it but once in thirty-nine cases. Other authorities, among them Morin, § found perforation of the appendix in 18.75 per cent; Hesehel, || in 14.3 per cent. It is difficult to reconcile these great differences of the various writers. In New York, at least, where, according to Professor Lange, ^ appendicitis occurs with such astonishing frequency, it would be easy to establish the fact of ulceration and perforation of the appendix with typhoid fever if it existed.

\* *Boston Medical and Surgical Journal*, Oct. 8, 1891, p. 365.

† *Ibid.*

‡ *Treatise on Continued Fever*, second edition, p. 623.

§ *Thèse de Paris*, 1869.

|| *Schmidt's Jahrbücher*, 1853, lxxx, p. 42.

^ *N. Y. medicinische Monatsschrift*, Band III, 1891, p. 90.

\* Virchow. *Handbuch der speciellen Pathologie und Therapie*. Band II, II. Abtheilung, p. 196.

† Henle und Pfeufer. *Zeitsch.*, N. F., vii, p. 12.

The records of hospitals and the experiences of physicians fail to establish that fact. It is safer, therefore, for us as clinicians and therapeutists to adopt the statistics of Fitz.

Reasoning from our daily clinical and growing experiences with perforative appendicitis, we must conclude that if perforation of the appendix in typhoid fever is of such frequent occurrence, that fact ought necessarily to be established by positive pathological appearances.

Perforative appendicitis without typhoid fever is, as a rule, a fatal disease unless relieved at once by surgical art. Why, then, in typhoid fever should a perforated appendix give a more hopeful prognosis? There is but one way in which the clinical fact that perforation simulating appendicitis gives a more favorable prognosis can be explained. The usual seat of perforation in typhoid fever is located in the ileum, the larger number of perforations near the ileo-cæcal valve; but few perforations exist without more or less plastic exudate. The adhesion of coils of ileum near the colon, as in my case, would necessarily simulate appendicitis. This is the only clinical explanation which can be offered.

Among the differential points to be taken into consideration in the diagnosis of appendicitis from typhoid perforation we must consider the more sudden onset, as a rule, of general peritonitis without preceding appendical tumor, the profound change in the facial expression of the patient, the absence of the McBurney point, and the persistence in many cases of anuria for from eight to twelve hours or longer.

In doubtful cases a rectal examination might be of assistance. Certainly the previous history and the pulse and temperature chart would be considered as factors in reaching a conclusion. Simple perforative appendicitis would be sudden, without preceding malaise or evidences of approaching sickness. The occurrence of such an accident as reported in this case could be more readily diagnosed in an afebrile condition than at a time when the typhoid process is at its height. Such cases as these teach us the value of oft-repeated and careful examinations of the abdominal viscera in typhoid fever.

There is still another point which I wish to bring to your notice in conjunction with this case. It is the persistence of liver dullness in spite of the fact that we had intestinal perforation. To those of you who have studied the views of the various writers on this subject it must appear surprising to find such a wide difference of opinion as to the value of effacement of liver dullness in cases of perforation or air in the free peritoneal cavity.

Flint\* wrote a paper in which he held that effacement of liver dullness was one of the most characteristic signs of perforation. In his paper he reports the case of a young woman who developed an acute, diffuse peritonitis in the course of typhoid fever, with persistence of hepatic dullness, from which fact he concluded that intestinal perforation had not taken place, and from the fact that death did not occur until a week after the occurrence of peritonitis.

\* *Medical News*, Philadelphia, 1882, vol. i, p. 150.

As there was no autopsy in this case, the diagnosis may be doubted. The time of death ought not to weigh in the diagnosis. The differences of opinion with regard to the effacement of liver dullness, it appears to me, can be reconciled if we take into consideration the two great sources of error:

1. An unusually distended transverse colon by its presence between the liver and abdominal wall, yielding on percussion tympany anteriorly over the area of normal liver dullness without perforation existing.

2. Perforation in those cases where, as the result of adhesive inflammation, incapsulation, bands, or from other causes, air or gas is held within a circumscribed area or in the lower half of the abdomen without effacement of liver dullness.

The careful examination of the abdomen would reveal the presence of the first source of error by placing the patient upon the left side and percussing in the axillary line on the right side over the liver from the eighth rib downward, the presence of free air in the peritoneal cavity showing itself by a disappearance of dullness in that line, while there would be a persistence of dullness if the anterior tympany had been caused by the distended transverse colon.

This manœuvre has frequently assisted me, and is mentioned by Leube\* and Gerhardt† as a valuable means of diagnosis.

In the case here reported we had in the persistence of liver dullness, in conjunction with the other symptoms which the case offered, abundant evidences of a perforation, so that while we are all agreed that with air in the free peritoneal cavity we have in effacement of liver dullness a most valuable aid in strengthening the diagnosis of intestinal perforation, the presence of liver dullness, with symptoms of perforation, would lead us to suspect protective adhesion or sufficient incapsulation.

My case is another one to be added to the list of those which must materially affect the prognosis of typhoid perforation. The anatomical appearances were sufficient to convince all those present at the autopsy that the cause of death was in no way traceable to the perforation.

Finally, the question of surgical interference in this class of cases must be taken into consideration. I would not weary you with a single word in connection with that subject had I not seen the article recently written by Van Hook‡ on Laparotomy for Intestinal Perforation in Typhoid Fever, in which the author reports three cases operated upon, one of which was successful.

Among his conclusions, he says that "there is no rational treatment for perforation in the course of typhoid fever except laparotomy. . . . The only contra-indication is a moribund condition of the patient."

He also says that "the symptoms of peritonitis should not be awaited before operating." It appears to me that these conclusions are too extreme, can not be safely fol-

\* *Specielle Diagnose der inneren Krankheiten*. Leipzig, 1889, p. 345.

† *Lehrbuch der Auscultation und Percussion*. Tübingen, 1890, p. 335.

‡ *Medical News*, Philadelphia, 1891, vol. ii, p. 591 to 595.

lowed, and do not take into consideration the possibility of preceding adhesive and protective peritonitis to guard the general peritonæum and the possibility of recovery from such an accident.

It would be far safer for us to follow the more conservative course of Da Costa,\* who, in the recent discussion on the subject, said that he would "never sanction an operation for perforation unless a causal appendicitis could be clearly made out, or for the relief of a patient from peritonitis."

The conclusion reached by Fitz † must have some weight in our decision, inasmuch as his thorough study of the subject gives his opinion great value. He opposes immediate laparotomy for the relief of suspected intestinal perforation, advising it only in the milder cases of this disease. "In all others, evidences of a circumscribed peritonitis should be awaited, and may be expected in the course of a few days."

If this condition requires surgical interference, it will be well for us to delay until the strength of the patient warrants it.

*Conclusion.*—1. A localized peritonitis over or in the neighborhood of a typhoid ulcer may exist without perforation.

2. Localized adhesive and protective peritonitis over or in the neighborhood of a typhoid ulcer may precede perforation and protect the free peritoneal cavity.

3. In some cases coils of intestine may become adherent, giving rise to tumor formation.

4. Symptoms simulating or approaching perforative appendicitis may exist, making a diagnosis between appendicitis and typhoid perforation with adhesions difficult.

5. Anatomical research proves conclusively that perforative typhoid appendicitis is exceedingly rare.

6. The prognosis of typhoid perforation is more favorable in proportion to the amount of circumscribed peritonitis and the nearness with which ordinary appendicitis is simulated.

7. Localized peritonitis preceding perforation and ultimate perforation can be diagnosticated in some cases.

8. Persistence of liver dullness does not preclude the possibility of intestinal perforation. Air and gas may escape into the lower abdominal regions and be held there by adhesions without changing liver dullness.

9. With effacement of liver dullness we must make sure by physical examination that such change is not due to the presence of an abnormally distended transverse colon.

10. Surgeons are not justified in performing laparotomy for the suturing of perforated typhoid ulcers if circumscribed peritonitis of an adhesive or protective character exists or is in process of development.

**The Presbyterian Hospital.**—We learn that at the annual meeting in April the managers will make the following appointments: Three additional visiting physicians, an additional consulting surgeon, and several consultants in special departments.

\* *Boston Medical and Surgical Journal*, Oct. 22, 1891, p. 411.

† *Ibid.*, Oct. 8, 1891, p. 367.

## A NEW INSTRUMENT FOR QUICKLY DETERMINING REFRACTIVE ERRORS OF THE EYE.

By ELMER STARR, M. D.,

BUFFALO, N. Y.,  
LECTURER ON OPTHALMOLOGY IN THE MEDICAL DEPARTMENT OF  
THE UNIVERSITY OF BUFFALO.

THE refraction of an optically perfect eye is such that parallel rays of light entering it are brought to a focus on its retina. Any deviation from this condition constitutes an error of refraction, and requires for its correction some variation of the luminous rays from parallelism.

The generally adopted method of determining the refraction of the eye is to use test types placed at such a distance that the rays of light emanating from them may be regarded in practice as parallel; and the deviation from parallelism necessary to correct a refractive error is effected by placing a lens in front of the eye. Besides this procedure there are many other methods of changing the course of luminous rays coming from a test object. The single convex lens is the simplest means of varying the direction of luminous rays, and has for this reason been often used in optometry.

If an object is placed at the focus of a convex lens, the rays of light coming from this object will, after passing through the lens, be parallel. The farther the object is removed from the lens, the more the rays will converge after passing through it, and in this way the deviation necessary to correct an hypermetropia may be obtained. On the other hand, if the object is brought from the focus nearer to the lens, the rays which leave the lens will be divergent; and this change is such as to adapt it to the refractive condition of a myopic eye.

Cocius, Smee, von Graefe, Badal, and others have made use of this principle in constructing optometers, the test objects of which consist of threads or lines, or of letters and figures placed at the focus of a lens of three or four inch focus.

All these optometers have the disadvantage that they provoke a certain effort of accommodation, inasmuch as the observer is conscious of the proximity of the test object. It is important that the accommodation be excluded in determining the static refraction of the eye; otherwise, the dynamic being added to the static refraction, the real error may be masked.

Then, too, some of these instruments do not serve to determine the visual acuteness because of the change in the size of the retinal image which they produce; the measure of visual acuteness is given by the size of the retinal image, and the acuteness of vision in one eye is comparable with that in another only when we know the size of the smallest retinal image that each can distinguish.

An optometer is fitted for the simultaneous determination of visual acuteness and refraction only on condition that the retinal images of all eyes examined by it have the same size.

The instrument here described fulfills these conditions completely, and has none of the disadvantages of the single convex lens.

The instrument consists of a cylindrical tube about 15 ctm. long, mounted on a stand, which admits of its being regulated for height and inclination. Within the tube a 16 D. convex lens (P, Fig. 1) is fixed, at a point  $6\frac{1}{4}$  ctm. from the proximal end; that is, at just the focal length of the lens. Beyond the convex lens, and moved by means of a rack and pinion, is a concave 16 D. lens (M, Fig. 1). The effect of this concave lens is to render parallel rays divergent, but this effect is neutralized by the convex glass when the two lenses are in contact. When, however, the two lenses are separated from each other, the convex glass more than neutralizes the divergence caused by the concave glass and the rays are made to converge. The action of the system will be better understood by reference to Fig. 1.

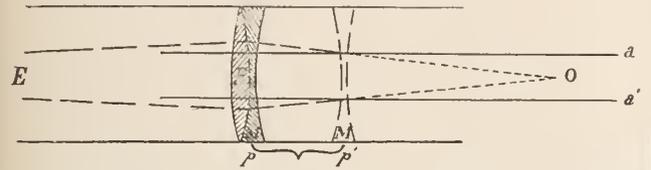


FIG. 1.—When M and P are in contact, rays  $a a'$  continue in their original direction. The effect of moving M from  $p$  to  $p'$  is shown by the broken line.

The eye whose refraction is to be tested is situated at the end of the tube at E. The effect of the concave lens M upon the parallel rays  $a a'$  is to cause them to diverge, so that they leave the glass in a direction as if they came from the point  $o$ , which is the focus of the lens M, which in this case is  $6\frac{1}{4}$  ctm. in front of the glass. The effect of the convex glass P, then, upon the rays  $a a'$  is the same as if the rays proceeded directly from the point  $o$ ; in fact, the point  $o$  may be considered, in this respect, as the object. Now, as already stated, when an object is placed at the focus of a convex lens, rays of light coming from this object will, after passing through the lens, be parallel; and if the object be removed from the lens the rays will converge after passing through it. So that, if the lens M be brought into contact with lens P so that  $o$  falls in the focus of lens P, the rays  $a a'$  will leave P parallel; and if the lens M be moved away from P so that  $o$  falls outside the focus of P, the rays  $a a'$  leave P convergent, and the amount of the convergence depends upon the distance of  $o$  from P—that is, upon the distance the lenses M and P are separated. Calculation shows that for every  $\frac{1}{2}\frac{9}{16}$  ctm. the lenses are separated, the effect is the same as a one-diopter convex lens, or + 1 D.; or a separation of the glasses 6.25 ctm. is identical with a + 16 D. lens.\* It will be seen, then, that

\* The formula for determining the effect of a given separation of the lenses in this instrument becomes the same as the formula for determining the point at which the image made by a convex lens falls when the distance of the object from the lens is given. For the focus of the concave lens is virtually the object, and its distance from the convex lens manifestly depends upon the distance the lenses are apart.

Let  $f$  denote the focal length of the convex lens P;  $d$ , the distance of the object (focus of concave lens) from P; and  $x$  the focal length of the resulting combination.

Then the equation  $\frac{d-f}{f} = \frac{f}{x-f}$  will give the value of any given movement of the concave lens M.

Suppose the lens M be moved away from P 0.25 ctm.; then the dis-

every possible degree from zero or nothing up to + 16 D. can be obtained with this combination. For any concave or minus combination it is only necessary to place in the proximal end of the tube at E a minus lens of such power as to neutralize the converging rays coming from the lens P when M and P are  $6\frac{1}{4}$  ctm. apart. That is, when the lenses stand in this position, their effect is just neutralized by a concave 16 D. lens placed in the end E of the instrument, and the rays of light then leave this lens parallel again and the combination once more stands at zero. If now the lenses M and P are brought nearer together, the result is a combination weaker than + 16 D., so that the concave lens at E more than neutralizes this effect, and the rays leave the instrument divergent, or as they would after passing through a single concave lens; so that by this means every possible degree from 0 up to - 16 D. can be obtained.

In practice the tube of the instrument is graduated with a scale showing dioptries and half-dioptres, and the frame of the movable lens M carries a pointer which indicates the number of dioptries corresponding to the amount of separation of the glasses. A disc having a stenopaic slit and fitting into the end of the tube serves to determine the refraction of each meridian of the eye separately.

The advantages of this combination are decided, as it allows of the use of the ordinary test type placed at the usual distance, so that no effort of accommodation is caused by the proximity of the test object. Then, by this arrangement, the anterior focus of the eye is kept at the focus of the convex lens of the instrument, so that no enlargement of the test object is produced. In other words, the conditions are most favorable for determining the actual refraction of the eye.

174 FRANKLIN STREET.

**The Sense of Equilibrium.**—"Our Vienna correspondent," says the *Lancet*, "writes as follows: At a recent meeting of the Vienna Society of Physicians, Dr. Kreidl, Professor Exner's assistant, reported on the experiments he had made on deaf mutes concerning the physiology of the labyrinth. Touching the experiments made on this subject by Flourens, Goltz, Mach, and Breuer, he pointed out that the membranous canals of the internal ear should be regarded as the peripheral part of the mechanism of the sense of equilibrium, the sensations of the disturbance of which he takes to be produced by the flow of the fluid in the ampulla and in the membranous canals. If the views of physiologists on the function of the otoliths and the membranous canals be true, it would have been expected that anomalies of the sense of equilibrium should be found in deaf-mutes. Purkinje had previously observed that if a person is made to rotate on his own axis the eyeballs were moved to the side as in nystagnus. This in Dr. Kreidl's experiments was not observed in deaf-mutes to any very large extent. Dr. Kreidl from other experiments is led to regard the otolithic organs as a statical sense."

tance of object is 0.25 ctm. + 6.25 ctm. (focus of M); or  $d = 6.50$  ctm. Focus of P = 6.25 ctm., or  $f = 6.25$  ctm.

Substituting these values in the equation, we have

$$\frac{6.50 - 6.25}{6.25} = \frac{6.25}{x - 6.25}, \text{ whence } x = 162.50.$$

That is, the focus of such a combination falls 162.50 ctm. behind the lens P. But the lens P is placed 6.25 ctm. in front of the eyehole of the tube, hence the focus falls 162.50 ctm. - 6.25 ctm. = 156.25 ctm. behind the eye. A glass of 156.25 ctm. focus is  $\frac{1}{1.5625}$  of a diopter, or 0.64 D. Therefore, separating P and M 0.25 ctm. equals + 0.64 D. From this it is easily calculated that the effect of moving M  $6\frac{1}{4}$  ctm. away from P. is equal to a + 16 D. lens.

## NEW OBSERVATIONS IN THE USE OF SULPHONAL.\*

By S. GROVER BURNETT, A. M., M. D.,

KANSAS CITY, MO.,  
LECTURER ON DISEASES OF THE MIND AND NERVOUS SYSTEM,  
KANSAS CITY MEDICAL COLLEGE;  
CONSULTING NEUROLOGIST, MISSOURI PACIFIC RAILWAY HOSPITAL;  
VISITING NEUROLOGIST TO ALL SAINTS HOSPITAL.

SINCE the advent of sulphonal into the domain of our therapeutics in 1888—for before this it was rather more of experimental than of therapeutical use—I have been an untiring advocate of its known superiority over other hypnotics, as well as a diligent student in searching out other qualifications with which we are not familiar. Hence in this brief review it is only intended to mention developmental features.

In the *New York Medical Journal* for March 2, 1889, I reported, in connection with a tabulation of cases illustrating the experimental use of sulphonal, my first case of poisoning by this drug.

CASE I.—This patient was a chronic melancholiac, fifty nine years old, and suffered from arterio-sclerosis, with compensatory cardiac hypertrophy. The drug had been given her in repeated doses to overcome the insomnia of melancholia agitata, without any good results (see *Points on the Use of Sulphonal*, by the writer, in the *Kansas City Medical Index*, August, 1890). At that time we were told to give almost any quantity without fear, and some three thirty-grain doses were given during the night. When called to see her in the morning she was quite cyanotic; respiration, 16 and of a labored character; temperature, 98° F.; with a weak, compressible pulse of 60. She lay in a comatose state all day, and was not able to walk for some ten days or more. Inco-ordination was so great that she remained helpless so far as locomotion was concerned. The reflexes were not examined.

CASE II.—This case was that of a robust married lady of thirty years, who at this time was suffering from an acute attack of dysenteric diarrhoea. A part of the treatment prescribed was the use of ten-grain doses of salol every two hours and the recumbent posture. She took the first dose at 6 A. M. At noon a messenger called, saying Mrs. C. was in a deep sleep, and asked if the medicine would cause it. I replied in the negative, and expressed my pleasure to hear of her resting so well, at the same time requesting that she be not molested, only to give her the powders. At 8 P. M. her brother alarmed me by saying Mrs. C. could no longer be awakened, and, unless something could be done, her condition was becoming critical. I knew something was in error, for no narcotics had been prescribed. The countenance presented a peculiar blanched, cyanotic aspect, which immediately recalled one other case (just mentioned) of sulphonal poisoning, for which I was accountable, I supposed, and which has been reported. Examination of the medicine revealed the fact that the apothecary had put up sulphonal instead of salol, of which seven ten-grain doses had been taken, making in all seventy grains. The pulse was 55, full and bounding, but not strong; respiration, 14; temperature, 98° F.

This case was observed in 1889, and all cases of sulphonal poisoning coming to my notice have been characterized by lowering of temperature. Just what significance the temperature may have here it is difficult to say, as it registered 102° F. in the morning, and any conclusion would simply be a supposition.

\* Read before the Medical Society of the Missouri Valley, at Lincoln, Nebraska, December 17 and 18, 1891.

Any such profound state, unless arising from acute causes, might present a perceptible lowering of temperature without causing surprise. Some two hours elapsed before any voluntary movements or attempts of recognition on the part of the patient were made, notwithstanding she was being stimulated and fairly dragged about the room. Efforts at resuscitation were kept up some four hours before intelligent attempts to answer questions were made, and as soon as left to herself she went into a deep sleep again. The next day the patient experienced a pleasant stupidity, declined food, and possessed no control over co-ordination, and, after one or two efforts, could not be induced to try to walk. Examination of the knee reflex was negative, excepting when the patient was caused to divert her mind to something else, and then only a very slight reflex was found to be present. Some ten days were required for her to regain her co-ordinating powers, at the end of which time the knee reflex was found to be normal. (Reported in the *Kansas City Medical Index*, August, 1891.)

CASE III.—A man, aged sixty-nine years, suffering from recurrent mania. Some ten days have elapsed since this attack came on. Before administering any medicine whatever, I demonstrated in the presence of the house surgeon, Dr. Thrush, that the deep reflexes were exaggerated. Friends state that the patient has not slept to amount to anything for twenty-seven nights; gave him thirty-five grains of sulphonal and he slept all night. The same dose was continued for four or five nights, when he developed inco-ordination till he walked with uncertainty, and would fall if not very careful. The dose was then reduced according to symptoms, varying from twenty to thirty grains for about fifteen days. During this time he slept well every night, and finally got to sleeping some during the day. I now examined his reflexes in the presence of Dr. Thrush and Dr. Willis P. King, and found them to be entirely absent. Diverting the patient's mind, causing him to close his eyes and pull on his hands, would not cause the reflex to return. After the discontinuation of the sulphonal for five days, his reflexes returned to their former condition, with entire recovery from his inco-ordination.

CASE IV.—This was a case of profound insomnia, which condition had been present for more than a year, and the patient was referred to me by Dr. Frick. The knee reflexes were exaggerated and their condition was noted. After the patient had taken twenty-five-grain doses of sulphonal for four successive evenings, inco-ordination appeared with reduction of the excessive reflex to considerably below normal.

Now, the point to which I wish to call attention is the loss of reflex after large or continued doses of sulphonal, and also to ask upon what hypothesis are we to account for this change? I regret to say that I have neglected in each case to examine the peripheral sensory condition.

Without a question there is a close connection between this loss of reflex and the inco-ordination, for in no case have I seen any change in the reflex until after symptoms of inco-ordination were manifest.

The only mention of a case in which the reflexes have been affected is in the *Satellite* for December, 1891, where a fifteen-year-old boy had taken a hundred grammes (over three ounces) of finely pulverized sulphonal, which he washed down with a large quantity of water. He walked in the open air for three quarters of an hour, after which he could give no account of himself, and in six hours was found unconscious. His temperature was 96° F.; pulse, 100, small but regular. Second day, sleeping quietly, face

slightly suffused, respiration quiet (18) and deep; pulse, 96 and extremely unsteady; reflexes uncertain, excepting the corneal reflex being distinct. Pupils reacted to light. Shaking, pricking of face, hands, and feet produced no effect except distinct widening of pupils. On the third and fourth days he slept soundly, reacting better to irritants without awakening. The subnormal temperature of 96° F. rose to 101.3° F. on the fourth day; fell again to normal, then rising to 100.8° F., and then falling to normal, where it remained. On the fifth day his eyes opened repeatedly, but still entirely unconscious. Pupillary reaction sluggish. On the sixth day consciousness returned, and he imagined himself on a ship, probably due to the dizziness. He could not walk or stand without assistance.

Now, I have no knowledge of any record of abolished reflexes from the use of sulphonal, excepting this one mentioned, and it only states that the "reflexes were uncertain." From a standpoint of diagnosis, it is important to know if the loss of reflex be due to disease or the use of sulphonal before coming to be examined, as a prognosis based on the loss of reflex due to organic disease would be quite dissimilar to the same condition due to the use of sulphonal.

By accepting the reflex theory advanced by Gowers, and that sulphonal, as a hypnotic, acts upon the cells of the cerebral cortex, we can account for the absence of the reflex in these cases. Gowers infers that we have a restraining or inhibiting power over the reflexes situated in the corpora quadrigemina or optic thalami, as has been demonstrated to exist in the optic lobes of the frog. Again, these inhibiting centers are controlled by a power residing within the higher or motor cortical cerebral centers, providing they are in a healthy state of activity. Now, if from any cause these cortical cells are prevented from exerting their power of control over the center which inhibits the reflex, this center goes uncontrolled and holds our reflex in check—that is, abolishes it. This would seem the most lucid explanation, for certainly all cortical functions seem suspended when under excessive doses of sulphonal, especially when toxic manifestations exist. Time and again of late I have been able to diminish the reflex by continued full doses of sulphonal, and to allow it to appear again by diminishing the dose or discontinuing it entirely.

## THE EFFECTS OF ALTITUDE UPON THE MUCOUS MEMBRANES OF THE UPPER AIR PASSAGES.

WITH REPORT OF CASES.\*

By G. MELVILLE BLACK, M. D.,

DENVER, COL.,

EX-HOUSE SURGEON TO THE MANHATTAN EYE AND EAR HOSPITAL, N. Y.;  
LECTURER ON DISEASES OF THE EYE, EAR, NOSE, AND THROAT  
IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF COLORADO.

I HAVE observed that people coming to this altitude, of one mile above sea level, from about sea level, experience within a day or so after arrival more or less symptoms attributable to an irritable condition of the mucous membranes

lining the upper air passages, especially that portion lining the nasal cavities. This irritable condition may develop into an inflammation, usually of a mild form, but may be quite severe. They attribute this, in a large proportion of cases, to "having caught cold." That this may be the case I will not dispute, and which I will try and show further on acts as the exciting cause with the low atmospheric pressure as the predisposing cause.

Taking Denver as our objective point, we have an atmospheric pressure of twelve pounds to the square inch, whereas at sea level the atmospheric pressure is 14.98 pounds to the square inch, a difference of about three pounds. Let a person come here who has been raised under this latter pressure; his vaso-motor nerves have been receiving a certain amount of nervous force to maintain an equilibrium of the vascular supply of the mucous membranes of the upper air tract. We know that the amount of blood in the sinuses of the turbinated bodies is very variable, owing to various atmospheric and systemic causes, but, notwithstanding, the equilibrium, day in and day out, remains about the same. This individual steps suddenly into this altitude and is maintained by an atmospheric pressure of three pounds less than that he has been accustomed to. What is the result? There is a greater amount of stimulus sent out to the vaso-motor inhibitory nerves, to arrest the vascular dilatation of the superficial capillary system of the whole body, and especially so to the mucous membranes of the upper air tract, inasmuch as the blood-vessels are much more exposed here than in cutaneous surfaces. This amount of nerve force is unusual and can only be kept up for a certain length of time, and finally gives way, the result being capillary dilatation, more or less over the whole body, but very slight, except in exposed mucous surfaces; and, inasmuch as the amount of nerve force required for cutaneous surfaces is very slight, as compared with exposed mucous surfaces, it is possible in a large percentage of cases for the extra amount of nerve force to be supplied to cutaneous surfaces without giving way. These individuals are particularly liable to catch cold, inasmuch as our days are warm and nights cold, and, by virtue of the fact of their depressed nervous vitality, a slight loss of bodily heat results in a much more marked relaxation of the vaso-motor control; and as the vessels of the upper air tract are already in an advanced stage of dilatation, we have the symptoms of a cold in the head setting in, a modified form of acute rhinitis with an accompanying inflammation of the mucous membrane down to the trachea; but the principal symptoms are referable to the nose. The patient complains of a sensation of fullness in the nasal region, extending up over the eyes, frontal headache, insomnia, some elevation of temperature—one to two degrees. Upon arising in the morning a tired, "used-up" feeling and a general feeling of exhaustion prevails all day. The nose discharges a thin watery fluid which may be quite profuse in the course of forty-eight hours; this continues unchanged for some days, then becomes somewhat thicker from exfoliation of epithelial cells, but does not become purulent at any time, as a rule. Resolution gradually sets in, beginning usually about the tenth day; the patient begins to feel very much better at this time, but is not free from some of the promi-

\* Read before the Denver and Arapahoe County Medical Society, January 12, 1892.

ment symptoms until about the twentieth day. The nose remains considerably "stopped up," however, after all the acute symptoms have subsided. The system is now becoming more accustomed to its new environments, and is able to supply more vaso-motor nerve force, but the least imprudence in exposure is liable to set our patient back. I do not mean to say that every one who comes to Colorado has to undergo this ordeal, but a large number do, and these cases are subjects who have been more or less troubled with catarrh for some years.

The nose, as we know, secretes about one pint of fluid in twenty-four hours, which is taken up by the inspired air. The amount of moisture required by this air depends upon how much water it is holding in suspension. The humidity at Denver will average about forty-nine per cent., whereas the average humidity in our Eastern States will be from eighty to ninety per cent. The amount of fluid secreted by a normal mucous membrane in Colorado I don't think has ever been estimated, but, if a pint is secreted in New York in twenty-four hours, the nasal mucous membrane in Colorado will have to do almost double duty to provide the air with the same amount of moisture. This additional activity undoubtedly brings about changes by virtue of this fact. The mucous membrane covering the turbinated bodies undergoes a true hypertrophy, and the vascular sinuses are constantly dilated to supply sufficient serum for the additional osmosis required. This finally results in a hyperplasia from the irritation caused by the approximation of turbinated bodies to the septum; the vacuum behind the point of contact increasing the vascular dilatation, connective tissue is thrown out between the vascular plexus until we have a true hyperplasia resulting. The patient finally gets some relief from the stenosis and accompanying symptoms by the contraction of this newly formed connective tissue, thereby reducing the size of the turbinated bodies somewhat and affording more air space. It is not my intention to go into the treatment of these conditions further than to say that in the acute condition a one-per-cent. solution of cocaine, with five grains antipyrine to the ounce, used as a spray every few hours, will afford much relief. In the resulting chronic condition local astringent applications have but little effect, but the judicious application of trichloroacetic acid to the turbinated bodies has worked admirably in my hands. Any nasal deformities should be corrected, such as removing with the nasal saw or trephine septal protuberances, straightening septal deviations, snaring out nasal polypi, etc. In short, first removing any previous existing nasal deformities, and, if the result is not adequate, touching the turbinated bodies with trichloroacetic acid. The following cases are examples of a number on my case-books:

CASE I.—C. F. R., male, aged nineteen. Been in Colorado about four years. Lived in Virginia formerly. Never any trouble with nose until he came to Colorado. Remembers of having "caught cold" the first day in Denver; says it troubled him for some time very much; thinks he has never got over it. Says his nose is stopped up a great deal of the time; can usually get some air through one side. Has to hawk every morning to expel a large quantity of mucus from throat, and does more or less of it all day. Thinks he is not so bad now as he was for

the first three years; had a good deal of headache then, very little now. An examination revealed both inferior turbinated bodies very much enlarged. Cocaine had the power to shrink them up about one half. Middle turbinated bodies were also found enlarged to a great extent. The septum was in fair condition—so much so that I did not meddle with it, but confined my treatment to applications of trichloroacetic acid, burning a long furrow at the lower surface of both inferior and middle turbinated bodies. I had to repeat the treatment once, burning in the oid tract. Gave him a spray composed of two ounces of benzoïnol and one drachm of eucalyptol. He has been relieved of all his symptoms.

CASE II.—Mr. T., aged thirty-five. Moved here from New York about three years ago. Thinks he used to have some catarrh in New York; never gave him much trouble, except when he had a cold. The first week he was in Denver he "caught cold"; thinks it was different from any cold he ever had, lasted longer, and made him feel worse. Nothing but a watery fluid came from nose. Says he "has never been able to breathe out of nose well since." To cut a long story short, he had typical hyperplasia of all the turbinated bodies, with quite a large spur projecting from lower part of left side of septum. This I removed, and reduced the size of turbinated bodies by use of trichloroacetic acid. He thinks he is in about the same condition now as when in New York.

#### REPORT OF A CASE OF TONIC SPASM OF ACCOMMODATION.\*

BY FRANCIS VALK, M. D.

IN one thousand cases of refraction on my note-books, I do not find a case of true tonic spasm of accommodation except the present case to be reported, and in a note by Professor D. B. St. John Roosa, in his translation of Schmidt-Rimpler's book, I find these words in reference to tonic spasm: "Certainly cases are very rare with us when atropine is to be used for months for spasm of the accommodation." The report, therefore, of the following case may be not only interesting, but also in showing some reason for a division of spasm of the ciliary muscle by Schmidt-Rimpler as tonic spasm of the accommodation and what he terms abnormal accommodative tension.

History as follows: Mr. C. N. A., aged forty-one, sent to me by Dr. Ford, Morristown, N. J. His family history perfectly good. In 1882 he was an Indian scout on the Western plains. He was brave and courageous and was in many dangerous places, having a rifle ball put through the rim of his hat, and at another time one struck the pommel of his saddle. After the shot through the hat, his left eye "felt badly" and he kept it tied up for a day or so. He states that his vision at this time was perfect, so that he could see at any distance. In 1884 he came East, and was writing in the editorial rooms of the *North American Review*. In that year he had an attack of paresis on the left side, with diplopia. He could not walk well without a cane; was deaf in the left ear, with dizzy sensation. These symptoms in time all passed away and his bodily health was good; some time after this, when his present troubles began, he bought a farm in the country and commenced living out there.

His friends state that he is extremely irritable, and will use

\* Read before the Ophthalmological Section of the New York Academy of Medicine, December 21, 1891.

profane language on the slightest provocation—a habit foreign to his usual temperament. He was found to be green blind completely, and partially so for red.

He can read very well, but feels tired and sleepy when doing so, while his distant vision is not good. When coming to the city the streets appear contracted like long lanes—evidently a narrowing of the field of vision, and, as he expresses it, “a dry contraction about the eyes.” This contraction feels like a band drawn around them. His vision at the first visit was as follows:

R. E. V. =  $\frac{2}{3}^{\circ}$ , w. —  $\frac{1}{3}^{\circ}$  =  $\frac{2}{3}^{\circ}$ . L. E. V. =  $\frac{2}{3}^{\circ}$ , w. —  $\frac{1}{2}^{\circ}$  =  $\frac{2}{3}^{\circ}$ .

He reads No. I J, at nine to nineteen inches, giving a region of accommodation, with diamond type, of about ten inches.

The examination by retinoscopy, using the plane mirror, shows myopic astigmatism in each eye, with the axis at  $180^{\circ}$  and  $45^{\circ}$ , respectively. I could not get any satisfactory examination with the ophthalmoscope, as the eyes were very sensitive to light, but the refraction appeared to be myopic. I at once ordered a four-grain solution of atropine to be used four times a day, and on his return in two days I found that his vision was  $\frac{2}{3}^{\circ}$  in each eye with —  $\frac{1}{6}^{\circ}$  combined with —  $\frac{1}{5}^{\circ}$  cylindric axis  $180^{\circ}$  in right and  $45^{\circ}$  left, but the vision was not steady.

Testing his extrinsic muscles at this time, I found a very peculiar effect, as with the apex of the prism over the right internus, with the candle placed at twenty feet, it would at once cause severe pain, and make him weep bitterly; while placing the apex over the left internus, he would laugh hysterically. Turning the prism around, and placing the apex over either of the externi, he would have a slight chill.

Considering that he was still under the effects of spasm of the ciliary muscle, I continued the atropine, and, not to weary you with details of the examination made at various times, I will state that the atropine was continuously used from February 21, 1891, the date of his first visit, till July 10, 1891, nearly five months, when the final examination revealed simple myopic astigmatism as follows:

R. E. V. =  $\frac{2}{3}^{\circ}$  +, w. —  $\frac{1}{4}^{\circ}$  c. ax.  $170^{\circ}$  =  $\frac{2}{3}^{\circ}$ . L. E. V. =  $\frac{2}{3}^{\circ}$  +, w. —  $\frac{1}{4}^{\circ}$  c. ax.  $80^{\circ}$  =  $\frac{2}{3}^{\circ}$ , and all other tests gave the same results, including the objective examination with Javel's ophthalmometer, which showed an astigmatism of less than 0.5 D. at the same axes. These glasses were ordered for continuous use at this time. I again tested the extrinsic muscles of the eyes, and found that the irritation as above noted with the prism test had entirely passed away, and that the interni can fuse the images with a prism of  $15^{\circ}$ , base outward, and the externi one of  $6^{\circ}$ , with the base inward. My last examination was made on November 20, 1891. He was perfectly comfortable, his vision normal, a good region of accommodation, and now uses his glasses only for reading.

During this course of treatment he was given strychnine in small doses for a month, and twice the temples were leeched.

In view of the history and result in this case, I think that we may consider tonic spasm of the accommodation exceedingly rare, and though I have seen those cases that may be classed as clonic, and in which we find spasm of the ciliary muscle taking place when the eyes are used for any distances, yet, as a rule, simple spasm of the accommodation or abnormal accommodative tension entirely disappears when the eye is examined with the ophthalmoscope and the true state of refraction is revealed, being either emmetropic, hypermetropic, or myopic. If, then, I should define the condition as it exists in the above case; the circular fibers of the ciliary muscle are in a state of continued contraction, producing a condition of accommoda-

tive myopia with an increase in the refractive power of the dioptric apparatus. This condition was constant and was, no doubt, the cause of the many peculiar reflex symptoms shown in this case. There is no pathological condition existing in this spasm, and the only objective symptom is the apparent myopia that does not agree with the usual tests for this myopic condition of refraction; and it is only by the ophthalmoscopic tests that we can differentiate that of true spasm. Hence, in the examination, when we compare the two conditions of tonic spasm and abnormal tension in both, we find the distant vision reduced; that it will be improved by concave glasses, but not up to that point usually observed in simple myopia of the same degree. That we have the same advancement of the near point, or, in other words, the near point is brought closer to the eyes; that in both cases the examination by retinoscopy will show myopia, giving reversed movements of the retinal reflex with the plane mirror. But that we will find our crucial test in the examination with the ophthalmoscope, as in simple spasm or abnormal accommodative tension, the apparent myopia will now disappear; for I believe the eye is unable to exercise its accommodative power and remains at rest when the ophthalmoscope is brought very close to it. While if we have this condition of true spasm, even with the ophthalmoscope, the refraction appears myopic. And yet the refraction with glasses does not agree with that usually found in simple myopia.

As regards the cause of true spasm of the accommodation, I can only suggest eye-strain as in the above case. I think that it was produced by the radical change in the use of the eyes from that of the Plains to the editorial rooms—in fact, from a condition of almost constant rest for the ciliary muscle to one of continuous work, until the stimulation became so great that there was no relaxation or rest at any time.

Again, as another possible cause, we have the peculiar axes of the weak minus cylindrics, being at  $170^{\circ}$  in the right eye and  $80^{\circ}$  in the left.

I think this condition might produce a certain amount of irritation in the ciliary muscle, ending in spasm.

Another point to which I would call your attention in this case is the peculiar effect produced upon the patient when the extrinsic muscles of the eyes are tested with prisms. You will see from his history that it was impossible to place a prism before his eyes with the base either in or out, as they would at once cause those peculiar seeming hysterical symptoms—crying or laughing if the base is placed outward, and a slight chill with the base inward; but these symptoms entirely disappeared after complete relaxation of the accommodation, when the balance of the muscular power was restored, giving over  $15^{\circ}$  for adduction and nearly  $6^{\circ}$  for abduction.

As regards the treatment of these cases, I do not think that I can suggest anything new. We must continue the use of atropine until the accommodation is completely relaxed, and this condition I find when all the examinations, both objective and subjective, agree in all particulars—in other words, when the ophthalmoscope, retinoscopy, and the test by glasses will give the same results—and not till

then should we stop the use of the mydriatic, even though the treatment must necessarily extend over several months.

In conclusion, I wish to report the following case that has some similar features: Clare B. was sent to my clinic at the Post-graduate Hospital by Professor Dana for examination of the eyes; her mother stated she was suffering from slight epileptoid attacks, having several during the day and night, generally commencing in the calf of the leg, and the medicine she had been taking seemed to have no effect in reducing their frequency. On examination, her vision was normal, with minus cylindric glasses of 2 D. axis 180° each eye. But as the other examinations did not agree with this, and suspecting tonic spasm, I ordered a four-grain solution of atropine to be dropped into the eyes four times a day, and after the accommodation was completely paralyzed, her vision now was found to be normal with convex cylindrical glasses of 1 D. axis 90° in each eye, and the convulsions were rapidly stopping, becoming less frequent, though all medical treatment was suspended at the time the atropine was ordered.

After the last examination she was ordered to wear the convex cylinders constantly and the atropine stopped, when we found the convulsions returning and the vision reduced. During the last two months she has been constantly under the effects of atropine, her vision is normal with the glasses, and has not had any return of the convulsions since November 18th.

Since the foregoing was written, Dr. George M. Gould, of Philadelphia, has mentioned a very similar case in his statistics of refraction. I report the history of these two cases, hoping they will be interesting to the members of the Section, because the effects of the use of the atropine seemed to be so marked and the relief and final results so interesting to me, and because I have never met any similar cases among the large number I have examined in private and clinical work.

**The New York Academy of Medicine.**—The programme for the meeting of Thursday evening, the 7th inst., announced the following papers: An Efficient Means of controlling Hemorrhage after Suprapubic Prostatectomy, by Dr. E. L. Keyes; A Peculiar Case of Renal Hemorrhage, etc., with some Observations upon the Value of Cystoscopy in the Diagnosis of Renal Diseases, by Dr. Samuel Alexander; and Some Results of "Withdrawal," by Dr. L. Bolton Bangs.

At the next meeting of the Section in General Surgery, on Monday evening, the 11th inst., Dr. C. A. Powers will read a paper entitled A Case of Spina Bifida in an Adult; Removal of the Tumor; Cure, and Dr. Robert F. Weir will read one on A Unique Derangement of the Knee Joint demanding Surgical Interference.

At the next meeting of the Section in Pædiatry, on Thursday evening, the 14th inst., Dr. J. E. Kelly will read a paper entitled The Practitioner's Anatomy of the Respiratory Passages as applied to Intubation, Laryngotomy, Tracheotomy (high and low), and Bronchotomy.

At the next meeting of the Section in Orthopædic Surgery, on Friday evening, the 15th inst., Dr. V. P. Gibney will read a paper on The Indications for Operative Interference in Orthopædic Surgery.

**The Harlem Hospital.**—The Commissioners of Public Charities and Correction have appointed Dr. S. T. Armstrong a member of the medical board. Dr. Armstrong has had an extensive professional experience in his ten years' service as a medical officer in the Marine-Hospital Service, and will render efficient service in this new field.

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ATHENIAN HOSPITALS.

In a letter from Athens, Greece, Dr. Frederick Peterson, of New York, writes that the general hospital in that city, known as the Evangelismos, is quite equal to any institution of the kind in the world in its structure, arrangements, care of patients, neatness, cleanliness, and attention to the latest medical and surgical details; records are religiously kept by the internes, who are students or graduates of the medical department of the Athenian University; and work of a high order is done in its laboratory, which is provided with every appliance needed for chemical, bacteriological, and pathological investigation. The operating-room for general surgery and the laparotomy room are models of cleanliness and attention to antiseptics, and are perfectly equipped with every surgical requisite. The various means of treatment of typhoid fever—medicinal, stimulant, and hydrotherapeutic—are being carefully tried in order to determine their relative merits. There seemed to Dr. Peterson to be an unusual number of such cases among the sixty or seventy inmates of the hospital at the time of his visit. Driving out of town, past the site of the ancient grove of Plato and Soerates, along the "Sacred Way" to Eleusis, one reaches in half an hour the new Phrenocomio, or lunatic asylum, of Athens. For years Greece had had but one asylum, situated at some distance on the island of Corfu, and patients of the better classes were sent to Italy, France, or Germany, or elsewhere; but a few years ago a wealthy Athenian gave a million francs toward an establishment of this kind to be located near the city, so this site of several hundred acres of land on a slope of the Parnes hills, overlooking the Bay of Salamis, and with Hymettus, Pentelikon, and the Acropolis looming up in the foreground, was selected. At present, says Dr. Peterson, there are a hundred patients in five or six pavilions. Most of the patients are private, but all classes, including paupers, are accommodated, and new pavilions are being added continually. One of the features of the asylum is a hydrotherapeutic establishment with every known form of douche and bath apparatus, more complete than Dr. Peterson remembers ever to have observed elsewhere, although he has visited most of the asylums and hospitals of Europe in former years. This hydrotherapeutic installation is the work of an Italian firm in Bologna.

The number of cases of general paralysis—fourteen—was noticeably large. Alcoholic insanity, strange to say, is exceedingly uncommon, although many Grecian wines are well known to be of fiery quality. Dr. Cirigotti, the medical superintendent, said he believed the cause of this to lie in a certain peculiarity of the wines drunk by the people in general—viz.:

the large quantity of resin of the Aleppo pine that they contain. The flavor of pine resin is so strong that few foreigners care to essay a second mouthful after the disgust and surprise aroused by the first. The Greeks drink the resined wines by preference. Whether Dr. Cirigotti is correct in ascribing to pine resin properties antagonistic to the poisonous effects of alcohol, Dr. Peterson does not presume to say, but the matter, he says, may merit some investigation, for the almost complete absence of alcoholic insanity in an intemperate people is a singular circumstance.

#### PYOCTANIN IN DISEASES OF THE EYE.

STILLING, of Strassburg, the apostle of this coal-tar "pus-killer," has had some of his allegations confirmed and some of the strongest of them denied, and new uses of it have been proposed about which he was in ignorance. A short paper by Dr. Herbert Harlan, in the *Transactions of the Medical and Chirurgical Faculty of Maryland* for 1891, illustrates this statement in an interesting way. First, it confirms the usefulness of pyoctanin in ulcer of the cornea; secondly, in purulent ophthalmia the drug is shown to be well-nigh useless or, at least, less efficient than other older medicaments; and, thirdly, new uses with gratifying results have been developed in regard to oyster-shuckers' keratitis and to phtheiriiasis palpebrarum.

In and about Baltimore the corneal lesions of oyster-openers are well known, and they are commonly described as a form of keratitis. They are of the nature of corneal ulcers, and are caused by small particles of shell or slime impinging upon the eye in the process of shucking oysters. The appearance of the eye and the limited *locale* of the disease point to a causation by some peculiar micro-organism not yet discovered. These cases of oysterman's keratitis are not readily cured, although eserine in solution has done well in the practice of the author of the paper. Latterly he has made use of pyoctanin in twenty of these cases, and in every case with marked benefit. The method of treatment is usually to drop into the eye a solution of cocaine, and then after a moment rub the ulcer with a pencil of yellow pyoctanin. In the milder cases one application has sufficed; in one very severe case, with an ulcer occupying a quarter of the corneal area, a cure was obtained at the end of ten days, a slight opacity remaining. One effect of the pencil was to stain the diseased spot bright yellow. In three cases of mucocele the injection of blue-pyoctanin solution seemed to be more promptly remedial than the use of any other astringent or antiseptic solution before employed by the author.

On the very day when the author obtained his first supply of the drug there came to him a boy of fifteen having the eyelashes of the right eye infested with lice (*pediculi pubis*). Now, these cases are not very common in this country, and are interesting therapeutically. The patient complained of an intense itching and irritation of the eyes. Close inspection showed a few lice moving about on the lashes and a vast number of eggs firmly agglutinated to the lashes. It is very difficult to destroy these eggs, or to prevent their development, under the usual treatment with red-precipitate or yellow-oxide-of-mer-

cury ointment. The destruction of the living lice is effected by either of these ointments, and, if the latter is persistently used for a week or two, the newer crops of lice are killed as they are successively hatched out; the unguents, however, do not penetrate the glue-like covering of the eggs. In the case of this boy, Dr. Harlan at once proceeded to make trial of a solution of blue pyoctanin, one part to a thousand. The living parasites were stained blue and were killed; nearly all the eggs took the stain, and none of them subsequently, during the period of two weeks for which the boy was under observation, were developed. Two applications were all that were made, the second application having been made because a few of the eggs had not taken the stain so thoroughly as the others on the first application, which, however, was probably fatal to the entire brood.

Regarding the use of pyoctanin in some forms of intra-ocular trouble, Dr. Harlan has had some favorable results, and he purposes to use the remedy in other cases.

#### MINOR PARAGRAPHS.

##### ALBUMINOUS PERIOSTITIS.

ACCORDING to the *Lancet* for March 12th, Dr. Dzierzawski has published an article on the "periostitis albuminosa" of Poncet, Terrier, and Lannelongue, of which he has collected twenty-seven cases besides one of his own. It is characterized by a clear, tenacious exudation from the periosteum that resembles synovial fluid or the white of an egg. The author does not believe it a disease *sui generis*, as Nicaise, Riedinger, Albert, and Duplay do, but thinks it is comparable to those cases of contagious osteomyelitis in which a clear fluid exudation is formed owing to a low type of inflammation, or to those tubercular cases in which there is infiltration or cold abscess. This view coincides with that of Schlange, who, however, ascribes the small number of pus-corpuscles to their deficient formation in consequence of the weakness of inflammation; and Garré supposes that there is secondary liquefaction of these bodies by the serous exudation. These theories the author does not believe necessary, as under certain conditions the periosteum may give rise to an exudation containing mucus, and he proposes that the disease be called "non-purulent osteo-periostitis."

##### DYSPNEA AFTER TEA-DRINKING.

MR. JONATHAN HUTCHINSON, in the January issue of the *Archives of Surgery*, describes a case of alarming attacks of dyspnea that were probably due to tea-drinking. The patient was a rather delicate man, of nervous temperament, and there was a suspicion of gouty heredity. The attacks occurred after breakfast, at which he drank tea freely, the meal being brought to him while he was yet in bed. During the attacks he had a corpse-like pallor, and seemed quite unable to take a respiration, on account of a pain like that of angina pectoris caused by the effort. The pain was referred to the epigastrium and lower part of the chest, rather than to the shoulder. Inspiration was accompanied with the greatest pain. The pulse was feeble during the time of the attack, and the patient could speak only in a whisper. The duration of the attacks was about an hour. An injection of morphine terminated the seizure quite promptly on two or more occasions. A careful thoracic examination, made by Dr. Gowers, resulted for the most part negatively. At any rate, no organic

affection was discovered that could explain the difficulty. The man was not a user of tobacco, but would imbibe tea freely, and this was sometimes followed by flatulence and a feeling of distention of the stomach. An over-indulgence in tea, especially with little or no food taken at the same time, will in some persons produce a sense of constriction behind the sternum, with some feeling of dyspnoea. In the case of a medical man who partook of tea of unaccustomed strength, and without eating any food, a distressing attack of dyspnoea occurred which lasted over thirty minutes. The recurrence of somewhat similar attacks having followed other indiscretions of tea-drinking on subsequent occasions, the mind of that physician became strongly impressed with the agency of strong tea in causing such attacks; so much so that for a long time he never ventured to drink tea except in his own home, where he knew its strength and quality. Mr. Hutchinson states that the painful attacks of the patient first above referred to bring to mind very distinctly those from which John Hunter suffered, and which he himself so graphically described.

#### A SUCCESSFUL LAPAROTOMY IN THE SEVENTEENTH CENTURY.

The following note in the *Diary of John Evelyn* would indicate that our professional brethren of two hundred and fifty years ago were not very far behind us in the matter of abdominal section for foreign bodies. It is dated Leyden, August 19, 1641, and reads: "Among a great variety of other things I was shewn the knife newly taken out of a drunken Dutchman's guts by an incision in his side after it had slipped from his fingers into his stomach. The pictures of the surgeon and his patient, both living, were there."

#### THE COLLEGE OF PHYSICIANS AND SURGEONS, OF CHICAGO.

We have received the first decennial catalogue and the announcement for the coming college year. Both documents show abundant evidence that the institution is decidedly progressive in its means of teaching and in its requirements for entrance and for graduation. It may be said, indeed, to be in the first rank of American medical colleges.

#### ITEMS, ETC.

The **Medical Association of Georgia** will hold its forty-third annual meeting in Columbus on the 20th, 21st, and 22d inst., under the presidency of Dr. G. W. Mulligan, of Washington. In addition to the president's address, the preliminary programme announces the following papers: Cough—Some of its Causes and Treatment, by Dr. C. D. Roy, of Atlanta; So-called Typho-malarial Fever, by Dr. W. P. Williams, of Waycross; Preliminary Observation on the Behavior of Iodine in the Presence of Camphor, Menthol, Thymol, etc., by Dr. R. J. Nunn, of Savannah; Some Observations upon Cataract Operations and After-treatment, by Dr. A. W. Calloun, of Atlanta; Remittent Fever, by Dr. A. C. Blain, of Brunswick; Extirpation of the Rectum for Carcinoma, by Dr. J. McF. Gaston, of Atlanta; Some of the Fads and Fancies of the Medical Profession, by Dr. J. C. LeHardy, of Savannah; The Treatment of Pneumonia, with Report of Cases, by Dr. H. Perdne, of Barnesville; How shall we manage the Uterus after Abortion? by Dr. K. P. Moore, of Macon; Plaster of Paris in Surgery, by Dr. W. F. Westmoreland, of Atlanta; Report of Surgical Cases from my Note-book, by Dr. J. B. Hinkle, of Americus; What is Gynaecology? by Dr. R. R. Kinne, of Atlanta; A Case of Ovarian Cysts, by Dr. J. M. Spence, of Waresboro; Some Remarks on Tonsil Excisions, with the Presentation and Description of a New Instrument, by Dr. A. G. Hobbs, of Atlanta; How to best conduct Labor to prevent Injuries to the Os Uteri and Perinaeum, by Dr.

A. W. Griggs, of West Point; Gunshot Wounds of the Eye—Unusual Results, by Dr. G. A. Wilcox, of Augusta; The Treatment of Abortion and Some of the Complications, by Dr. Walter A. Crow, of Atlanta; Report of a Case of Catalepsy and its Treatment, by Dr. A. Sydney Johnson, of Bowman; Typhilitis and the Report of a Case, by Dr. S. M. Mathews, of Quitman; The Relations and Dependencies existing between the Specialist and the General Practitioner of Medicine and Surgery, by Dr. J. W. Griggs, of West Point; The Relation between Skin Diseases and the General Health, by Dr. M. B. Hutchins, of Atlanta; The Treatment of Hemorrhoids by Carbolic-acid Injection, by Dr. J. W. Hallum, of Carrollton; Hemeralopia, or Night-Blindness, by Dr. S. Latimer Phillips, of Savannah; A Combination of Carbolic Acid and Camphor as an Antiseptic, by Dr. W. Perrin Nicolson, of Atlanta; Chorea, by Dr. Hugh Hagan, of Atlanta; Antiseptic Surgery, by Dr. Ralph E. Smith, of Atlanta; Radical Surgery the Best Surgery in the Treatment of Extensive Lacerated and Contused Wounds of the Extremities, by Dr. E. H. Richardson, of Atlanta; Typho-malarial Fever, by Dr. J. W. Duncan, of Atlanta; The Action of Fibroid Tumors after the Menopause, by Dr. Virgil O. Hardon, of Atlanta; Intestinal Obstructions—their Varieties, Diagnosis, and Treatment, by Dr. J. B. Hinkle, of Americus; A Report of Perineal Sections for Stricture, Stone in the Bladder, and Cystitis, by Dr. Floyd W. McRae, of Atlanta; Suprapubic Lithotomy, with a Report of Cases, by Dr. W. S. Elkin, of Atlanta; and Typhilitis, by Dr. William O'Daniel, of Bullard.

The late **Dr. D. Hayes Agnew**.—The secretary of the College of Physicians of Philadelphia, Dr. Charles W. Dulles, has sent us the text of a minute adopted by the college on March 24th. It reads as follows:

The death of Dr. D. Hayes Agnew, recently president of the college, in the seventy-fourth year of his age, and after a life crowned with honor and usefulness, calls for an expression of the sense entertained by the college of the gravity of the loss which it suffers, in common with the profession he adorned, the charitable institutions he served, and the community in which his skill did so much to lessen suffering and death.

He began his professional life with no adventitious aids; yet, by incessant industry, indomitable perseverance, and singleness of purpose, he attained to its highest rank. No temptation distracted his attention from the goal of his life: neither extraneous science, nor general literature, nor the allurements of art, nor the pleasures of society.

The undivided strength of his mind and his affections were devoted to enlarging the domain of surgery, not only in its operative methods, which he always subordinated to the welfare of his patients, but also in preparing for his profession a literary monument that might speak for him when his voice should be no longer heard.

His minute acquaintance with anatomy and his ambidextrous skill enabled him to perform, with ease to himself and safety to his patients, operations which less accomplished surgeons hesitated to undertake.

He possessed a certain magnetism of manner, quite independent of formality, that evidently proceeded from the heart and drew all hearts to himself. Never frivolous, but always cheerful, he was dignified, grave, and earnest, making all who heard him as a teacher and speaker, or in familiar intercourse, recognize in him, above all other things, the upright man. For he possessed eloquence of conviction and the force of absolute honesty in all his statements, and thereby drew to himself as enthusiastic admirers and disciples the successive classes of students whom he taught.

The college, desiring to show respect for the purity, uprightness, unselfishness, and modesty of Dr. Agnew's character, its admiration for the noble example of life, and its sense of the value of his contributions to the science and art of surgery, directs that this minute shall be duly recorded, and a copy of it, signed by the president and secretary, be conveyed to Dr. Agnew's family. Also, that the college will attend the funeral in a body, and that the president be requested to appoint a fellow to prepare a memoir of our late colleague.

The **American Academy of Medicine** will hold its seventeenth annual meeting in Detroit on Saturday, June 4th, and Monday, June 6th. In the preliminary programme we find the following titles: Essentials and Non-essentials in Medical Education, the address of the retiring

president, Dr. P. S. Conner, of Cincinnati; The Value of the General Preparatory Training afforded by the College as compared with the Special Preparatory Work suggested by the Medical School in the Preliminary Education of the Physician, by Dr. T. F. Moses, of Urbana, O.; Does a Classical Course enable a Student to shorten the Period of Professional Study? by Dr. V. C. Vaughan, of Ann Arbor, Mich.; The Value of a Collegiate Degree as an Evidence of Fitness for the Study of Medicine, by Dr. L. H. Mettler, of Chicago; The Value of Academical Training Preparatory to the Study of Medicine, by Dr. H. B. Allyn, of Philadelphia, Dr. W. D. Bidwell, of Washington, and Dr. Elbert Wing, of Chicago; The Newer Medical Education in the United States, by Dr. W. J. Herdman, of Ann Arbor, Dr. Charles Jewett, of Brooklyn, and Dr. Elbert Wing, of Chicago; and a paper on some phase of the State supervision of the practice of medicine, by Perry H. Millard, of St. Paul.

**Meetings of State Medical Societies for the Month of May.**—Kentucky State Medical Society, 3d, Louisville; Kansas Medical Society, 3d, Fort Scott; Ohio State Medical Society, 3d, Cincinnati; State Medical Society of Wisconsin, 4th, Milwaukee; Michigan State Medical Society, 5th, Flint; Nebraska State Medical Society, 10th, Omaha; Indiana State Medical Society, 12th, Indianapolis; Missouri State Medical Society, 17th, Pertle Springs; Illinois State Medical Society, 17th, Vandalia; Pennsylvania State Medical Society, 17th, Harrisburg; Iowa State Medical Society, 18th, Des Moines; Connecticut Medical Society, 24th, New Haven; North Carolina State Medical Society, 24th, Wilmington.

**The Association of Military Surgeons of the National Guard of the United States** will hold its second annual meeting in St. Louis on the 19th, 20th, and 21st inst., under the presidency of Dr. N. Senn. Information in regard to the meeting may be obtained from Colonel E. Chancellor, of No. 515 Olive Street, St. Louis.

**The Mississippi Valley Medical Association.**—Members who wish to go as delegates to the meeting of the American Medical Association at Detroit are requested by the secretary, Dr. E. S. McKee, of No. 57 West Seventh Street, Cincinnati, to send their names to him.

**Change of Address.**—Dr. Burdette P. Craig, to No. 258 Montgomery Street, Jersey City.

**Marine-Hospital Service.**—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the four weeks ending March 26, 1892:*

BAILHACHE, P. H., Surgeon. To inspect unseviceable property at Port Townsend, Wash., March 9, 1892. Detailed as member of Board for Physical Examination of Officers of the Revenue-Marine Service. March 26, 1892.

PURVIANCE, GEORGE, Surgeon. Ordered to Washington for temporary duty. March 5, 1892.

AUSTIN, H. W., Surgeon. To inspect service at New Orleans, Savannah, and Charleston, and the Gulf and South Atlantic Quarantine Stations. March 3, 1892.

IRWIN, FAIRFAX, Surgeon. Detailed as Medical Inspector of Immigrants, port of Boston, Mass. March 3, 1892.

CARMICHAEL, D. A., Passed Assistant Surgeon. To inspect the San Francisco Quarantine Station. March 7, 1892.

WHITE, J. H., Passed Assistant Surgeon. Ordered to South Atlantic Quarantine for temporary duty. March 26, 1892.

KINYOUN, J. J., Passed Assistant Surgeon. To proceed to New York on special duty. March 7, 1892.

PERRY, T. B., Passed Assistant Surgeon. Granted leave of absence for thirty days. March 1 and 14, 1892.

GUITÉRAS, G. M., Assistant Surgeon. Ordered to examination for promotion. March 23, 1892.

BROWN, B. W., Assistant Surgeon. Assigned to temporary duty at San Francisco Quarantine. March 14, 1892.

EAGER, J. M., Assistant Surgeon. Granted leave of absence for thirty days. March 1, 1892.

DECKER, C. E., Assistant Surgeon. Detailed as Recorder, Board for Physical Examination of Officers of the Revenue-Marine Service. March 26, 1892.

#### Promotion.

COBB, J. O., Passed Assistant Surgeon. Commissioned by the President as Passed Assistant Surgeon. March 23, 1892.

#### Society Meetings for the Coming Week:

MONDAY, *April 11th*: New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); Lenox Medical and Surgical Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Boston Society for Medical Improvement; Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

TUESDAY, *April 12th*: Medical Association of the State of Alabama (first day—Montgomery); Medical Society of the State of Tennessee (first day—Knoxville); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Jefferson (quarterly—Watertown), Oneida (quarterly—Utica), Ontario (quarterly), and Tioga (quarterly—Owego), N. Y.; Newark and Trenton (private), N. J., Medical Associations; Bergen (annual—Hackensack) and Cumberland (annual), N. J., County Medical Societies; Fairfield, Conn., County Medical Association (annual); Baltimore Gynecological and Obstetrical Society.

WEDNESDAY, *April 13th*: Medical Association of the State of Alabama (second day); Medical Society of the State of Tennessee (second day); New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Tri-States Medical Association (Port Jervis, N. Y.); Medical Society of the County of Albany, N. Y.; Pittsfield, Mass., Medical Association (private); Philadelphia County Medical Society; Kansas City, Mo., Ophthalmological and Otolological Society.

THURSDAY, *April 14th*: Medical Association of the State of Alabama (third day); Medical Society of the State of Tennessee (third day); New York Academy of Medicine (Section in Pediatrics); New York Laryngological Society; Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; Medical Societies of the Counties of Cayuga and Fulton (quarterly), N. Y.; South Boston, Mass., Medical Club (private); New London, Conn., County Medical Society (annual); Pathological Society of Philadelphia.

FRIDAY, *April 15th*: Medical Association of the State of Alabama (fourth day); New York Academy of Medicine (Section in Orthopedic Surgery); Baltimore Clinical Society; Chicago Gynecological Society.

SATURDAY, *April 16th*: Clinical Society of the New York Post-graduate Medical School and Hospital.

#### Answers to Correspondents:

No. 379.—An examination is required. For particulars, address the Board of Regents of the University of the State of New York, Albany.

## Letters to the Editor.

### THE PRESERVATION OF HYPODERMIC-SYRINGE TUBES.

GREENVILLE, PLUMAS COUNTY, CALIFORNIA, *March 23, 1892.*

*To the Editor of the New York Medical Journal:*

SIR: Apropos of Dr. T. A. Lancaster's letter upon the Preservation of Hypodermic Needles with Unguentum Petrolei, I would suggest the use of a small collapsible ointment-tube containing half a drachm of the unguent, the screw thread retaining its cap having a similar gauge to that of the syringe, and the cleansed needle to be screwed on to the tube, pressure filling the needle with the lubricant. The manœuvre would be simple, and the tube would take up little space in a case.

G. WILLIS, L. R. C. P. Edin., L. R. C. S. Edin.

## Proceedings of Societies.

### NEW YORK NEUROLOGICAL SOCIETY.

Meeting of March 1, 1892.

The President, Dr. L. C. GRAY, in the Chair.

**Hysteria in a Child.**—Dr. W. M. LESZYNSKY presented a patient, a young girl, whom he said he had brought to demonstrate that we did have in this country cases of hysteria in children. She was, he said, only thirteen years of age. Two years and a half ago, after fright from a dream, the hysterical symptoms had manifested themselves in paroxysms of laughing and crying. In 1891 she had commenced to menstruate, and had then begun to have convulsive seizures, which had been usually worse at the menstrual periods. She had passed through conditions of pre motor aphasia, and at the present time there were attacks of mutism lasting for a week or more. She also now had convulsions lasting sometimes many minutes, and at other times for hours. There were now developed hysterogenic zones over various parts of her body. She had visual hallucinations, and occasionally maniacal attacks and movements of rotation and of combined rotation and retropulsion. Her visual fields had been contracted. Lately there was a transient hemiplegia. There were no sensory disturbances. Knee-jerk was present, but only slightly marked. There was no history of onanism, and none of ovarian trouble, and the general health of the child was good. This was the patient he had referred to on a previous occasion as becoming worse after hypnotism. The speaker then touched the patient upon the head in one of the alleged hysterogenic zones, when a convulsive seizure promptly occurred.

**Morvan's Disease.**—Dr. B. SACHS presented a patient and gave the history of his case. (To be published.)

Dr. M. A. STARR said that, in a late discussion on syringomyelia, it had been stated that no case had come to autopsy in which a diagnosis had been made during life. He had lately received photographs of four spinal cords from cases from the Salpêtrière in which the diagnosis had been so made.

Dr. C. L. DANA said he was far from being convinced that there was at present anything the matter with the patient's spinal cord. He had seen a similar condition which had been really one of peripheral neuritis. He thought it possible for Morvan's disease to exist as an independent trouble. The case before them was interesting and in many respects a connecting link, but he should hesitate in unreservedly accepting it as one of syringomyelia.

Dr. SACHS said that some improvement had taken place in the areas of sensory disturbance which would be hardly expected in a case of peripheral neuritis.

**The Diseases and Conditions to which the Rest Treatment is adapted.**—Dr. WHARTON SINKLER, of Philadelphia, read a paper with this title. He said the treatment indicated consisted mainly in absolute rest, over-feeding, passive exercise in the form of massage and electricity, isolation from friends and relations in hysterical and neurasthenic patients, and in other details. In placing a patient under treatment, no matter for what disorder, it must be made clear what the plan was, in order that such patient might assist the physician to a speedy result. The degree of rest which should be enforced might vary, but, as a rule, patients were permitted to do but little for themselves. They should remain constantly in bed, rising only to attend the calls of Nature, and even this was not always to be allowed. Usually the patient was rolled from the bed to a lounge or cot once a day during the airing or changing of the bed linen. Be-

yond this no exertion must be permitted, and everything must be undertaken by the nurse. Isolation was an important part of the system, and visitors and messages should be excluded. Massage, the toilet hour, the doctor's visit, the electricity, and the meals gave sufficient occupation. It was rarely possible to treat patients in their own home, no matter how isolated the patients might be. The moral effect of removal from home was frequently of an enormous benefit in cases of neurasthenia or hysteria. Massage was an essential element in the treatment, and one of its objects was to produce tissue waste in order to admit of a larger amount of food being given. Faradaic electricity should be used once daily for half to three quarters of an hour. After giving the conventional dietary list, the author said that, as a rule, at the end of six weeks the patient was allowed to sit up, lengthening the time gradually day by day. The judicious selection of a nurse with special qualifications was a *sine qua non*. Hysteria and neurasthenia were the diseases to which the rest treatment had been most extensively applied, and in which it gave the most satisfactory results. Some of the organic diseases of the cord, Pott's disease, acute myelitis, locomotor ataxia, spastic paraplegia, peripheral nerve troubles, migraine, certain brain troubles dependent upon malnutrition, such as melancholia and the insanities of exhaustion, had all been wonderfully helped by the rest treatment. Success had also attended the treatment of chorea, epilepsy, the opium habit, and alcoholism by this method. Gynecologists had also used it with benefit in uterine and ovarian diseases. Some very good results had been obtained by the plan in the treatment of Bright's disease. The relation of lithæmia to nervous diseases had of late attracted much attention. Many forms of nervous troubles, such as migraine and some neuralgias and certain forms of neurasthenias, were dependent upon the lithæmic diathesis. The best method of eliminating uric acid was by exercise and diet with an abundance of diluent drinks. The rest treatment was particularly adapted to the management of these cases. The speaker emphasized that Swedish movements should be used in combination with massage.

Dr. E. D. FISHER did not advocate the carrying out of the rest-cure principles too rigidly. He had seen a patient with nervous disease, sent to Philadelphia for the purpose of isolation from her family, make a very rapid retrograde march toward the grave. This had been noted in time to apply the remedy, which consisted in bringing her back to this city.

Dr. STARR said it was his custom to send his patients to Dr. Weir Mitchell. Possibly one half the benefit from the course arose directly from the hypnotic suggestion with which it was associated, and this could be better carried out in a special institution. He believed the rest treatment to be admirable and applicable to many cases, but not to all. It would be the more likely to succeed where mental suggestion was of direct benefit.

Dr. SACHS thought that in cases proper for such treatment it might be just as effective here as in Philadelphia. It was more satisfactory when used in its more modified forms. A goodly number of cases in females classed as hysterical were really hypochondriacal, and for these patients isolation with one attendant\* was not to be advocated.

Dr. G. W. JACOBY called attention to the very pronounced obesity which often ensued from the rest in bed.

Dr. S. B. LYON, alluding to the possible objection to manual massage by reason of the personal element, said that at one institution massage was effectively carried out by mechanical methods.

The PRESIDENT said that he had used the method for twelve years, and was willing to accord the genius of Dr. Mitchell all it deserved. Experience had not demonstrated the plan as uni-

versally efficient. In genuine hysteria, hysteria associated with malnutrition, emotional hysteria, cases of over-draft upon the physical capacity by work or other causes in which the disturbance was functional, not organic, he believed the treatment in most instances would be found invaluable, while in melancholia it was not so useful. The plan must always be modified to suit special requirements. He did not believe in the massage part of it. Patients became beautiful to look upon, but their muscular capacity amounted to nothing.

Dr. SINKLER thought that in Dr. Gray's cases massage could not have been given thoroughly; it was essential to the treatment as a whole, but should always be combined, if possible, with the Swedish movements.

## Book Notices.

*The Aetiology, Pathology, and Treatment of Diseases of the Hip Joint.* By ROBERT W. LOVETT, M. D., Out-patient Surgeon to the Boston City Hospital, etc. Boston: George H. Ellis, 1891. [Fiske Prize Fund Dissertation, No. 42.]

WHATEVER may be said of prize essays in general, and numerous objections have been urged regarding their utility, the trustees of the Fiske Fund of the Rhode Island Medical Society have manifested careful judgment in the selection of the essays to which they have awarded the prize in several years past.

In this volume the author has confined his discussion of the subject to the three topics prescribed by the trustees, dividing diseases of the hip joint into acute and chronic diseases and miscellaneous conditions. The first class includes acute arthritis and acute synovitis, both serous and purulent. The second class includes serous and purulent chronic synovitis, tubercular and gummatous chronic osteitis, arthritis deformans, Charcot's disease, malignant and other tumors affecting the joint, and loose bodies in the joint. The third class includes congenital dislocations and functional affections.

The author's presentation of the aetiology, pathology, and treatment of these varieties of hip-joint disease includes the latest data on the subject. In tubercular osteitis he believes that where injury causes the disease it must be assumed that tubercle bacilli were present in the circulation and were localized by the injury, though he believes that, as a rule, hip disease occurs only in those having an hereditary or acquired tendency to tuberculosis. In the treatment of the disease Knight's protection method and Hutchinson's physiological method are mentioned; while the author accepts Phelps's view that fixation *per se* does not produce ankylosis, still he thinks that method incomplete because it is almost impossible to obtain fixation unless the whole body is immobilized, and, further, that the absence of traction is an objection. His preference is for the long traction splint, with the routine use of crutches. He believes that excision is proper and necessary where mechanical treatment is not practicable and where, after careful and intelligent trial, it has failed.

In congenital dislocation of the hip joint Hoffa's operation is held to be still on trial, while mechanical measures and most methods of operative treatment have been useless.

The book is a comprehensive survey of the subject of hip diseases.

*Physical Diagnosis.* A Guide to Methods of Clinical Investigation. By G. A. GIBSON, M. D., D. Sc., F. R. C. P. Ed., Lecturer on the Principles and Practice of Medicine in the Edinburgh Medical School, etc., and WILLIAM RUSSELL, M. D.,

F. R. C. P. Ed., Pathologist to the Royal Infirmary of Edinburgh, etc. With Illustrations. New York: D. Appleton & Co., 1891. Pp. 367.

So many works on physical diagnosis have recently appeared that it would seem that there could be no room for more, but this work occupies a somewhat peculiar position, inasmuch as its scope is greater than that of a mere treatise on physical diagnosis. It might, rather, be entitled *A Condensed Manual of Clinical Diagnosis*, since in a concise manner the authors have given us chapters upon methods of examination; the temperature; the integumentary system; the respiratory system; the alimentary system, including the abdominal viscera; the urinary system; the nervous system; and examination of the eye, the ear, the larynx, and the naso-pharynx. All these subjects are treated by the authors in a clear, concise, and vigorous style, and with sufficient attention to details to satisfy the reader who simply wishes to learn certain definite facts in regard to the physical and clinical signs of diseases.

The chapters on the respiratory system and the circulatory system and on urinalysis may be mentioned as especially full, but all the chapters are good. The illustrations and diagrams are plentiful and handsomely executed, and the typographical appearance of the book is excellent. It can be recommended to those who desire a condensed treatise on physical and general clinical diagnosis.

*A Manual of Hypodermatic Medication: the Treatment of Disease by the Hypodermatic or Subcutaneous Method.* By ROBERTS BARTHOLOW, A. M., M. D., LL. D., Emeritus Professor of Materia Medica, General Therapeutics, and Hygiene in the Jefferson Medical College of Philadelphia, etc. Fifth Edition, revised and enlarged. Philadelphia: J. B. Lippincott Company, 1891.

THE present edition of this familiar work is larger by two hundred pages than its predecessor. In addition to the new remedies mentioned, many new observations upon the hypodermic use of older ones have been added. If the author has erred, it has been in speaking of too many remedies only to condemn them. Particular attention has been paid to the subcutaneous method in its application in the treatment of the diseases caused by pathogenic organisms. The work is arranged according to a new classification, which is an improvement upon that in the former editions, the best features of which have been largely retained. Altogether it is a work to be highly recommended.

*The Chinese, their Present and Future: Medical, Political, and Social.* By ROBERT COLTMAN, JR., M. D., Surgeon in Charge of the Presbyterian Hospital and Dispensary at Teng Chow Fu, etc. Illustrated with Fifteen Fine Photo-engravings. Philadelphia and London: F. A. Davis, 1891. Pp. viii + 212. [Price, \$1 75.]

WHILE the medical part of this book is not satisfactory to the scientific student of disease, the volume is intensely interesting. The author gives a vivid picture of the peculiar customs and manner of life and thought of the Chinese. His knowledge of the social and political situation receives a striking confirmation in the accounts lately published in the daily papers of the attempts by the ruling classes in China to stir up popular hatred against foreigners.

## BOOKS, ETC., RECEIVED.

A Treatise on Diseases of the Nose and its Accessory Cavities. By Greville Macdonald, M. D. (Lond.), Physician to the Hospital for Diseases of the Throat. Second Edition. London and New York: Macmillan and Co., 1892. Pp. six to 381. [Price, \$2.50.]

Practical Midwifery: A Hand-book of Treatment. By Edward Reynolds, M. D., Fellow of the American Gynæcological Society, etc. With One Hundred and Twenty-one Illustrations. New York: William Wood & Company, 1892. Pp. xiv to 421.

Influenza and the Laws of England concerning Infectious Diseases. A Paper read before the Society of Medical Officers of Health, January 18, 1892, by Richard Sisley, M. D. Lond., M. R. C. P. Lond. To which is appended Counsel's Opinion on the Powers of Sanitary Authorities as to Influenza, and the Proclamation issued at Dover by the Borough Authorities. London: Longmans, Green, & Co., 1892.

Les tumeurs de la vessie. Par J. Albarran, Chef de clinique des maladies des voies urinaires, etc. Préface par le professeur F. Guyon. 75 figures et 9 planches. Paris: G. Steinheil, 1892. Pp. xi to 494.

Nouvelles doctrines de neuropathologie, d'après les leçons élémentaires de clinique médicale professées à l'Hôtel-Dieu de Toulouse. Par le Docteur Caubet, Professeur de clinique médicale, etc. Examen critique par le Docteur L. Chabbert, ancien interne des hôpitaux. Paris: V. Babé et cie., 1892. Pp. 112. [*Publications de l'Echo médical.*]

Reaction of the Amide Group upon the Wasting Animal Economy. By Professor Samuel G. Dixon, M. D., and Professor W. S. Zuill, M. D., D. V. S. [Reprinted from the *Times and Register.*]

Neuroma, with Report of a Case. By Edmund J. A. Rogers, M. D., Denver. [Reprinted from the *Medical News.*]

Laparotomy under Cocaine. By Emory Lanphear, M. D., Kansas City, Mo.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland. Semi-annual Session, held at Cambridge, Md., November, 1890. Ninety-third Annual Session, held at Baltimore, Md., April, 1891.

Seventy-eighth Annual Report of the Trustees of the Massachusetts General Hospital and McLean Asylum, 1891.

A Primer of Materia Medica for Practitioners of Homœopathy. By Dr. Timothy Field Allen. Philadelphia: Boericke and Tafel, 1892. Pp. iv-5 to 498.

The Responsibilities of the Medical Profession. An Address to the Graduating Class at the Commencement of the Albany Medical College, March 16, 1887. By Andrew S. Draper, State Superintendent of Public Instruction.

Psycho-therapeutics; or, Treatment by Hypnotism and Suggestion. By C. Lloyd Tuckey, M. D., Member of the Medico-psychological Association. Third Edition, revised and enlarged. London: Baillière, Tindall, and Cox, 1891. Pp. xvi to 321. [Price, \$2.]

## Miscellany.

A Year's Work in Minor Surgical Gynæcology at the Kensington Hospital for Women, Philadelphia, was reported upon recently by Dr. Charles P. Noble, at a meeting of the Philadelphia County Medical Society. Speaking of operations on the uterus, Dr. Noble said:

I have made it an invariable rule to re-examine all patients before beginning the operation. This can be done most thoroughly when the patient is anesthetized. If the uterine appendages are found inflamed and adherent, any proposed operation upon the uterus is abandoned. I believe this to be the only safe rule of practice. For sutures, silk, catgut, and silkworm gut have been used. For general purposes I like silk; but it should not be used where the sutures can not be removed in one or two weeks. Catgut I have found very useful for sutures having but little strain to bear, as, for instance, the upper sutures in perineal operations. Silkworm-gut has the advantage that it is non-absorbent; hence it is to be preferred where sutures must be left in a long time—as, for instance, in the cervix, when the cervix and perineum are repaired at the same sitting. It has the disadvantage of being stiff, which property makes it somewhat hard to remove, and gives the patient some pain. After operations the vagina is carefully dried, a pencil of iodoform (twenty-five grains), together with a strip of iodoform gauze, is introduced, the vulva is sprinkled with a powder of iodoform

(one part) and boric acid (seven parts), and then a cotton pad is placed over the vulva—held in place by a T-bandage. For perineal operations the urine is drawn for two days, after which the patient is allowed to urinate. The gauze is removed after forty-eight hours, after which a sublimate douche (1 to 2,000) is given daily. The bowels are moved on the second day and regularly thereafter. An abundant soft diet is permitted. The external sutures in perineal operations are removed about the eighth day; the internal sutures at the end of the second week. When the cervix has been repaired at the same time, the cervical sutures are removed at the end of the third week, or even later. One should err on the side of leaving the sutures in long rather than that of removing them early.

Patients having perineal operations are permitted to sit up in two weeks; those having a curetting, in three or four days; those having a trachelorrhaphy, in a week, etc.

The secret of success in plastic surgery is good asepsis, and careful, painstaking, and accurate denudation and suturing. I have never failed to secure good union, which has always been primary throughout, with two exceptions—one stitch-hole abscess and one small hæmorrhage (hæmatoma).

On the procedures of dilatation and curetting of the uterus the author said: Within the past ten years professional opinion concerning these operations has fluctuated widely. Before the antiseptic era curetting was considered a dangerous operation. Its danger at that time I feel satisfied was due partly to lack of antiseptic measures, and partly to bad diagnoses. At that time our knowledge of the diagnosis of chronic salpingitis was very imperfect, and many accidents (peritonitis) resulted from operating on the uterus when the tubes contained pus or other septic fluid. Since the antiseptic era, in the hands of men capable of making a diagnosis of uncomplicated disease of the uterus, and of excluding chronic pelvic inflammation, these operations have been done with impunity. Of late, the legitimacy of the operations has been questioned by Dr. Joseph Price, on the ground that many cases of salpingitis and pus tubes have come under his care in which dilatation or curetting has been done. This fact is no argument against the legitimacy of the operations, nor against the fact that, when properly done in uncomplicated cases, the operations are perfectly safe and free from danger.

Did the women seen by Dr. Price (and by others, including myself) have the tubal disease before the uterus was dilated or curetted? Were the operations done under rigid asepsis? I believe that blunders in diagnosis and blunders in asepsis should bear the blame in these most unfortunate cases, and not legitimate surgery. In my own hands no such untoward results have occurred. On the contrary, under the strict limitations laid down, my confidence in the value and safety of the operations increases as my experience grows.

*Dysmenorrhœa.*—Three cases of dysmenorrhœa, due to partial development of the cervix, with antelexion, and characterized by "cramps" during the flow, were treated by dilatation. Dilatation in this class of cases has always given good results. The cause of the "cramps" is a poorly developed cervix with a narrow canal, whose caliber is further lessened by the antelexion. A broader experience has induced me to use the dilator for dysmenorrhœa much less frequently than formerly. I consider it absolutely contra-indicated if there is tubal inflammation, and believe that it is of little use in relieving pain, unless the latter is distinctly intermittent and cramp-like in character. The pains accompanying menstruation due to inflammation of the uterine appendages, or of the uterus, or due to a depressed state of the blood, with pelvic neuralgias, are not benefited by dilatation, and in such cases it should not be done.

*Endometritis.*—Fifteen cases of uncomplicated endometritis have been treated by dilatation and curetting. Nine of these were cases of fungoid endometritis with resulting uterine hæmorrhages. I believe that this procedure best meets the indications in all cases of uncomplicated chronic endometritis. By removing the thickened portion of the diseased endometrium and providing a freer vent for the uterine secretions, most cases of endometritis can be cured promptly, and the remainder are much improved. The number of cases in which it is necessary to make intra-uterine applications is thus much reduced, and these women are saved the necessity of undergoing a prolonged course of painful intra-uterine treatment. By promptly curing women

with chronic endometritis another important point is gained—the disease is cured before it spreads to the tubes.

The results in my hands have been most satisfactory in cases of fungoid endometritis, especially those of short duration, resulting from abortions. Cases of chronic endometritis with purulent leucorrhœa have been most intractable, and in these cases it has been necessary to make weekly applications to the endometrium (by means of the applicator) of pure carbolic acid, Churchill's tincture of iodine, or a saturated solution of chloride of zinc for some weeks *after* the curetting. I wish to call attention to the small number of cases of uncomplicated endometritis in this series. Omitting the fungoid cases, there were 6 out of 128 women admitted to the hospital. This is about the average in my practice.

In fungoid endometritis I have found the curette so valuable and other methods of treatment (in marked cases) so futile that I am unable to understand how those gentlemen who oppose the use of the curette treat these cases. The only other resort is electricity; but the curette will accomplish in a few minutes what it requires weeks or even months to accomplish by electricity.

The results obtained by the curette in uncomplicated endometritis are so good that of late, forgetting the teachings of past experience, certain operators have proposed to treat cases of endometritis complicated by chronic tubo-ovarian inflammation in the same way. It seems to me that careful men can not protest too strongly against such treatment. In the first place, the danger of setting up fresh salpingitis and peritonitis is acknowledged (except by the few) to be great; and in the second place, should the endometritis be cured (which is doubtful, because of pelvic congestion kept up by the tubo-ovarian inflammation), the graver disease of the appendages remains. The wiser plan, if the appendages are diseased, is first to remove them, and then actively treat the endometritis; or, if the appendages are but slightly diseased and do not require ablation, to treat the patient by applications of iodine to the vaginal vault, and the use of glycerin tampons, at the same time using every measure to improve the local conditions by general medication.

It happens not infrequently that when the inflamed uterine appendages are removed, an endometritis is left which causes the patient some annoyance. These cases are often reported by those hostile to modern surgery, as showing that the abdominal section has failed to cure the patient. These gentlemen have a mental strabismus, and do not see that the section has accomplished the end aimed at—the ablation of the diseased uterine appendages. Whether this alone will cure the patient depends upon whether the particular patient has any other disease. If she has an endometritis, this must be cured; if anæmia, or indigestion, or malnutrition, these must be treated.

I wish to protest against the view that endometritis, as a rule, causes much distress, except the annoyance of a leucorrhœa, unless it induces hæmorrhage. Where women having endometritis suffer much pelvic pain and are semi-invalids, the cause of the pain or invalidism is to be sought elsewhere—in the uterine appendages or in the vital organs or blood state. It is a narrow man who attributes all the symptoms complained of by women to disease of the pelvic organs, and who forgets that women have an unstable nervous system, easily influenced by morbid conditions of the general economy.

In discussing endometritis it should not be forgotten that other conditions besides endometritis can cause a discharge from the uterus. Whatever will cause congestion of the uterus will cause uterine discharge. For example, subinvolution, constipation, feeble heart, lazy habits, malnutrition as from phthisis, erotism, etc. Treatment addressed to the causative disorder will stop such uterine discharge. This class of cases calls for no treatment of the endometrium.

**A Pernicious Osseous Disease (Lymphadenia Ossium).**—The *Journal of the American Medical Association* for March 12th contains the following editorial article:

A pernicious form of osseous disease is the subject of a Vienna clinical prelection by Professor Nothnagel, given in full in two recent numbers of the *Press and Circular*. The changes of structure discovered by autopsy were unusual in extent, having invaded the entire skeleton and obliterated the medulla of the bones by a perversion of that force or those forces whose "elaboration should constantly proceed in the

healthy hæmatic organs." The case was that of a male, aged twenty-four years, hitherto healthy, with good family history, and living in fairly hygienic surroundings. He was first a "Schwizer," or cowherd, and later a soldier in a small Tyrol barracks. His attack dates from eighteen months ago, with fever and pain in the breast and limbs, without appreciable cause. The temperature was not recorded accurately until a month before death. Sweating was profuse at the onset of the attack, and also in the later months. Intermissions in the paroxysms of pain and fever were about two weeks in duration, with excellent health, as regarded subjective symptoms, in the intervals; later, however, the attacks became more frequent and more intense, occurring in the evening and with a periodicity resembling that of tertian malarial fever. The patient became pale and emaciated. The sternum and long bones of the extremities showed deformity from thickening. There was a right-sided exudative pleurisy which increased gradually until death. The spleen was slightly increased in area. The urine exhibited no albumin or sugar, but indican was in excess. The blood revealed oligocythæmia and oligochromæmia, and under Ehrlich's coloring commingling apparatus there was reported poikilocytosis, the erythrocytes showed a marked disparity of diameters—ranging from microcytes to the normal red cell—and a few of the red corpuscles were observed to contain single nuclei; the leucocytes were not greatly changed. The blood was examined at different times for the parasites of malarial fever, but none were observed. Bacterial examinations obtained only negative response.

The autopsy was made by Professor Kundrat on November 17th, or six weeks after the patient's entrance into the hospital. The condition of the bones was the most striking feature of the case. Every bone of the spine, pelvis, shoulders, the sternum, ribs, clavicles, all the long bones, the carpals and tarsals, were affected. The unchanged bones were the phalanges and those of the head and face. A thick layer of osseous deposit, as if covered with a thick infiltrated periosteum, caused the exterior deformity. All the long tubular bones were expanded at their upper portion by a grayish-white infiltrated earthy matter. The interior of the long bones, and of the larger spongy bones, was occupied by the same metamorphic deposit as appeared on their exterior. In a few places the muscular insertions were infiltrated with the same substance. The marrow of the bones, with the exception of a remnant here and there, had disappeared. No bending or twisting of the bones was present as is described to occur in *osteitis deformans*. The lymphatic glands were found enlarged, in some cases twice and even thrice their normal size. During life they could be felt to be soft and large, and the post-mortem confirmed this condition, they being in no way indurated. When cut, the glandular tissue appeared congested, due to a hyperplasia of the follicular elements, but otherwise it had a normal appearance.

The pathology of the disease seems to hinge upon a deranged hæmatic process, affecting chiefly the regeneration of the red corpuscles. The leucocytes remained almost unchanged, indicating that they were derived from lymphatics and spleen and not from the marrow of the bones. The red corpuscles were greatly reduced in number and presented a wide range in regard to their diameters, thus conveying the thought that they were the imperfect product of the spleen, unaided by the better results afforded normally by the marrow of the bones. All investigators are not agreed as to the part which the bone marrow plays in the formation of the red corpuscles, but this case would appear to bring that function as far to the front as has been taught by any of them. The argument by analogy disposes us to believe that the pathology in any case which would arise from a functional or anatomical disorder of any one of several organs, physiologically working together for the same end, would overtax the others and create in them a compensating hypertrophy. Thus, when the spleen is extirpated, a compensatory activity is found by Mosler to be thrown on the medulla ossium and lymphatic glands. In this case the medullary structure was almost obliterated, and practically evaded the splenic experiment, throwing back a compensation of function on the spleen and lymphatic glands and augmenting the volume of those organs. These changes were recognized during life and abundantly confirmed at the post-mortem table. This remarkable case is differentiated by Nothnagel from acromegaly, and one or two other forms of osseous disease, and designated "Lymphadenia

(or lymphadenoma) ossium," due to a gradual obliteration of the medulla, "in a manner not yet demonstrated by experiment, but probably induced by a compensating force for the altered state of elaboration that should constantly proceed in the healthy hæmatic organs."

**The Ambulance Service in New York.**—The newspapers have published the following letter, dated March 26th, signed by Dr. Charles McBurney and Dr. Lewis A. Stimson:

Within the last few weeks the newspapers have printed a number of articles criticising with considerable severity the ambulance service of this city. This criticism has usually accompanied and been based upon reports of alleged negligence or ignorance on the part of ambulance surgeons, or of such lack of sympathy in the performance of their duties as would amount, if true, to actual brutality. The other side of the case has been partly presented in an occasional article and in editorial comments, but the great majority of the publications have been occupied solely with the alleged errors and defects of the service. In view of this fact, it has seemed desirable to friends of organized charity that some of those who are familiar with the subject should make to the public a statement of the character of the ambulance service, and of the conditions under which it is performed, to the end that an opportunity may be given to those who are interested in the matter to form a trustworthy opinion as to its merits and demerits.

The undersigned are now, and for some years have been, attending surgeons at the Roosevelt and New York Hospitals, respectively; they take part in the selection of the ambulance surgeons, supervise their work, and have charge of the patients brought in by the ambulances. They have also served in the same capacity at Bellevue and other hospitals.

The ambulance service of the city is carried on partly by the Commissioners of Charities and Correction at Bellevue, Gouverneur, and Harlem Hospitals, and in part by a few of the private hospitals—the New York, with its Chambers Street branch; the Roosevelt, the St. Vincent, the Presbyterian, and the Manhattan.

The statements that we have to make are based in detail upon the conditions existing at the New York, Chambers Street, and Roosevelt; but, to the best of our knowledge and belief, they are equally true in general of the other hospitals, both public and private.

Each of these three hospitals provides two ambulances with relays of horses, drivers, and stablemen. The stable and harness arrangements are similar to those in use by the Fire Department, so that within a minute after the signal has been given from the office of the hospital the ambulance has departed on its errand. This is the invariable practice, and the rule of the hospital is and long has been rigid that an ambulance surgeon while on duty shall not go out of hearing of the gong that summons him to a call. At night the signal sounds simultaneously in his bedroom and, at the New York, turns on the electric light. One ambulance surgeon is always on duty, and is required instantly to leave whatever other work he may be engaged in when the call sounds. A second surgeon is required to hold himself in readiness to answer any call that may come during the absence of the first. It occasionally happens that a third call comes while both ambulances are out, or a second call while one ambulance is temporarily disabled, and those are the only occasions on which any delay in answering a call arises within the hospital. The Grand Jury stated officially last July that the ambulance habitually reached the farthest points in the largest district within eight minutes after the receipt of the call, and that delay occurred only in the transmission of the call to the hospital.

The call for an ambulance is transmitted to the hospital by one of two routes; it may be sent from a station-house to Police Headquarters and thence by private telephone to the hospital, or it may come over the Fire Department wires, for the fire-alarm boxes are so fitted that a policeman can send a call for an ambulance from most of them. These latter calls sound simultaneously in all the hospitals, and the case belongs to the ambulance that gets to it first. In connection with this it may be mentioned that a great deal of harsh newspaper criticism has been based on the theory that an ambulance surgeon refuses to take a patient who is not in his district. On the contrary, he is anxious to take him, for almost the only break in the monotony of a duty that deals solely with sickness and suffering is the satisfaction that comes

from a "beat" of the ambulance of a neighboring hospital. These fire-alarm calls are known as "hurry calls," and they are the ones that especially bring the young man down stairs three steps at a time to swing himself bareheaded to the tailboard and urge the horse to a run.

A book is kept in the office in which the time of the departure and return of the ambulance, the place where the patient was found, and the diagnosis are recorded.

The ambulance surgeon is a member of the resident staff, who is assigned to this duty during the middle period of his hospital course—that is, after he has already passed one term in preparation for it. The members of the staff are selected, after a competitive examination, from among candidates who are many times more numerous than there are positions to be filled, and they are beyond question the very best of those who are graduated from Harvard, Yale, and Philadelphia, to try for the positions. All of them have had previous experience as dressers in dispensaries and as substitutes in hospitals. At Chambers Street the men are not selected by competitive examination; the peculiar character and activity of that service make it exceptionally advantageous to men of experience, and consequently the members of its staff are usually (three fourths of the time) men who have previously served a full course in some other hospital.

What is the work for the doing of which this elaborate preparation is made? It is to respond to any call that is sent in by the police; to respond instantly, unhesitatingly, at any hour day or night, abandoning everything else, and without stopping to inquire as to the character or the urgency of the call. Primarily, it was intended only for the care and comfort of those who need to be received into a hospital, but it has grown into a vast additional system of outdoor relief, of the treatment of the immediate wants of those who do not need hospital care. This needs to be borne in mind in criticising alleged refusals to receive patients. In a large proportion of calls neither the sender of the call nor the patient has any expectation that hospital care will be required or accepted.

The amount of the work is indicated by the following figures: During the year 1891 the Chambers Street ambulance was called out 3,946 times; the New York, 1,200; the Roosevelt, 1,500. The Grand Jury found the daily average for the city 47 calls.

It can hardly be necessary to say that a private hospital is a private charity and is under no obligation to maintain this service (indeed, many hospitals do not maintain it), or that it receives no pay for doing it, or that no member of its professional staff receives any pay for it. And yet, so easily does the notion of a vested right arise from a recurrent favor, that one of our hospitals was severely criticised by the press because it objected to going to the expense (some \$2,000) of making a new connection with the Fire Department wires after the latter had been placed in the subway.

Much of this work is work that the city pays other people to do. Police surgeons are employed and paid to attend to sick and injured policemen and to such sick or injured citizens as are brought to the station houses. But it is very much easier, as well as more certain in its results, to press a button and summon an ambulance than it is to send a messenger a mile or two for a physician who may or may not be at home.

Further, a considerable number of the calls are made needlessly for trifling injuries, for bruises received in a drunken altercation, for malingering tramps who want a night's rest and a breakfast and had rather ride than walk. The habit of calling increases with use, and without stopping to consider the urgency, the signal is rung, and horse, driver, and surgeon are brought out to put on a piece of court plaster. The hospitals make no complaint of this abuse; they look upon it as an inevitable accident of the service. It means to the management a little more money spent for repairs, or for horses, or perhaps for wages. It means nothing to the attending staff, for it brings them no cases to be treated, but to the ambulance surgeon, who has not even the privilege of an audible grumble, it means a great deal; it means the needless interruption of other work, the loss of food or sleep, and the strain on nerves and temper which that interruption and that needlessness create. Even without such avoidable additions the work is heavy enough and trying enough to call for all the sympathy and all the charity in judgment that their critics can command. A few days ago the Press Club made an appropriate and touching recognition of the fidelity of a re-

porter who recently died of typhus fever contracted in the discharge of his duty. For the last two months the ambulance surgeons of this city have been going daily, and several times a day, to cases which they knew might be, and many of which proved to be, typhus; and within a week one of them, called to such a case, saw every friend of the patient rush from the room when the dreaded word was spoken, and he was compelled to take him in his arms and carry him to the ambulance alone and unaided. With the experience and prospect of such exposures and of personal violence frequently threatened and occasionally inflicted, the life of the ambulance surgeon does not excite much envy; and when to it is added the constant exhaustion of exacting duties we can only feel surprise that men are willing to take the places. They frequently fall ill from overwork or through contagion, and occasionally one dies. Look at the great tablet in Bellevue Hospital covered with the names of young men who have "died in the discharge of duty." These young men are the best of their age in the profession; they have eagerly competed for the opportunity to assume their onerous duties, and they perform them with a fidelity and zeal that are rarely exhibited in other places, for their work is done under the stimulus of a desire for self-improvement, not for money.

This side of the story is not generally known. The public hears nothing of the good work faithfully done beyond the half dozen items in each day's newspaper that "an ambulance was called and the injured man taken to the hospital." Attention is aroused only by the occasional error or by the picturesque and imaginative accounts for which our long indulgence in sensationalism has created a demand.

It is sometimes urged by critics who are apparently without a personal knowledge of the workings of the service that it should be in the hands of older men in order that mistakes, presumably due to ignorance and inexperience, should be avoided. But older men of more experience and knowledge, and of equal ability, are not to be had. An older man who would accept such a position for such a salary as a hospital could pay would be a self-confessed failure, and any expectation of better work from him would certainly be disappointed. Such extraordinary exertions as are made by the young ambulance surgeons in the performance of their duties can be made continuously only by the young, the vigorous, the enthusiastic. If they were not earnest and eager in their work they would not remain in the service a week. The elderly man of experience, for whom the coroner's jury yearns, who should attempt to take the place of one of these young men, would at the end of a few days be in as pitiable a condition as if he had acted as a substitute on one of our college football teams.

Of course, we admit that occasionally an important mistake is made. That mistake is almost always the same—a fracture of the skull without symptoms is overlooked in a drunken man, or the symptoms produced by it in a sober man are thought to be those of drunkenness. It is not necessary to plead in extenuation that for each of these mistakes there are hundreds of cases in which the same judgment is exercised and a correct decision reached, or that little or no actual harm arises from it. The defense has a much broader and more solid foundation. Those mistakes have always been made and are now being made everywhere, and by the most experienced, and they will doubtless continue to be made so long as our perceptions and our knowledge have their present limitations. The science and art of medicine has not yet made it possible to recognize a fracture of the skull that gives no symptoms, or surely to discriminate between some of its symptoms and those of alcoholic intoxication. To the retort that, such being the case, every doubtful case should be taken to the hospital, we reply that that very course is the one that is habitually followed. The occasional mistake is made in cases which, after due consideration, have been thought not to be doubtful. The doubtful cases which are taken in are never heard of outside the hospital, and yet they are to be counted by the hundreds. Upward of ten per cent. of the patients brought in by ambulance are just those doubtful cases; they are brought in on the chance; they prove to be nothing but drunkenness, and they are discharged the next day. The hospitals do not pretend to take care of the drunken; they do not refuse a sick man because he is drunk or violent or abusive, but they do not take him if they think he is only drunk.

Finally, we beg leave to add a few extracts from an official state-

ment made by the Grand Jury last July. A committee of five members was appointed "to make a thorough examination of the ambulance system of the city of New York." That committee reported as follows:

"Regarding the private hospitals, . . . we can only say that we found in their ambulance equipment, and in their administration of the service, only that which calls for our hearty approval."

"We note with commendation a feature that seems universal in the hospitals named (the private ones), to wit, that the ambulance doctors are all graduates, and that they are not detailed for ambulance service until after they have performed six months of active duty in the hospital wards."

"In all these hospitals, both private and public, we found admirable equipments for the performance of the important labor discharged by them, and a commendable zeal to be very prompt in responding to the demands for the service."

"While we find very much to commend regarding the response by all hospitals to ambulance calls on them, we are compelled to criticize very severely the present lack of adequate official means of conveying prompt notification to the hospitals of the necessity for an ambulance . . ."

The following communication on the same subject, entitled *Youthful Ambulance Surgeons*, and signed "An Old 'Doctor and Surgeon,'" appeared a few days ago in the *Evening Post*:

The innate and inalienable sapience of the average jurymen, and the eminently sagacious results of crown's-quest laws, have seldom been more admirably illustrated than in the verdict recently delivered upon the "Harper case," condemning the youth of the ambulance surgeons and house staff of our hospitals, and urging that "the authorities" (what particular "authorities," imagination is left to surmise) should insist that "experienced doctors and surgeons" be assigned to such positions.

From a strictly nosocomial point of view, it must be admitted that an ideal perfection of medical relief would be attained if, for example, Dr. Lewis A. Sayre and Dr. Stephen Smith were kept at a hospital, day and night, to attend to ambulance calls, and if the resident staff were entirely composed of men like Dr. Weir, Dr. Gouley, Dr. Bull, Dr. McBurney, Dr. Bryant, Dr. Dennis, Dr. Jaueway, Dr. Loomis, and others of equal professional eminence. But, unfortunately, even under our present somewhat arbitrary method of legislation, no way exists of forcing these gentlemen to relinquish a lucrative practice, to abandon their families and homes, and to devote their whole time to gratuitous work.

The system of hospital administration seems to be strangely misunderstood by the public, and sometimes by the press. The ablest and most "experienced doctors and surgeons" have, for generation after generation, been "placed in charge" of our hospital wards, and have given their service without remuneration as members of the visiting or consulting staff. In their daily rounds of the hospital, it is not too much to say that the poorest patient receives more skilled treatment than the ordinary coroner's jurymen could afford to pay for, and it is certain that the most brilliant triumphs of surgery and medicine have been achieved in hospital practice.

As regards the younger men who constitute the resident staff—always under instruction of the "visiting," except in manifestly minor cases—it is probably not generally known that these are all graduated physicians and surgeons who, after a course of instruction which now includes more clinical experience than the graduate of the last generation could acquire in ten years of private practice, undergoes, after receiving his diploma, a competitive examination to win his hospital appointment, in which he rises, progressively, from the lowest to the highest grade. In fact, these younger men form a *corps d'élite* by selection from our best medical schools.

It is possible that drunkenness may mask an injury to the skull or its contents, or, more rarely, that such an injury may simulate drunkenness; but, in such cases, time for the development of further symptoms is usually needed to form an accurate diagnosis, even by the most expert seniors.

On the other hand, the *Times and Register*, a medical journal edited in Philadelphia, in an editorial article headed *Great Charities and Puerile Administration*, has this to say of the hospital internes of New York:

New York is having trouble with her ambulance system. The youngest and most inexperienced resident, still top-heavy with the dignity of his newly acquired doctorate degree, is the one usually sent to answer calls for the ambulance. The result is seen in two cases recently described in the journals. An aged woman was run over and seriously injured. The Roosevelt Hospital ambulance was summoned, but the doctor in charge refused to receive the woman and drove off, although urged by two physicians present to take the woman to the hospital. So indignant were the bystanders that they pelted the doctor and ambulance with snowballs as they drove off.

What a comment is this on the description of this hospital by a British visitor, quoted in a recent New York medical publication! He speaks of the magnificent operating theatre, the finest in the world, and of the difficulties experienced in finding ways of expending the enormous sum (\$400,000) given to the hospital for that purpose.

In another case the coroner's jury censured the ambulance surgeon of Manhattan Hospital for shameful neglect of a man with a fractured skull, their verdict ending as follows:

"We condemn the treatment of the ambulance surgeon who had charge of the case, as well as the surgeons of Bellevue Hospital, under whose charge the deceased was placed. We further condemn the practice of the hospitals of having young and inexperienced doctors, and we strongly recommend that the hospitals be censured, and that if the authorities have the jurisdiction they should insist that experienced doctors and surgeons be placed in charge, so as to protect the lives of the unfortunates who may be placed in their charge."

It is thus seen that the grandest designs of philanthropists may be brought to naught by the selection of improper instruments. It is one of the grave defects of the examination system that it can not determine the fitness of candidates beyond their proficiency in study. "Though I have the gift of prophecy, and understand all mysteries and all knowledge, and though I have all faith, so that I could remove mountains, and have not charity, I am nothing."

[Our own view of this subject was given in the *Journal* for February 6th.]

**Mortality in Cities in the United States.**—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for April 1st:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—									
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varicella.	Scarlet fever.	Enteric fever.	Diphtheria.	Measles.	Whooping-cough.	
New York, N. Y.	Mar. 26.	1,515,301	872	105					4	31	30	15	5
Chicago, Ill.	Mar. 19.	1,099,850	448	32					18	6	20	2	2
Philadelphia, Pa.	Mar. 19.	1,046,964	504	55					12	18	28	2	2
Brooklyn, N. Y.	Mar. 26.	806,342	397	48					12	15	3	3	3
Boston, Mass.	Mar. 26.	448,477	237	24					2	3	10	1	1
Baltimore, Md.	Mar. 26.	454,439	220	30					1	16	16	4	1
Cincinnati, Ohio.	Mar. 25.	296,908	137	11					1	3	8		
Cleveland, Ohio.	Mar. 26.	261,353	109	10					3	1	2		1
New Orleans, La.	Mar. 5.	242,039	128	17							1		
New Orleans, La.	Mar. 12.	242,039	134	9					1			1	
Pittsburgh, Pa.	Mar. 19.	238,617	107	5					1	1	3		1
Washington, D. C.	Mar. 19.	230,352	104	9					3	1			2
Minneapolis, Minn.	Mar. 26.	164,738	43						1	1	2		
Louisville, Ky.	Mar. 25.	161,129	50	11							1		
Rochester, N. Y.	Mar. 26.	133,896	55	7							4		
Kansas City, Mo.	Mar. 12.	132,716	29	6									
Providence, R. I.	Mar. 26.	132,146	44								2		
Denver, Col.	Mar. 19.	106,713	33	9							2		1
Toledo, Ohio.	Mar. 25.	81,434	24										1
Nashville, Tenn.	Mar. 26.	76,168	39	5					2				
Fall River, Mass.	Mar. 25.	74,398	32	2									
Portland, Me.	Mar. 26.	36,425	15										
Binghamton, N. Y.	Mar. 26.	35,005	12	1					2				
Mobile, Ala.	Mar. 26.	31,076	16	1									
Galveston, Texas.	Mar. 18.	29,084	10						1				
San Diego, Cal.	Mar. 19.	16,159	6										
Pensacola, Fla.	Mar. 19.	11,750	5	1									

**Moliere and Physicians.**—The *New York Times* publishes a notice of a book by M. Georges Monval, entitled *L'Amour médecin*, from which we take the following: Several Moliéristes, and Monval is one of them, think that Molière hated physicians because he was ill and the physicians could not cure him, but Molière knew well that his malady came

of his stage life; the monster public had to be incessantly tamed, and there was abuse of exasperated strength, excess of mental labor. The remedy was to be found in an abandonment of the theatre. He was too sensible to blame the physicians for his ill-health; still he hated them, as *L'Amour médecin* proves, and perhaps his sentiment may be explained by pure professional jealousy. In love with truth and frankness, Molière felt deeply the pain of playing a part that he unjustly condemned in his enemies—the part of a physician who does not cure.

Comedy does not transform men and manners; it can not more realize this anti-natural miracle than medicine can change a temperament. It has higher and grander achievements. It shows in the work of Molière instinct, youth, love, unconquerable forces triumphant over the human vices at war against them, and all-powerful Nature, protected by an invincible armor of adamant, a tamer of the false and fictitious in misdirected civilization. Like medicine, comedy has for its function to prevent Nature from deviating. It does not cure the incurable. In attacking the physicians Molière confessed figuratively his own inability to repair the irreparable. He never missed an opportunity to express contempt for books; he feigned to believe that the dramatic poet can not live and remain in the memory of men except by representation on the stage.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

## Original Communications.

THE ELEMENT OF  
CONTAGION IN TUBERCULOSIS.\*

BY T. MITCHELL PRUDDEN, M. D.

THE two great achievements in medicine which especially mark the decade now closing are the gaining of precision in our knowledge of the cause of infectious diseases, and directly based upon this the discovery that, in a degree scarcely dreamed of before, these diseases are preventable.

The medical world was all ready for Dr. Koch's announcement, when it came early in 1882, that tuberculosis was caused by a living germ whose life history he then made known. It is a small rod-like germ, very persistent in the maintenance of its form and life, but so sensitive in its growth and reproduction that it has no breeding places in Nature outside of the bodies of those men and animals in which it has lighted up disease. Finding lodgment in this congenial soil, it may grow, stimulating and poisoning, as it does so, the tissues where it lies, so that, sooner or later, the tendency is for the new tissue which is formed and the old which is robbed of life to disintegrate, and if favorably situated be by degrees cast off from the body together with more or less of the virulent germs.

While the tubercle bacillus does not grow in Nature outside the bodies of warm-blooded animals, and while its life is destroyed by a few moments of boiling, by contact with many chemical agents, and by prolonged exposure to the sunlight, it yet may retain its vitality and virulence during months of drying and the ordinary exposure to the weather, and may be found alive after long burial in the earth.

The places outside of the bodies of living beings in which the bacillus of tuberculosis is to be especially found under ordinary conditions with us are in the flesh and milk and discharges of tubercular cattle and in the excretions of tubercular persons, especially of those who are the victims of tuberculosis of the lungs. But by far and away the most common and abundant lurking place of this germ is the sputum in pulmonary tuberculosis.

When the tubercle bacilli are cast off from the body in the sputum, they are closely imbedded in a moist, tenacious, albuminous material from which they can not escape so long as moisture is maintained, no matter where they lodge or what air currents may blow over them. So that, so far as specific contamination of the air is concerned, this can not occur while the sputum stays moist. This same tenacious envelope also prevents such ready access of disinfectants to the bacilli in the sputum as would assure their easy destruction. When the sputum dries, the bacilli are still firmly held in place so long as the desiccated mass remains intact. But let this once be pulverized by the foot on floor or carpet, by rubbing between folds of cloth or in any other way, and these virulent particles can mingle at once with other

dust and become subject to the same physical laws of transport and diffusion.

It is to be distinctly understood that the breath of consumptives, apart from solid particles which may now and then be cast off in coughing, conveys no germs.

It is not necessary for me to go over the story of research and experiment which have led to the universal conviction that the tubercle bacillus stands in an absolute and direct causal relationship to tuberculosis, and that in this relationship it stands alone.

That there are many contributory factors in the acquirement of this disease—vulnerabilities of the individual, both hereditary and acquired, predisposing vicissitudes of environment—one can not, it seems to me, deny, nor should he measure lightly. But the one thing without which tuberculosis can not come to man or beast is the living tubercle bacillus. All the vulnerabilities and predispositions and favoring vicissitudes which we either know or can conceive of can not without this particular germ light up this particular disease. It is not a vapor in the air, it is not a mysterious miasm, it is not an inscrutable enzyme which does this thing, but a definite physical body which we can see and measure with our lenses, which we can cultivate and handle and kill.

Precision in our conception of the nature of the disease tuberculosis, definiteness in our knowledge of its cause—these were the first fruits to ripen in this newly opened field.

But then came the question, If tubercle bacilli are cast off alive from the bodies of its victims or can be consumed in the meat and milk of tubercular cattle, are not these cast-off or consumed germs the sources from which new disease is propagated? If this were true, then tuberculosis is a communicable disease. I will not weary you, full as it is of practical significance, with the oft-told tale of Cornet's convincing researches, nor with a summary of other studies which at last have proved beyond a doubt that living virulent tubercle bacilli are present in the dust of the air of places in which uncleanly consumptives live, and that close attendance upon and association with such persons, without intelligent precaution, frequently involves acquirement of the disease. The evidence of the communicability of tuberculosis finds a most dramatic index in the yearly death roll of its victims.

Slowly but surely we have learned that what once was thought to be hereditary transmission of the disease is often only household poisoning, or, at most, an entailed vulnerability in the presence of the germs derived from whatever external source. The possibility of extremely infrequent direct hereditary transmission of the tubercle bacillus need have no serious consideration here, in view of the immediate practical purpose which calls us together. The main point is that tuberculosis is a communicable disease, and that the chief element in its conveyance is the unhealed-for sputum of the victims of pulmonary tuberculosis. This possibility was distinctly foreshadowed in Dr. Koch's first communication on this subject, and has since been steadily growing into a fixed conviction among intelligent physicians.

\* Read before the Section in Hygiene of the New York Academy of Medicine, January 21, 1892, as the introduction to a discussion on the prevention of tuberculosis.

And yet well-nigh ten years have gone without that persistent and concerted action on the part of medical men in this country which both intelligence and humanity would seem to make imperative. The varied reasons for this apathy we need not here discuss.

But now, at last, when all seems ready for decisive measures, we must not forget that our own ideas of the danger to be met must be precise and definite, in order that we may by individual counsel, as well as by public urgency, make plain and comprehensible to all the thing we strive to do. There should be among ourselves none of the old indefiniteness of conception regarding the exact meaning of such terms as infection, infectious disease, contagium, contagiousness, and the like.

The meaning of these terms was of necessity uncertain and hazy when the things themselves which they were intended to specify were largely matters of speculation and conjecture. It were well, perhaps, if they were dropped wholly from our speech and replaced by new words coined in the new light. But as this may not be, the next best thing is to remodel the meaning, and with this to reinvest the words.

I think I do not err in saying that those who can justly speak most authoritatively in this matter are agreed that in the light of to-day an *infectious disease* is one which is caused by the invasion and reproduction within the body of pathogenic micro-organisms; not necessarily an invasion by bacteria, because in one case at least—malaria—the invading pathogenic micro-organism is not a bacterium, but belongs to a wholly different class. The invading micro-organisms which we must assume to cause the exanthemata are wholly unknown to us, but the nature of these diseases justifies us in grouping them with those infectious diseases whose causative agent is definitely known. *Infection* is the condition produced by the entrance and multiplication of pathogenic micro-organisms within the body.

The word contagious no longer covers infinite possibilities in the unknown, or carries with it the mysterious terrors of the unknowable. The *contagium* in any infectious disease is for us to-day the particular pathogenic micro-organism itself, whose advent in the body ushers in those reactions of the body cells which we call disease. The contagium of an infectious disease is a particulate thing, which has length and breadth and thickness and weight and the varied powers of lowly forms of life.

An infectious disease is contagious when its contagium—that is, the micro-organism which causes it—under the ordinary conditions of life, can be freed from the body of a diseased person and, by whatever means, conveyed to the body of another in a condition capable of lighting up the disease anew. The old indefinite distinction between infection and contagion, by which one strove to express, among other things, a fundamental difference between the conveyance of disease by personal contact and by aerial transmission, has become impracticable and valueless now, because we know to-day that the differences in the mode of communicability of infectious disease are largely dependent upon the physical qualities of the contagia, upon the places and ways in which these are freed from the body, and upon the

places and ways in which they enter the bodies of new victims.

The moment we know exactly what we mean when we speak of a contagium, the moment we have learned to follow the movements of these particulate contagia as they leave the bodies of their victims—in one case in the stools, in another from the skin, in others from the mucous membranes—and can trace their diffusion and life stories in earth or air or water: the moment, I say, we can bring the light from these varied factors to bear on the clinical stories of infectious disease, we are not only in a condition to talk intelligently about degrees of contagiousness, but to study the conditions under which degrees of contagiousness may vary in nature or be varied by art.

It is an unfortunate circumstance that the most common notion of a contagious disease is derived from those which are most dreaded and most liable to spread—from such diseases as small-pox and scarlet fever—so that the common conception of a contagious disease is of one which necessarily taints the air about the victim—surrounding him, so to say, with an infectious atmosphere. But this notion is wholly groundless in any disease common with us outside of the exanthemata, and is apparently reasonable here only because the contagia of these diseases are unknown to us and are probably largely cast off through the skin, and so easily diffused.

The fact is that such infectious diseases as typhoid fever, diphtheria, and tuberculosis can be highly contagious or made scarcely at all so, depending upon the care or lack of care which is taken by the victims or their attendants in the disposal of their varying exudates or discharges.

How contagious tuberculosis actually is under the conditions which prevail to-day, it is not within the scope of my theme to consider now. But I do not see why it should not continue just as ominous, or become even more so, if the present unsanitary habits continue in public and private places. If the vile and increasing practice of well-nigh indiscriminate spitting goes on unchecked in nearly all assembling places and public conveyances; if the misguided women who trail their skirts through the unspeakable and infectious filth of the street are to be admitted uncleaned into houses and churches and theatres; if theatres and court-rooms and school-houses and cars are to remain the filthy lurking-places of contagia which their ill ventilation and their mostly ignorant and careless so-called cleaning necessarily entail; if in sleeping-cars and hotel bedrooms the well are to follow consumptives in their occupancy without warning or even the poor show of official disinfection; if in ill ventilated and ill-cared-for dwellings the well must breathe again and again the dust-borne seeds of tuberculosis; if no persistent warning is to be given to the ignorant of the dangers which lurk in uncleanness—then our task will be most complex as well as difficult in limiting the contagiousness of tuberculosis.

The task of reform is not less than colossal at best, nor is it by anything less than long-continued and well-directed labor that substantial good can come. It will not do for physicians to say that people will not follow their directions when the danger to the well is not individually more

imminent than this of the acquirement of tuberculosis, and so stand idle. Nor will it answer to hold our hands because, under the most favorable conditions, all will not be reached. Every little helps much when, as here, each victim of tuberculosis may be discharging thousands, if not millions, of virulent germs every day upon our ill-kept streets and in places where the well must go.

It is not logical and it is not humane to do nothing because we may not accomplish all.

How the sputum in tuberculosis can be best rendered harmless it does not fall within the scope of my theme to discuss, nor is the question of tubercular meat and milk upon my list.

But this seems certain: that whatever public and private measures for the prevention of tuberculosis we may decide upon as wise must be so conceived that education will go hand in hand with the law. Tuberculosis is contagious; wise teaching can show that its degree of contagiousness depends largely upon the comportment of the victims themselves.

For humanity's sake the stricken must be made to know that the necessary measures of reform in this matter do not involve ostracism, do not entail isolation.

To make our way between the rigors of necessary legislation on the one hand and the demands of the humanities on the other is a task requiring tact as well as wisdom and large knowledge withal of the daily ways of the world as it goes on outside of laboratories. But, wisely choosing thus the way with caution, let us not forget that death meanwhile holds carnival.

## VICIOUS UNION FOLLOWING POTT'S FRACTURE.

OPERATIVE TREATMENT. PRESENTATION OF A CASE.\*

BY IRVING S. HAYNES, M. D.,

DEMONSTRATOR OF ANATOMY IN THE UNIVERSITY MEDICAL COLLEGE.

A POTT'S fracture is a fracture at the ankle produced by eversion and abduction of the foot.

In a typical case there are three points of fracture, occurring in the following order:

1. A fracture of the internal malleolus.
2. A fracture of the outer margin of the lower articular surface of the tibia adjacent to the fibula.
3. A fracture of the fibula from two to three inches from its lower end.

Often, however, instead of the internal malleolus being fractured, the internal lateral ligament is torn away from its attachment to the malleolus or os calcis, and, instead of fracture of the lower articular margin of the tibia, the interosseous ligament is severed from the tibia or fibula.

The immediate consequences to the limb after such an injury are eversion and outward displacement of the foot and widening of the ankle, due to the separation of the bones forming the mortise of the ankle joint.

There are also disability and three characteristic points

of pain: First, over the seat of fracture of the internal malleolus or rupture of the internal lateral ligament. Second, over the seat of fracture of the fibula. Third, over the front of the ankle corresponding to the injury of the interosseous ligament or adjoining portion of the tibia.

*Occurrence.*—Pott's fracture occurs frequently. As the statistics in the various surgeries are accessible to you all, I will only speak of unrecorded cases. In one hundred and forty-two cases of fracture seen while an interne in Bellevue Hospital, and of which I took full histories, there were twenty-five cases of Pott's fracture pure and simple, or 17.6 + per cent. The other cases were distributed as follows: Head and thorax, sixteen; upper extremity (and clavicle), sixteen; lower extremity (excepting Pott's), eighty-five. These figures are defective in that they do not include the cases for the same time treated as outdoor patients.

*Treatment.*—This consists of immediate reduction of the deformity by *inverting, adducting, and flexing* the foot, using an anæsthetic if necessary, and fixing the foot with plaster-of-Paris bandages over a liberal layer of cotton in a position of *superinversion* and *flexion*—hyperinversion so as to be sure that the internal malleolus will unite in proper position, or, the internal lateral ligament being ruptured, so that it will unite with the least possible lengthening, and that the fibula shall be brought snugly up against the tibia and the mortise of the foot restored. By flexion we seek to prevent posterior displacement of the foot, also recovery with the foot in an extended position, which is a source of discomfort to the patient when he begins to walk.

If there is considerable inflammation, the cotton should be kept soaked with lead-and-opium solution and the limb elevated. The splint should be cut open if there is any constriction as shown by the condition of the toes, which should always be left uncovered for inspection.

When the inflammation subsides, a new plaster splint should be applied over an ordinary Canton-flannel bandage, maintaining the hyperinversion and flexion of the foot. It is not enough to have the toes inverted; be sure the heel is also. Union is usually firm in four weeks. The patient can begin to walk without the plaster splint about the sixth week.

*Sequela after Proper Treatment.*—A stiff ankle which lasts from two to four weeks. If the foot has been kept well flexed during treatment, this will not cause the patient much discomfort. Swelling of the leg, due to the obliteration of some superficial veins, will disappear when the circulation is fully established—usually in from six to eight weeks.

After improper treatment, or failure of treatment, various degrees of deformity result, due to a greater or less outward displacement of the foot, with eversion, a condition similar to that at the outset before the fracture has been treated.

Without speaking further of the varieties of viciously united Pott's fracture, I desire to present the following case as a typical illustration of such an unfavorable result that may occur to any one from a failure to maintain hyperinversion and flexion from the very beginning of the treatment:

\* Read before the Society of the Alumni of Bellevue Hospital, October 7, 1891.

The patient, Daniel McC., an Englishman, aged thirty-eight, a truckman by occupation, entered Bellevue Hospital May 27, 1888, and gave the following history:

*February 8, 1888.*—He jumped from his truck, striking on some ice; he slipped and his left foot turned outward. He was treated at home by placing the ankle between two side-splints taken from a cigar box, and his toes carefully kept in line.

In six or seven weeks he was out of bed, and then it was noticed that his foot was turned outward. He tried to use his foot, and could walk around some with the aid of a cane, but his ankle soon tired and then became painful and caused him so much discomfort that he entered the hospital to secure relief by operative means.

*Examination on Entrance.*—The patient walked with the aid of a cane with difficulty, and could not stand for any length of time on account of the pain on the inside of the ankle. The foot was everted and displaced outward, as shown in Photograph I. (The photograph does not represent the eversion very well, as the knee is swung outward until the sole of the foot rests squarely on the floor. The photograph will also illustrate the usual deformity after this kind of fracture.) The axis of the leg, prolonged downward, fell to the inner margin of the sole. There evidently had been a fracture of the internal malleolus at its base, and of the fibula, about three inches from its lower end; the angular deformity between the two fragments was marked, and is well shown in the photograph.

Union was firm and complete, motion at the ankle joint nearly normal, there being a slight diminution of flexion. The patient was anxious for any operation that would give him a useful leg, for in his present condition he could not attend to his usual work.

In looking up the case in such works as I then had at hand, I found in Dr. Stimson's work on *Fractures* that the following operations had been done for the relief of viciously united Pott's fractures:

I. Le Dentu refractured in a case of vicious union after Pott's fracture of three months' standing, using an osteo-elast. A solid plaster splint was applied and retained for six weeks.

*Result.*—A useful leg, with slight deviation outward, but the sole rested squarely on the ground.

II. Dr. Fenger, of Chicago, had operated on several cases by removing a wedge-shaped piece of bone from the tibia two inches above the internal malleolus. The base of the wedge was an inch wide and on the inside of the leg, the apex at the outside. The foot was brought into position after fracturing the fibula. The operations were said to be satisfactory, but full details of the condition of the joint were not given.

III. Dr. Stimson also states that he saw Dr. Sabine in 1881 operate for this deformity by dividing each bone with a chisel through separate incisions an inch above the base of the malleolus. He could then bring the foot into the axis of the leg without removing a wedge-shaped piece of bone. The patient made a good recovery. In commenting upon this operation, Dr. Stimson says that it meets only one indication; it brings the foot into line, but does not correct the separation of the malleoli, and it changes the direction of the articular surface of the tibia so that it faces inward instead of being horizontal.

IV. Excision of the ankle with various modifications

has been done. Ankylosis is aimed at and the results are more or less satisfactory.

None of the above operations was performed. The deformity was corrected by the following method, and three years of continuous use of the limb in heavy work attests its value. The aim was to *reproduce the original injury*. The operation was performed with strict attention to antisepsis, and under a continuous bichloride irrigation of 1 to 4,000. An incision an inch and a half long in the long axis of the fibula was made over the seat of fracture, and the bone divided by a chisel at this point. This allowed the foot to swing partially into place, its further inversion being blocked by the internal malleolus which had united to the tibia in a position of outward displacement (see Fig. 1). The base of the internal malleolus was next exposed through a vertical incision, the periosteum peeled up, and the chisel entered transversely at its base an inch and a quarter from its lower end, and driven obliquely into the joint, to come out at the angle of junction between the articular surface of the malleolus and tibia. This of course opened the joint, which was irrigated with the bichloride solution. The foot could now be fully inverted and the deformity reduced.

The periosteum and skin over the internal malleolus were separately sutured, a drain being omitted. The fibular wound was closed over a drain of a few strands of catgut. The foot was strongly inverted and flexed to a right angle with the leg and a heavy plaster-of-Paris splint applied over a thick antiseptic dressing. The foot was firmly held in position until the plaster had fully set.

The operation was performed on June 2d, and I might state here that while the patient was on the table it was noticed that he had a large hydrocele. This was first treated by Volkmann's open incision, and excision of a portion of the tunica vaginalis; in this case a strip two inches and a half by half an inch was



FIG. 1.



FIG. 2.

removed. The wound healed rapidly and the hydrocele has never returned.

*June 5th.*—The patient had a temperature of 103° F. Fenestræ were cut in the splint and the wounds examined. Internal one healed by primary union. Outer one showed retention of secretions; sutures were removed and wound packed.

On the tenth day the old splint was removed and a new one reapplied. Motion in ankle two thirds. On the twelfth day the

patient was out of bed. The case went rapidly on to recovery, a new plaster splint being put on on the nineteenth day.

*July 4th.*—The last plaster was removed. Wounds entirely healed. Full ankle motion.

*16th.*—Photograph No. II taken. The superficial ulcer shown in the photograph was due to the pressure of the plaster splint and soon healed. The swelling of the leg soon disappeared. With these changes the photograph would do to illustrate the present condition of the ankle.

*17th.*—Discharged cured.

The subsequent history is as follows:

The patient went home and to work; for about six months he wore an iron support to his ankle, an arrangement made by the village blacksmith, but he soon discarded this, and ever since has been doing the hardest kind of work without any ankle support, and states that he can work all day without fatigue or weakness in the ankle, and on Sundays, he says, in pleasant weather he walks from seven to fifteen miles for pleasure.

Present condition of the ankle: As above stated, the position of the foot is well illustrated by Fig. 2. There has been no outward deviation of the foot whatever. There is a slight thickening over the internal malleolus which makes the ankle look slightly wider than the other. Extension is perfect, flexion is resisted beyond a right angle, due to a slight shortening of the tendo Achillis, which will probably be overcome by use.

The operation here described for the relief of not too long standing cases of vicious union after Pott's fracture is a rational one. It aims to restore the limb to the condition it was in at the time of the injury, and then treat it as a case of recent fracture. To do this, the internal malleolus and fibula are divided at the seat of old fracture; the foot then is to be superinverted and flexed and this position maintained for four to six weeks by plaster-of-Paris dressing.

The operation is simple and practicable. It is less formidable than a cuneiform or linear osteotomy of the tibia above the malleolus and does what these do not do—namely, preserves the horizontal articular surface of the tibia and restores the mortise of the ankle to nearly its normal condition. For, though there may have been a gap between the tibia and fibula at the beginning, and this filled in with new tissue, by the pressure exerted upon this by the fibula when the foot is kept fully inverted for four or six weeks, we have reasonable assurance that the most of this tissue, if it be present, will be absorbed.

The final result is all that could be desired. Motion will probably be normal, the foot stand as much work as its fellow, and no tendency to a return of the deformity exist.

316 EAST EIGHTY-SIXTH STREET.

**The Secretion of Bile in Uræmia.**—"In order to elucidate the character of the secretion of bile in artificially induced uræmia, Dr. Lökianoff, of Warsaw, tied the ureters close to the bladder in twelve guinea-pigs, collecting the bile of six of these during the first day and of the remaining six during the second day of uræmia. He found, among other results, that uræmia tends to reduce the body temperature; as a rule, the liver increases in weight to a slight extent, the blood and the kidneys become richer and the liver and brain poorer in watery constituents, and the secretion of bile is rather less than normal. The production of hepatic tissue is diminished, especially as the uræmia progresses. The bile secreted is poorer in water and richer in solid matters than in the normal condition or in the first stage of starvation."—*Lancet*.

## SOME NASAL, THROAT, AND AURAL SYMPTOMS AND DISORDERS MET WITH IN INFLUENZA.\*

BY BEVERLEY ROBINSON, M. D.

CLINICAL PROFESSOR OF MEDICINE  
AT THE BELLEVUE HOSPITAL MEDICAL COLLEGE, NEW YORK.

ASIDE from the fact that the nasal, throat, and aural symptoms and disorders met with in influenza accompany general phenomena which establish their probable nature, we can not affirm that they are invariably characteristic or different from nasal, throat, and aural affections encountered separately and in no sense indicative of an infection of the entire system. Thus we may have a nasal catarrh in influenza, with sneezing, local irritation, heat, and obstruction, which resembles an acute coryza due to chilling of the surface or exposure following fatigue or the inhalation of foul air. Again, we may have an attack of pharyngeal inflammation or of acute amygdalitis, which wholly resembles these disorders when occasioned by ordinary causes, except for the accompanying symptoms of generalized pains, higher febrile reaction, and more bodily and mental depression than is usually produced by like local conditions under other circumstances. This is equally true of the forms of acute aural or laryngeal catarrh occurring during the course of influenza. But when this has been said we must add that there are occasionally some noticeable peculiarities about the affections referred to, and others still of the nose, ear, and throat, as observed in epidemic influenza.

In one very interesting case of influenza that I have treated, the initial stage of the disease was ushered in by repeated and profuse attacks of epistaxis requiring repeated plugging of the nasal passages in order to stop it. These nose-bleeds were especially interesting, because while there could be no doubt that they were in part due to intense venous turgidity of the pituitary membrane under the dependence of the general blood dyscrasia they were also accentuated and made much more serious by the rupture or ulceration of the septal artery in one nasal passage. It seemed possible that the latter source of hæmorrhage was developed by the act of picking the nose to remove a semi-hard blood clot, and the artery had been in part opened by the patient himself. The case was that of a lawyer of middle age, who, previous to the recurrent nasal hæmorrhages, had never suffered from nose-bleed or nasal catarrh, and who had always enjoyed remarkably good health. Immediately subsequent to the attacks of epistaxis he had the rational symptoms of severe influenza. During the course of this disease both the soft palate, fauces, and larynx were deeply congested. Indeed, the veins of the palate and fauces seemed so distended that I thought for a day or two that it was possible to have them rupture and bleed during the efforts of cough. The interior of the larynx was red and swollen, notably the ventricular bands. I could not, however, detect in this organ any distinctly marked ecchymotic areas or any characteristic venous dilatation.

\* Read before the Section in Laryngology and Rhinology of the New York Academy of Medicine, March 23, 1892.

In some late autopsies on influenza patients, very carefully reported by Helweg, it was noted that the pia mater and brain were extremely hyperæmic. It was also observed that the arteries of the base of the brain were distended to an excessive degree "and stood out as cylindrical cords, as if they had been injected with wax." This pathological condition, according to Althaus, is not due to a simple vaso-motor hyperæmia, but to a process which tends toward a real inflammatory state, which does occur in persons particularly disposed to it. (*Vide the Lancet*, February 13, 1892, p. 387.) In view of these statements, we can readily understand how profuse nasal hæmorrhage may take place as an intercurrent complication, either in the beginning or during the course of influenza.

The erythematous sore throat of influenza has seemed to me to be accompanied with and followed by more marked local pain in the throat than is noted in a sore throat apparently similar in nature when not dependent upon influenza. This form of sore throat sometimes extends upward, producing considerable irritation and obstruction of the naso-pharyngeal space, as shown by the local distress and the difficulty of free nasal respiration. The latter is especially aggravated at night when the patient lies down, owing to the tendency of the blood to fill up the distended posterior extremities of the turbinated bodies. It is in these instances, even without the nasal occlusion, that we are apt to observe an extension of the catarrhal inflammation to the Eustachian tubes and to the middle ear, which is followed by pain in the ears, impaired hearing, tinnitus, and dullness of the mental faculties.

The membrana tympani may become thickened and sunken, and effused mucus and fibrin may be thrown out around the ossicles and their articulations, which ultimately leads to partial ankylosis and permanent deficient hearing. Occasionally the nasal catarrh, with occlusion of the nasal passages, precedes the faucial irritation, and in more than one instance closely observed by myself the sensitiveness of the peripheral nerves of the pituitary membrane was very considerable, so that the slightest contact with a foreign body of certain limited areas caused intense suffering, which, however, disappeared as soon as this contact was broken. On other occasions I have observed follicular amygdalitis adjoined to phenomena of acute gastric catarrh and characterized by excessive stomachal intolerance, so as to cause the rejection of nearly all food and medicine for a day or two. The follicular amygdalitis cleared up in less time than usual, and fewer follicular deposits were visible at any one time than is habitual.

There was a tendency to repetition, however, of the follicular deposits, and there were occasionally very severe paroxysms of pain in the tonsillar region, which returned with well-marked periodicity.

I have known the tonsils also to become suddenly very much enlarged and occasion very great obstruction of the breathing. In this case, that of a child nearly three years old, there was no follicular deposit on the tonsils, but their enlargement was quickly followed by the perforation of one, and twelve hours later of the other membrana tympani. Both ears were affected with quite abundant suppuration

for many days. As is sometimes observed in scarlatina and other febrile disorders, the perforation of the drum membrane of the ear was preceded by relatively slight pain, and even this pain lasted but a short time before the perforation occurred.

This statement I regard as important for the following reasons: One is often blamed by parents or patients for the occurrence of a perforation which was practically unavoidable. Besides, the reproach which might be made that we had not instituted sufficiently careful measures to prevent it is not merited, because neither the time nor the symptoms would indicate the necessity of too much local interference.

Finally, it may be observed that the perforation of the membrana tympani, if it takes place early and without much pain, is perhaps properly estimated as a conservative and judicious effort of Nature to prevent further and more injurious destruction of aural structure. It is true, at any rate, and most fortunately, that many such cases, if regularly douched and cleaned, get well before many weeks have elapsed, and with retention of very good, if not absolutely normal, hearing. Of course there are many unfortunate and pitiable cases, but these occur mainly among victims of ignorance, neglect, and of already depraved constitutions.

In writing on the effects of influenza on the middle ear, Sir William Dalby (*vide Lancet*, Feb. 20, 1892, p. 416) says that in his experience suppurative complications are infrequent. Besides, he states that this disease rarely attacks healthy ears, even in the form of *non-purulent catarrh* with obstruction of the Eustachian tubes. What this distinguished aurist has particularly noted is the fact that patients who formerly suffered from purulent median otitis, and whose ears have been in a quiescent state perhaps for several years, again suffer from otorrhœa owing to an attack of influenza. And to this statement he adds what he considers as apparently showing the influence of the general disease, that the condition of the ears previously had been good, "notwithstanding ordinary colds and exposure to all sorts of variations in climate." "Thus," he continues, "a person with healthy ears has little to dread from influenza so far as this mucous surface" (referring, of course, to that which lines the middle ear) "is concerned, but it may become a serious trouble to one whose ears have formerly been the seat of inflammation."

I am scarcely in accord with this latter affirmation, since, as a matter of fact, the aural complications I have had to care for have usually occurred in ears previously healthy, or, at all events, which never before caused any rational symptoms indicating aural disease.

I would, of course, consider my observations less important were I not in a position to see many cases which ordinarily seek aid from a professed specialist for the treatment of diseased ears. In one patient whom I took care of this winter, the attack began with generalized pains in the head, body, and limbs, some mental hebetude, marked prostration of the forces, and considerable febrile reaction. The following day, in the morning, the pains had diminished, except those located in the chest anteriorly, which were intense. I auscultated the patient carefully, but could find no

signs of either pneumonia or pleurisy. The chest pains appeared to be of myalgic character. During the afternoon the patient expectorated repeatedly small quantities of dark blood which apparently came from the larynx or trachea. The stethoscopic signs in the chest still remained negative. I made a laryngoscopic examination, but, on account of the patient's intolerance of the mirror, I was unable to determine whether or no there were any ecchymotic spots in the larynx. The soft palate, however, was very much congested, and in two places there were hæmorrhagic areas, bright red in color, underlying the mucous membrane. Both of these areas were at least one fourth of an inch in length and two or three lines in width. No other hæmorrhagic spots were seen in the throat, nor were any petechiæ remarked on the cutaneous surface.

In this instance, if I had been able to make a satisfactory laryngoscopic examination, I would have doubtless discovered ecchymotic areas in the larynx and upper portion of the trachea. I am justified in this belief by the reported cases of Moure and other observers abroad, and in view of the history of my own patient.

Occasionally there is very little or no irritation or inflammation of either nose or fauces, at least in the beginning, but the laryngeal catarrh is most pronounced. Usually the laryngitis is not exclusively localized, but the inflammatory condition extends more or less to the trachea and bronchi. Whenever there is very considerable cough, due apparently to a laryngitis, it is wise to inspect the larynx with the small mirror. Oftentimes we shall find redness and slight thickening of a portion or the whole interior of the larynx. Now and then the patient's throat is so sensitive, and gagging so easily produced, that our examination is necessarily short and imperfect.

In the laryngitis of influenza there is not the amount of local soreness, hoarseness, or pain on swallowing, which we expect to find when the ocular appearances reveal so much local inflammation.

I have never observed within the larynx either the ulcerations, pronounced œdema, or the membranous deposits which have been noted in Europe. Singular to say, at times when there has been a most rebellious and painful cough, and when the larynx seemed especially affected, the local signs of the inflammation were very slight. Indeed, the true vocal cords were seen to be almost of normal coloration. In these instances particularly the cough was harassing, paroxysmal, often dry, with frequently a prolonged noisy inspiration at the end, which resembled the "whoop" in pertussis, and was obviously due to laryngeal spasm.

All general remedies fail in these cases to relieve; and, on the other hand, I have known an intralaryngeal application of iron, or some other ordinary astringent, to be evidently useful in diminishing paroxysms of cough. I could explain such examples only by assuming that I had to do with peripheral nerve irritation (neuritis?) in the larynx, very similar in nature to that met with in many other organs of the body.

On one occasion, when there was very intense gastric catarrh, shown by numerous symptoms, the regular system-

atic exhibition of milk and old brandy appeared to relieve intense paroxysms of cough, and even though there was present at the same time a great deal of bronchial catarrh.

I have little doubt in my own mind at present that a depressed state of the nervous centers is also an additional and efficient cause of more frequent cough, by reason of the increased impressibility that this condition gives to all inflamed nerve filaments. In this way I can appreciate how fatigue, lack of food, emotional strain of any kind during influenza, will immediately augment and intensify cough. I would add, however, that I have been much impressed during the prevailing epidemic, as I have been at times previously in other general acute affections, that local artificial irritations within the larynx will often relieve cough, when one, aside from this fact, might find sufficient cause for cough in the bronchial catarrh.

I rather believe, therefore, that, except for the supersensitiveness of the laryngeal mucous membrane, much sputum would remain many hours at times in the bronchial tract without being coughed up and expectorated. The distressing, recurrent paroxysmal, almost dry cough of influenza may last for many weeks, and resist all remedial influences for its cure, except, perhaps, complete change of air and scene. This affirmation is made in view of my experience, and of having tried uselessly all rational methods of relief.

In this connection I would direct attention to (*vide* Prosser James, *Lancet* of February 27, 1892, p. 498) some laryngeal affections occurring after influenza. Among them may be particularly noted paralyses, commencing in the throat after convalescence, and extending later to other regions of the body. These instances are of such a character as to simulate the paralyses taking place after diphtheria, and to have led more than once to a reasonable doubt being evinced in regard to the correctness of the original diagnosis of influenza. Other paralyses more localized than the former have come on after the patients had returned to their ordinary vocations. In this number are described paralyses of the tensors and adductors of the vocal cords. Neuroses of sensation as well as neuroses of motility have been observed, and different degrees of anæsthesia or hyperæsthesia are not infrequent.

Choreic movements and spasmodic conditions affecting the larynx are rare and late sequelæ. It would appear, according to James, that "these cases of late sequelæ are indications that the effects of influenza remain for a considerable period, and the proportion of neuroses shows how profoundly the disease affects the nervous system."

In one instance I have seen a very sudden inflammation in the muscles of the neck, which was accompanied with pain, redness, and rigidity, and so much localized heat that I feared abscess during twenty-four hours. The latter symptom—viz., heat—quickly subsided under soothing applications, but the pain and stiffness of the neck lasted nearly a week.

In this patient there was no complicating sore throat. In another patient now under observation the neck is stiff and painful, and there is also present an erythematous sore throat.

I have tried many of the drugs which have been recommended during the present epidemic. The following combination has appeared to me at once the most reasonable and the most successful. The prescription, made up in tablet form by Mr. Fraser, pharmacist, of this city, is as follows: Half a grain of citrate of caffeine, one grain of phenacetine, and three grains of ammonium salicylate. I order one of these to be taken every hour, every two hours, every three hours, according to the amount of pain, depression, and general disturbance which are observed during the attack. In addition, I make use of such local or other treatment, adjoined to rest, protection from cold, and proper nutriment, as I may deem advisable. The formula made use of by me is extremely rational; the caffeine stimulates the heart and promotes elimination through the kidneys; phenacetine, in small, repeated doses, diminishes pain and fever and promotes perspiration, thus making use of another great emunctory of the economy—viz., the skin; the salicylate of ammonium agrees with the stomach. By the use of salicylic acid, I employ a well-authorized anti-microbial, anti-zymotic agent. With ammonia set free in the stomach, I give an alkaline remedy, but one that is not depressing, as the salts of potash undoubtedly are. And this sort of medication is specially essential, even in large, repeated doses, as witness the statement made by English practitioners of repute during the present epidemic, and referred to interrogatively, but with some belief on account of the testimony in its favor, in an interesting editorial in the *Lancet*, only a few weeks since.

Of course I vary my combination in certain instances, and at times leave out one or other of the ingredients, according to the circumstances of the case. Again, I have treated certain forms of disease which I have believed were caused by influenza, or, indeed, were unusual or aborted manifestations of it, in which I have not made use at all of my compound salicylate tablets. The specific treatment of influenza has not yet been found, and perhaps may not be found for many years to come; still, such a discovery is not impossible, and some fortunate searcher in our art may yet happily light upon it almost unawares. Meanwhile the suitable medication to employ is that which united experience tells us is the most rational and successful.

In regard to local medication for cough and bronchial catarrh, I would add that after using steam inhalations with turpentine and benzoin in the initial stages of influenza, I have found dry pine-needle oil vapors, used persistently and frequently with the perforated zinc inhaler, worthy of especial commendation and real confidence.

In the way of prophylaxis, there is one precautionary measure which may be utilized by every one and which apparently has its value—viz., occasional gargling the mouth and throat with an appropriate antiseptic solution. In this connection I have permission to cite the following lines taken from a personal letter to me, received on January 26, 1892, from Dr. Charles A. Siegfried, Surgeon in the United States Navy, now stationed at Newport, R. I. Dr. Siegfried writes: "I am convinced that gripe can be pretty nearly prevented by keeping the mouth and throat clear and well policed with an alkaline carbolated lotion twice or thrice

daily. Those of my friends (including myself) who have followed this plan have escaped. I suppose you have noticed the alkaline treatment of Dr. Crerar in the *Lancet* and the discovery of Pfeiffer, who finds the bacillus in the mouth, so that, theoretically, I am on the safe side." It may be wisely added to this statement, I believe, that possibly this precautionary measure for those who have hitherto escaped taking influenza may be also a useful recommendation to those already affected, toward diminishing its severity and warding off the complications (pleuritis, pneumonia, otitis media, affections of the eye, etc.) by destroying the virulence of the influenza bacillus at the gate of entrance into the system. In this manner may be prevented the constant reinoculation of the body by continuous absorption of the materies morbi—bacillus or habitat of the bacillus, as the case may be. We recognize to-day the great advantage of frequent local disinfection of the mouth and throat in diminishing the gravity of diphtheria. Why may it not also be true of influenza and some other general acute febrile disorders, at least somewhat analogous in type?

In concluding this contribution, I would add that I have not attempted to make it exhaustive, although I have quoted several times from the work of foreign writers. My article is essentially based upon what I myself have observed during the past two winters, and as such I offer it for discussion.

## PAIN,

ITS NATURE, DIAGNOSTIC SIGNIFICANCE, AND TREATMENT.\*

BY J. LEONARD CORNING, M. D.

THE relief of suffering is the distinctive prerogative of the physician. It is doubtless this ability to bid defiance to pain which, more than any other single attribute, has enabled medical men to maintain, in spite of the vicissitudes of therapeutics, such a high position in the estimation of society. Some of the most famous lights of the profession have in all ages been imbued with this great fact. The neurologist, more especially, should be thoroughly conversant with all matters pertaining to pain, and particularly to the treatment of pain, for there is no single symptom which is liable to be more frequently met with, or whose elimination will make such stringent demands upon the practical resources of the art.

I shall offer, therefore, no apology for the following observations on the nature and treatment of pain, which, I trust, may prove of benefit to the physician in solving many of the practical problems of his calling.

*Physiology.*—The first question which naturally suggests itself is, How do painful impressions reach the higher centers of the brain, or, in other words, along what paths do such impressions travel in their journey from the periphery to the centers of conscious perception?

It is much to be regretted that only a partial answer can be given to this important question.

About all we know of it is soon told. In the first

\* Read before the Medical Society of the State of New York at its eighty-sixth annual meeting.

place, the transmission of painful sensations from the periphery to the spinal cord is accomplished through the instrumentality of the sensory nerves. The course pursued by such painful impressions through the cord is more obscure. Some physiologists believe that they are transmitted wholly through the gray substance; others, again, assign special importance in this connection to the sensory conducting paths of the posterior columns; while a third class of observers believe that sensations of pain may be transmitted both through the gray substance and the white substance (posterior columns). The attempt to associate the lateral columns with the conduction of sensory impressions must be regarded as premature, to say the least, in the present state of evidence. As regards the subsequent path pursued by painful impressions, it may be stated that various facts point to certain of the fibers of the posterior division of the internal capsule as those largely concerned in the transmission of such sensations to the cerebral cortex.

*Identity of the Processes in Motor and Sensory Nerves.*—It has often been asked, as a matter of theoretic interest, whether the processes accomplished in a motor nerve differ radically from those occurring in a sensory nerve. On this point Radcliffe, in concluding an elaborate argument, observes that "there is reason to believe that there is no essential difference between the action which issues in sensations and the action which issues in muscular contraction." As a corollary to this proposition, he adds that "the production of sensation and the production of muscular contraction only differ in this: that the electrical discharge, analogous to that of the torpedo, which is developed in and near the nerve in the state of nervous action, happens to tell upon sensorial ganglionic cells in the one case and upon muscular fibers in the other."

Of course, to speak of the electricity evolved during the action of a nerve as that mode of nerve force concerned in the production of sensation or motion is a mistake. In other respects the figure is an apt one.

It may be of interest in this connection to consider the experiments which had led Radcliffe and others to these conclusions. Undoubtedly the researches of Du Bois-Reymond and Matteucci have had a powerful influence in shaping opinion on this point. The principal experiment of Du Bois-Reymond consists in pouring hot water upon the leg of a frog, the nerve of the same being connected with a galvanometer. When this is done, the galvanometer shows a cessation of the electric current—a phenomenon which is observed almost as soon as the water touches the integument. This observation, in conjunction with the well-known fact that there is also a decrease, amounting sometimes to almost entire absence, of "natural electricity" during the action of motor nerves, led Du Bois-Reymond to the inference that in sensitive as well as in motor nerves there is a loss of electricity when the nerves pass from rest into a state of action.

Matteucci's experiment, performed upon a rabbit, consisted in dissecting out the upper portion of the sciatic nerve and irritating it with the galvanic current. When the current was closed the animal screamed loudly, but when it was opened there was no sign of pain.

The resemblance of the phenomena evoked by the galvanic current in sensitive nerves to those caused by the same agent when applied to motor nerves has led to the inference that "the change in a sensory nerve when sensation is produced by the action of voltaic electricity, and the change in a motor nerve when muscular contraction is produced by the same means," are, as Radcliffe puts it, exact equivalents.

Such, then, are the principal facts which have been assumed to prove the identity of the processes underlying the actions of motor and sensory nerves. While, however, the relation of the two kinds of nerves to the galvanic current points to the truth of this proposition, it is, of course, self-evident that the *final result* of the action differs radically in each kind of nerve. In the case of the motor nerve, action results in contractions, due to the excitation of the contractile substance of the muscle; in the case of the sensory nerve, on the other hand, action is translated into sensation through the instrumentality of the central ganglionic apparatus in the cortex.

So much for the fundamental features of the argument.

*Inductive Evidence on the Genesis of Pain.*—Let us now consider a set of facts which will help us to frame a reasonable hypothesis concerning the nature and genesis of pain. In the first place, it must be remembered that a sensory nerve supplies a certain definite area of the body, and transmits to the brain only such impressions as emanate from the area. In other words, there is no physiological anastomosis, however much the fibers may interlace or run together. To prove this, it is only necessary to divide a sensory nerve and irritate its distal end, when we find that no sensation is perceived, thus demonstrating that there is no collateral communication whatsoever. As a matter of course, irritation of the proximal or central portion of the nerve—that part which is in connection with the nervous centers—gives rise to distinct sensation.

In the same way, if we divide the spinal cord of an animal transversely, so as to sever the sensory conducting paths and irritate the nerves which join the cord below the incision, no sensation will be perceived; but if we stimulate the nerves which enter the cord above the incision, we shall have every evidence that the sensation has been perceived. Precisely the same sort of phenomena may be observed in human beings who, by reason of injury or disease, have suffered a solution of the sensory conducting paths of the cord.

Another important fact is that an impression made upon any point in the course of a sensory nerve may be perceived by the mind as though it were made not only upon the point in question, but also upon the parts to which the fibers of the nerve are distributed. We have, therefore, under such circumstances, precisely the same effect as if the irritation were applied to the regions supplied by the branches of the nerve.

An explanation is thus afforded of the fact that when the sensibility of a part is abolished by compression or division of the nerve which supplies it, irritations of the central portion may still give rise to sensations which are felt as though they emanated from the parts below the point of interruption—*i. e.*, from the parts to which the peripheral

terminations of the nerve are distributed. Thus, when a nerve is divided for the cure of an intractable form of neuralgia, it sometimes happens that pain still persists. This is undoubtedly due to the fact that the division of the nerve has not been made near enough to the nervous centers to include the entire affected portion, and hence the continued irritation of the central portion causes pain, which, in accordance with the law under consideration, is felt as though it emanated from the peripheral parts of the nerve. Another illustration of the same thing is afforded by those paralyses in which the limbs are quite insensible to such external stimuli as pricking, pinching, and burning, and yet are believed by the patient to be the seat of severe pain. Still another example of erroneously referred pains is afforded by persons who have suffered amputation of a limb. When the divided nerves of the stump are inflamed, or otherwise irritated, nothing is more common than to hear the subject complain that he experiences pain which appears to be located in the part of the limb which has been removed.

Such facts as these might, on a superficial examination, lead one to suppose that there was little or no benefit to be anticipated from local therapeutic measures addressed to the affected nerve itself in cases of pain. It must be remembered, however, that by the aid of chemicals we are in many cases able not only to temporarily cut off the peripheral portion of an affected nerve from its central connections, but also to modify the abnormal condition of the nerve itself, thus effecting an abolition of pain which is often permanent. Pain due to rheumatic causes is commonly amenable to local measures, while that associated with certain forms of well-developed neuritis offers a less favorable field for this class of remedies.

*Definitions of Pain.*—Various attempts have been made to define pain. Cicero looked upon it as a disagreeable movement within the body, independent of the senses. According to others, it is a species of sensation which may emanate from both internal and external regions of the body, in which are distributed nerves whose office it is to transmit to the brain all impressions which they receive. Lavoisier calls it a disagreeable perception, originating from any lesion of the nerve fibers; Gabius regards it as a sensation which the mind would rather not experience (!), while Bilon is discontented with all definitions, and believes the word pain to be so universally descriptive in itself as to enable one to dispense with all definitions.\* More recent authors have, nevertheless, still persisted in further attempts to define it. Thus Valentin † perceives in pain "sensory impressions which, on account of their too great intensity, become disagreeable"; Wundt ‡ calls it "a feeling that accompanies all powerful or intense stimuli," while Eulenburg § defines it as "a gradual increase of the feeling that accompanies every sensory process."

\* *Dictionnaire des sciences médicales*, vol. x, p. 179, Paris, 1814.

† *Physiologische Pathologie der Nerven*, vol. i, p. 240.

‡ *Lehrbuch der Physiologie des Menschen*, p. 503, 1074.

§ *Functionelle Nervenkrankheiten*, p. 31. Vide also *Diseases of the Peripheral Cerebro-spinal Nerves*, by Wilhelm Heinrich Erb. *Von Ziemssen's Cyclopaedia*, vol. xl, p. 14.

To my mind, the views of Erb\* regarding the nature of pain are the most comprehensive and just which have been recently expressed. "We hold," he says, "that every increase of ordinary sensory stimuli is capable of producing pain as soon as it attains a certain intensity. Every excitation the intensity of which exceeds certain limits, every molecular change of the centripetal series induced by an abnormally strong stimulus, is perceived as pain. Very simple experiments—as, for example, pressure or temperature gradually increased till pain is produced—show that with very gradual increase in the strength of the stimulus a limit is at length reached beyond which the excitatory process is accompanied by pain, yet no sharp line of demarcation can be traced defining the point at which the sensation of pressure or temperature ceases and the sensation of pain commences. The simplest explanation accordingly seems to be that pain is the reaction of the sensorium to a certain degree of excitation, and we at present see no ground for regarding pathological pain as being essentially different in origin from that which can be produced by simple physiological experiment."

We thus find a clew to the genesis not only of those pains which originate in over-stimulation of the nerves of common sensation, with which we are most frequently called upon to deal, but of those, likewise, which have their origin in an exaggerated stimulation of the nerves of special sense. For do we not know that intense light and loud, inharmonious noises produce sensations which are described by those subjected to them as veritable pains?

As regards the nature of those fine molecular perturbations originating in the nerve and transmitted thence to the sensorium—perturbations which are evidently the essential accompaniment of pain—we are still, and doubtless are destined in future to remain, entirely in the dark. Although we are thus debarred, on account of the erudition of our physiology, from penetrating the ultimate mystery of pain, we are, nevertheless, enabled to adopt proper means for the arrest of the morbid irritation in the nerve, when once established. As the argument proceeds, we shall find that in combating pain we are compelled to invoke the aid of a wide range of agents; and thus it happens that chemistry, thermodynamics, physics, and even surgery, have all rendered important assistance.

Finally, we must not forget to mention a very recent theory regarding the mechanism underlying the pains found along the course of nerves. According to Prus, † who is the promulgator of this theory, there are filaments in the sheaths of nerve trunks the irritation of which gives rise to the painful points found in neuralgic affections. These filaments, the presence of which was made known by careful microscopical examination, have received the somewhat ponderous appellation of *nervi nervorum periphericorum*.

It is, of course, impossible at present to prophesy with any degree of certainty what part these structures are destined to play in the physiology and pathology of the future.

\* *Op. et loc. cit.*

† *Archives slaves de biologie*, iv, September 2, 1892. See, also, *Brain*, vol. x, p. 557.

Perhaps autopsies conducted with a special view to our enlightenment on this point may afford information; but it is hardly to be anticipated that we shall derive much help from experimentation.

It now remains to say something in regard to the causation of pain. It may be stated at once, in this connection, that by far the most prolific source of the perverted sensation is found in the condition of the nerve known as neuritis. The two principal types of neuritis are simple neuritis and multiple neuritis. Under the last-named heading are comprised the conditions known as alcoholic neuritis, neuritis of leprosy, and that of beriberi; the two last-named conditions are so rare in this country as to merit rather a pathological than a clinical interest. Simple neuritis and multiple neuritis, on the contrary, are exceedingly important phases of the affection, since they are of frequent occurrence, both in hospital, special, and general practice. As its name implies, simple neuritis is simply a local manifestation of the disease, the inflammatory process being restricted to one or more nerve stems.

The most frequent causes of this form of neuritis are wounds, inflammatory conditions in the vicinity of the nerve-stems, rheumatic influences culminating in thickening of the sheath, and tumors pressing upon the nerves. Severe compression of the nerve, caries of neighboring bones, and bruises may also give rise to it. To sum up the whole question of aetiology, it may be stated that the restricted form of neuritis is more apt to be due to local than general causes, while of multiple or general neural inflammations the reverse is true; for toxic agents, acting more or less extensively throughout the organism, play a prominent part in their causation.

In multiple neuritis, as previously noted, we have to do with a symmetrical and more or less widely disseminated inflammation or degeneration of the sensory or motor nerves. As a rule, the cerebral or bulbar nerves are little or but slightly affected.

Since Dumenil published his excellent paper in 1864 a multitude of observers in this field have come forward; and, indeed, hardly a year goes by without witnessing extensive additions to the literature of the subject. At the present time the available material is quite overwhelming, so that detailed references to it would, in a short paper of this kind, only serve to add confusion to a subject already sufficiently intricate.

I shall confine myself, therefore, to the most general observations. Let me begin with a few words in reference to the aetiology of multiple neuritis. As has already been said, the most common causes of multiple neuritis are toxic and infectious agents. In this category belong lead, alcohol, illuminating gas, bisulphide of carbon, arsenic, aniline, dinitro-benzine, phosphorus, mercury, morphine, ergot; and among animal and endogenous poisons of various kinds, fevers, diphtheria, tuberculosis, beriberi, leprosy, malaria, gont, rheumatism, diabetes, and the puerperal condition. In addition to these, dyscrasic states undoubtedly play a part in the evolution of certain phases of the disease.

Here we have the explanation of those cases of neuritis

which occur in the course of affections involving more or less impairment of the physiological integrity of the bloodstream—marasmus, chlorosis, and cancer.

A large proportion of cases begin acutely, a small number develop more gradually, while a third class displays great lethargy in the evolution of the different symptoms.

Hence it is customary in some of the books to describe an acute, a subacute, and a chronic form of the disease. The general symptoms of multiple neuritis are about as follows: In a large proportion of cases the symptoms begin abruptly. It is true that the patient may complain for some days of vague feelings of malaise and weakness in the lower limbs, but these sensations commonly excite little or no attention, and not until more definite symptoms are added is medical aid invoked. At this time he suffers from vague discomfort in the head, loss of appetite, and mental hebetude, and he may even be delirious. There may also be considerable fever, the temperature reaching 101° or even 105°, while the pulse is correspondingly accelerated. Sometimes, however, the evolution of the symptoms, even in the beginning, is more gradual, and it is then quite difficult to predict what is really impending. Whatever phase these premonitory phenomena may assume, however, they are certain, or almost certain, to be speedily followed by symptoms of sensory irritation. The subject complains of tingling, numbness, crawling sensations, and pain. These symptoms are specially pronounced in the affected limbs, but they evince, as may readily be imagined, a decided predilection for the regions in the vicinity of the nerves. While sensory irritation is apparent from the beginning, the opposite condition of sensory paralysis is by no means so obvious. It is true that the muscular sense may be so impaired as to give rise to pronounced ataxia; the tactile nerves, too, may be more or less affected, and the transmission of sensations of heat and cold, as well as those of pain, may be considerably retarded. Still, it must be borne in mind that when the sensations reach the central perceptive mechanism they possess considerable vigor, and are, therefore, felt with great distinctness. Complete anæsthesia, then, is decidedly exceptional. The distribution of these paræsthesiæ is a matter of some interest. Sometimes they are associated with the ramifications of a particular nerve, while at others they are distributed in irregular islands without obvious physiological connection; or, finally, they may pervade the entire limb. In any event, their presence is significant and often of the first importance in forming a correct diagnosis.

The pains, too, when taken in conjunction with the other features of the case, are of value in forming an opinion as to the nature of the disease. Though somewhat like those of locomotor ataxia, they differ notably in this: that whereas in multiple neuritis the pains are readily evoked by pressure upon the nerves, this is not usually the case in ataxia. With the advent of these pains there is sometimes more or less œdema, profuse diaphoresis, or swelling of the joints; this is specially true of the epidemic variety of neuritis. The last-named symptom has frequently caused the case to be mistaken for acute articular rheumatism.

Not less important than the sensory symptoms are the

derangements of motility. The latter, unlike the former, are non-irritant in type, paralysis of motion being the rule, while spasms are rare. In the majority of cases the paralysis begins first in one leg, speedily involves the other, and may advance thence to one or both arms. As a rule, the invasion is rapid, the loss of power beginning as a simple sensation of weakness on standing or walking and culminating in more or less complete paralysis in fifteen or eighteen days. The distribution of the paralysis presents some points of interest. In the first place, it is a remarkable fact that the muscles which actuate the small joints of the hands and feet and the wrists and ankles are much more affected than those of the elbows and knees. Thus, in a case which I recently saw in consultation with Dr. Haines, of Newark, the patient, a man of sixty, who was a sufferer from multiple neuritis of malarial origin, was able to move both elbows and knees without difficulty, while voluntary motion in the wrists and ankles was quite impossible. Another interesting point is, that the paralysis shows quite an irregular distribution at first, but assumes the characteristic form when fully developed. I emphasize this point because on seeing the case at the commencement of the paralytic invasion one is apt to be puzzled unless forewarned of the erratic character of the symptoms. Such, then, is the more common course of general neuritis—a course which, as previously intimated, is subject to considerable variation.

Time does not, however, permit our consideration of the erratic types of the disease.

*Simple Neuritis.*—The duration and course of simple neuritis are subject to a certain degree of variation. Usually, however, the onset is quite abrupt, although a gradual beginning is occasionally observed. Moreover, an initiatory chill and fever occur in some cases, but the majority begin without these warnings.

Whatever the precise mode of onset may chance to be, the first symptom to excite the apprehension is the pain. This pain is usually severe and is felt more or less throughout the distribution of the affected nerve. On applying gentle pressure along the course of the nerve, the latter is found to be extremely sensitive; and after the trouble has lasted a certain amount of time, it is often possible to feel the nerve (which has become considerably thickened through the integument). Though the pain is more or less persistent, it sometimes abates, but only to return again with renewed intensity. I have under my care at this time a patient in whom the intermittent and severe type of neuritic pain is well illustrated. The patient, a lady of remarkable intellectual gifts, was recently referred to me by Dr. M. S. Ayers, of Fairview.

Disturbances of sensibility and motility also occur in the simple form of neuritis, as well as in the more general type of the affection. Tingling, numbness, and a moderate degree of anaesthesia are observed in cases of medium severity, while in those characterized by more profound and permanent changes in the nerve the anaesthesia may be intense.

The motor derangements are sometimes merely of moderate extent, so that nothing more may be complained of

than slight weakness; but when the mischief is more serious, conduction is abolished, the implicated muscles are paralyzed and atrophy more or less extensively. If an examination be made by the aid of the electrical current at this time, the muscles will be found to exhibit the characteristic reaction of degeneration.

Finally, more or less extensive changes in the skin have been observed in a certain number of cases. The most common are vascular and herpetic eruptions; both the hair and nails may be involved, the former becoming brittle and the latter stubby.

*Pathology.*—When the course of the disease is acute the pathological changes are proportionately vehement. The affected nerve is seen to be reddened, swollen, and thickened; its vessels are distended and intensely hyperaemic, to which circumstance the lividity is due; there is a transudation of cellular elements and fluid from the engorged vessels into the interstitial tissue and nerve sheaths, and, in short, we have a typical picture of acute inflammation. On examining the condition of the nerve fibers more closely, by the aid of good lenses, we find that the destructive process is by no means as far advanced in some as in others. In those which present the most marked changes the axis cylinder is completely obliterated, the medullary substance undergoes fatty or granular degeneration, and the sheaths themselves are more or less completely disintegrated. Finally, the disorganized remnants may be more or less completely absorbed, and then nothing remains behind but the empty sheaths. This, as previously mentioned, is the course of events in the more severe cases; in those of a milder type, however, the changes are less far-reaching, nothing more than moderate swelling of the sheath and granulation of the medullary substance being discoverable.

Finally, cases which begin in a chronic manner do not present the primary stage of engorgement of the vessels and fluid and cellular infiltration.

It has already been noted, in the clinical portion of this chapter, that some cases of a severer type get well without loss of motility, provided the muscular atrophy has not been too extensive. This fact presupposes that the regenerative capacity of the nerves is prodigious. Considerable difference of opinion exists among pathologists as to the manner in which this restoration of the nerve filaments takes place. Of late, however, two theories have chiefly claimed attention; according to the one, new axis cylinders are evolved and prolonged from those which have escaped the ravages of the inflammation, while the other affirms that the young nerve fibers are derived "from an endogenous growth of nuclei within Schwann's sheath." Benets and Newman are adherents of this hypothesis.

In connection with the traumatic varieties of neuritis, the facts bearing on the regeneration of divided nerves are most interesting; for, from what has been learned, both experimentally and in the clinic, it is certain that more or less perfect union and restoration of function may be obtained in nerves thus mutilated.

Gluck found, in the course of a series of experiments on fowls, that the excision of a piece of nerve was not followed

by restoration of function, but that, after simple division, such restoration readily took place when the ends were carefully coaptated. This renewal of conduction was, moreover, established with marvelous rapidity—in two instances in twenty-four hours. As a rule, however, when the sciatic was divided and the ends subsequently joined with sutures, paralysis of the muscles supplied by the nerve persisted for fifty hours. After the lapse of this interval there was a gradual resumption of motion in the affected muscles, more or less complete recovery taking place in about four days.

Waller and Vaulair believe that the regeneration takes place from the central portion of the divided nerve, and that the peripheral end degenerates. Tizzoni, on the other hand, holds that the degeneration affects both ends of the nerve at the point of incision.

Eichhorst and Wagner maintain that the reorganization takes place from the nerve fibers on both sides of the incision, the new connecting fibers being derived from the axis cylinders.

Ranvier has indicated the important part played by the mechanical support of the tissues in maintaining the physiological distribution of regenerated nerves.

Lastly, Paget has found that, after division of the median nerve, sensation began to appear in the regions supplied by it within two weeks. Recovery was practically complete in about four weeks. As has already been said, the nature of the divided nerve favors cicatrization and regeneration of the peripheral ends, and hence the frequency and success with which the process has been resorted to by modern surgeons.

From the foregoing data it is evident that considerable difference of opinion exists among pathologists regarding the remarkable series of events which culminate in the restoration of function in a nerve previously injured either by the knife or the inroads of active inflammation. Nevertheless, many of the phenomena observed are exceedingly suggestive, and it is, moreover, highly probable that some at least of the points in dispute will be definitely settled in the near future.

*The Treatment of Pain.*—From what has already been said regarding the causation and conduction of painful sensations, it is evident that a wide range of remedies are applicable in treatment. In the first place, we may address our endeavors to the nerve itself, and strive, by the application of appropriate agents, to arrest the propagation of the painful sensations toward the sensorium; or we may seek to allay the inflammatory condition in the nerve itself. This we may do by localizing remedies in the painful districts\* by the application of ointments, by endermic medication, or, when all else fails, by division of the affected nerve stem.

But the mere alleviation of pain, though eminently worthy, is by no means the ultimate end to be desired. We should strive by every means in our power to effect a per-

manent cure. From what has been said regarding the causation of neuritis, it is clear that, in a large proportion of cases, the solution of this problem involves nothing less than the elimination from the system of some poisonous influence, such as malaria, lead intoxication, or syphilis, or the correction of some constitutional dyscrasia. Where the cause is found in some organic disease which serves to perpetuate the neuritic condition of the nerve, little can be hoped for from chemical agents of any kind. Under these circumstances we must address ourselves to surgery, that most useful art, which has done so much for the alleviation of human suffering. Unfortunately, as we have said, there are many lesions of the central nervous system which are quite inoperable. In this category belong the sclerotic and degenerative diseases of the brain and spinal cord. The most that we can do in such cases is to seek to render the patient's condition tolerable by the administration of analgesics and opiates. I will merely add, in conclusion, that when these agents have lost their potency, except when given in toxic doses, their physiological influence may be re-established by giving them while the patient is exposed to the influence of a condensed atmosphere, as I have recently shown in an article published in the *Medical Record* for August 29, 1891.

The time at my disposal does not admit of an extended reference to the philosophical questions underlying this mode of treatment; that has already been done in the article above referred to. I shall therefore merely state that this system of using compressed air in conjunction with drugs is based upon facts which I have succeeded in establishing by researches that fulfill the exigencies of the most exact induction.\*

From what has previously been said regarding the causation of neuritis, it is evident that anomalous conditions of the renal secretions, or at least some of them, bear a definite causal relation to the genesis of pain. Hence it follows that the correction of renal derangements, in so far as they are remediable, should always be undertaken as soon as they are detected. These observations apply with especial force to lithæmic conditions, which are but too often entirely overlooked.

53 WEST THIRTY-EIGHTH STREET.

## THE CHOICE OF CLIMATIC RESORTS FOR TUBERCULAR PATIENTS.

BY KARL VON RUCK, B. S., M. D.,  
ASHEVILLE, N. C.

At the recent Congress of American Physicians and Surgeons the discussion of this subject brought out the statement that, in addition to meteorological reports, the profession wanted more and other information than that furnished heretofore. The desire was expressed that the physicians practicing at climatic resorts should give their clini-

\* For some of the author's more noteworthy contributions to this field see the *New York Medical Journal* for December 26, 1891; the *Medical Record* for March 19, 1887; and *A Treatise on Headache and Neuralgia*, New York, E. B. Treat, 1888 (also subsequent editions).

\* The Use of Compressed Air in Conjunction with Medicinal Solutions in the Treatment of Nervous and Mental Affections, being a New System of Cerebro-spinal Therapeutics. The *Medical Record* of August 29, 1891.

cal experience, and tell the profession what particular class of patients derive the greatest benefit at the particular locality, and what stages, phases, and manifestations of the disease were most amenable to the influence of the particular climate; the profession caring less for information upon temperature, humidity, rainfall, and other meteorological data, and more for definite knowledge as to where the individual case would find the climatic conditions under which he would make the greatest improvement, and eventually a recovery.

This at first thought would seem an extremely reasonable demand, and if climatic treatment would necessarily lead to improvement and recovery (if only the right spot were chosen) the desired information would have come forth long ago.

Until physicians who advise phthisical patients will take years of time and, during a prolonged residence at each of these resorts, make personal and exact scientific as well as clinical observations to enable them to personally judge of the relative merits of climatic resorts, just so long will the profession have to depend for their information upon those members who practice at such health stations.

A week's or a month's sojourn by a physician at a climatic resort is entirely too short a time to gather the desired information—indeed, the grossest errors are possible from the impression so received by the individual—and for practical observation of patients suffering from a tedious disease like consumption, a much longer time would be required to make the conclusions of the observer of any value whatever, either to himself or to the profession, and it would take many years to so study the health resorts of the United States.

Physicians residing at health resorts are, however, supposed to have a personal interest in making their particular locality "come out on top," and the suspicion is not allayed with the observing reader when he notes in contributions to medical literature comparisons between one doctor's home-climate and that of many other places in which the argument and evidence adduced invariably go to show that this particular writer's climate is in every respect superior to every other; hence every patient should be sent there, if the home physician would do his whole duty to his patient! Such contributions, natural as they may be, constitute nothing but an advertisement, and should be relegated to the advertising pages of the journals in which they appear, even there to be judged for what they are—"a means for personal gain."

It is unfortunate, but can not be helped, that occasionally even scientific men will stoop to motives entirely unworthy, and never so good a climate does not seem to confer immunity from jealousy and selfishness.

This being the case, it is perhaps fortunate that the profession wants less knowledge of meteorological character and more clinical evidence, although meteorological data are entirely indispensable to a correct appreciation of any climate, even if they can not supply all information that seems necessary.

The late Dr. Brehmer, of the famous Goerbersdorf Sanitarium for Consumptives, in Germany, accorded such a

locality a curative influence in phthisis which could conclusively be shown to afford immunity from the disease to its inhabitants.

This theory commends itself to the good judgment of the student of phthiseotherapy, and will perhaps find more adherence than any other as long as our knowledge remains empirical, and particularly so inasmuch as such climates have been found valuable from a clinical standpoint also.

In a country like the United States, where reliable vital statistics are seldom made except in our large cities, and where many of the health resorts have been established in localities only recently or sparsely settled, it is difficult or impossible to apply this test; and, from the nature of the disease and its aetiology, it must ever be possible to show that the larger centers of population do furnish the greatest percentage of deaths from tuberculosis; it being also quite probable that a locality which can now show such a relative immunity as, for instance, is maintained by T. M. Lloyd (*New York Medical Journal*, April, 1887) and others for Asheville, N. C., and which the vital statistics of the city, kept now for four years past, seem to confirm, may eventually lose more or less of this favorable influence from an increase of population, as we now have in the older and more densely settled States. No one has, however, been able to explain what particular climatic condition produces such immunity, although many theories have been advanced.

In a recent contribution to the treatment of pulmonary tuberculosis, read before the Tri-State Medical Society at Chattanooga, Tenn. (The Treatment of Pulmonary Tuberculosis upon the Principles of Nutrition, *Dietetic Gazette*, November, 1891), I stated, as my conclusions regarding the effect of climate, that its mysterious influence disappeared if we looked upon it as it might affect the nutritive processes of the patients, and that a locality with much sunshine, and with absence of extremes of temperature, of strong winds and impurities and irritants in the air, but having a relatively dry and pure atmosphere, admitting of much out-of-door life, with sufficient elevation to favor a better circulation, must of necessity be better than where the reverse was the case, and reliable data by physicians or from other sources from our health resorts as to these conditions were certainly essential to the information of the profession.

If, now, residence in such a locality were all that is needed to enhance and favor the patient's nutritive processes, the information where this air can be found would be sufficient to guide the responsible home physician in his selection of a place, provided he has reliable data; but I am sure it requires no special mention that, no matter how favorable the climate, *on it alone* the patient's nutrition is not apt to thrive; and it is equally superfluous to mention that other conditions essential to the best nutrition of the patient may be so indifferent, or even bad, that not only will the climatic influence be unavailing, but in their presence the already impaired nutrition of the individual patient must of necessity seriously suffer in spite of the best climate in the world.

This means that apart from meteorological data the profession *is in want* of other information, and so important is this addition that without it the medical adviser can

foretell little of the result of his advice in the choice of climate.

To the meteorological data furnished the profession I am, perhaps, the only observer who has given attention to ozone for a number of years, and it would be very desirable if from other resorts similar reports were forthcoming. In addition, we need competent air and water analysis, both bacteriological and chemical, and I expect to continue in giving my attention to these additional subjects. Any one can see the importance of pure air and water, and nothing has been done in this direction at any of the resorts. We also need information upon the general hygienic conditions of the various resorts.

It is well understood that the so-called "mountain fevers" of elevated stations, said to be especially prevalent in Colorado, are, in fact, *typhoid*, and I have observed in Asheville that, as the hillside wells have been abandoned and as the sewer system is being extended, so have the "mountain fever" and summer diarrhœa diminished and disappeared.

To send a patient to a climatic resort, there to be exposed to the dangers of typhoid fever, would be a doubtful advantage, and one for which a relatively better air can not atone.

If at a given health resort the meteorological data appear satisfactory, the air nevertheless may be loaded with dust, impurities, and irritants of various kinds which the hygrometer, thermometer, and barometer do not indicate, and which would be seriously detrimental to lung and throat affections.

All such matters need to be known to the profession, and the information on these subjects needs to be reliable. The houses in which our patients live, their hygienic appointments and surroundings, their method of heating and ventilation, the cooking of and quality of food, the care and comforts offered, make not a little difference as to the results a patient may ultimately show when these are highly favorable or more or less unfavorable.

The kind of professional adviser into whose hands the patient falls, his skill, judgment, interest, and appreciation of the necessities of his patients, I presume make as much difference at the climatic resorts as at home; and I believe that if the patient can have the best of care and surroundings and perfect painstaking professional management at home, and has to do without most of these advantages at a climatic resort, he is better advised to stay at home.

Now, as to the clinical experience wanted, I would give the profession the following information, and it applies not only to Asheville, N. C., but to all health resorts, and in that respect it is fortunate that we can speak in general. The diagnoses are imperfect enough now, and it would certainly add much to the existing perplexities if it were necessary to diagnose with a view to the particular climatic resort to be employed.

So long as physicians will await the advent of serious symptoms and the latter stages of the disease before resorting to climatic treatment, just so long will they seek in vain for the especial climate that can uniformly benefit such patients.

If a patient is sent to a climatic resort, and he selects for his residence a boarding-house that stands on a thoroughfare, without grounds or piazzas, so that he is subjected to dust, noise, and annoyances of sundry kinds, and he can not be out of doors except upon the streets; if even slight exertion causes him shortness of breath, and he must climb two or three flights of steep stairs to his room; if the house is heated in the winter by stoves or fire-places and the halls are cold; if he is emaciated and must sleep on a hard bed; if he must go out of doors to water-closets in all kinds of weather; if he requires a judicious diet, but follows his own inclinations, or if, in the absence of a properly selected diet, he must eat tough meat, or pork and hominy cooked in grease; if he must wait upon himself, instead of having proper care and attention—then the patient has a poorer chance for improvement than if the conditions mentioned are as perfect as they can be made.

If a patient falls into the hands of a physician who advises long and tiresome walks, "to walk off" a temperature of 103°, as I know to have occurred; if he tells his patient: "Drink all the whisky you can," and the patient upon such advice succeeds in ruining his digestive organs; if the remedies for fever given by the medical adviser are drug antipyretics from one month's end to the other, and if for cough opiates are given as regularly; if this physician is one who follows routine methods, makes none or but superficial examinations, and keeps no records, or is not impressed with the great importance of details; if he does not understand or take pains in an individualizing management of each particular patient, with a view to prevent relapses and to keep the patient at his best all the time—then the patient's chances are diminished just to the extent that the professional management is deficient in these and other matters.

If the patient resides at a fashionable hotel and spends his time in the bar, billiard, card, or ball room, instead of out of doors or in quiet rest; if he eats mince pie, even if it should kill him, because he likes it, as a patient once told me he would; if ladies seek to excel others by elaborate toilets, and spend an hour each day in curling their hair, surely the chances of improvement are diminished by such trifling conduct, no matter how favorable the climate may be.

If a physician sends a patient, who is already much exhausted, upon a long, tedious, and tiresome journey to a health resort, that patient will, as a rule, be worse for his trip, and the conditions may then become such that the ease follows an unfavorable course to the end, in spite of any climate, especially if on arrival the patient is left to his own discretion.

The occurrence of acute inflammatory and destructive processes is favored or, if they are present, the symptoms are increased by overexertion and fatigue from any cause, and may continue to progress unfavorably until, by judicious treatment and management, an arrestment can be accomplished. The climate may aid in such arrestment, but it can not cut short at once this stage.

If a patient is sent who has already suffered destructive changes to a degree that large and, perhaps, suppurating cavities exist, and if, in addition, large areas of lung are in-

involved, embarrassed or inactive, if he is already suffering of amyloid or intestinal tubercular disease, if he is extremely emaciated from long-continued hectic fever, he will probably die soon after his arrival, no matter where and to whom he may be sent; the climate and the physicians at the place can not save him.

If a patient is sent even in the early stage with a view of staying a few weeks or months, and while at the climatic resort he is to have what is often called "a good time," by attending dances and elubs, mountain excursions and other frolics, probably he will suffer relapse, his disease extend, and he will then be likely to return to his medical adviser little benefited or even worse. Climate can not help it; it can not protect people from their follies.

If a patient is sent and his physician has led him to believe that all he needs is a change of air, that there is not much the matter with him, that he has only a little throat trouble, or that his lungs are a little weak, and if this patient suffers from tuberculosis in any stage, he will probably consult no physician until he relapses; if he does, and we caution him to the required conduct and care, he does not believe us, until more serious symptoms show that he is growing decidedly worse. Good results under such circumstances are not apt to follow, and such patients frequently return home with little or no improvement.

If a patient is sent who is well advised, both at home and at the resort, but who lacks that essential quality of manhood or womanhood, *self-control*, and who can deny himself nothing, he is likely to do as he pleases unless placed where he is absolutely controlled.

Unfortunately, this is to a degree the case with the majority, and the disease itself, as well as meddling interference and advice, favor it; even in an institution we have to exercise eternal vigilance to keep our patients determined and steadfast. We have to coax and to beg, to praise and commend, to scold and to threaten them into a course of lasting proper conduct.

On the other hand, if the profession send cases in the early stages, if they will explain to them that *now* every means are required and all proper efforts must be made to prevent the disease assuming serious proportions, if they will explain to their patients how important an ideal conduct even at a health resort will be, if they will tell them that there is no royal road, but one to be traveled with the greatest care and circumspection, that it is one beset with difficulties, only to be overcome by watching every minute detail and under the constant guidance of a competent, painstaking, honest physician, and recommend their patient to such a one—if, then, the patient is sent to one favorable climate or another, it will depend upon him, upon the compliance with advice, and a sufficiency of time given to a cure, whether the patient returns better or worse, improved or cured.

It is the stage of the disease reached, the proper conduct of the patient, the proper care and advice at the resort, and the time given, that determines the outcome of the case, and even the best physicians at health resorts must on that account leave it largely in the hands of the profession what their efforts shall accomplish.

The home physician, knowing his case and requirements,

needs no special instruction as to the *particular resort* to select; he can, after considering all the factors in a case, know pretty well what he can expect, and, *other things remaining equal*, any resort where the climatic conditions are favorable, as indicated in the earlier part of this paper, will give him practically the same results. Looking upon climate as a remedial agent, it can not be expected to furnish an exception to our experience with other remedies, and the results derived from any of them are influenced by the conditions and surroundings spoken of above.

THE WINYAH SANITARIUM, November 4, 1891.

## A DEVICE TO PREVENT MOUTH-BREATHING DURING SLEEP.

BY THOMAS R. FRENCH, M. D.,  
BROOKLYN.

WHEN, from any cause, the nasal passages are greatly diminished in size or occluded, breathing through the mouth is, of course, a necessity; but even after the cause has been removed the habit of mouth-breathing not infrequently persists. Again, this injurious habit is often practiced because of relaxation of the muscles of the lower jaw during sleep. The mouth may be closed on going to sleep, opened while sleeping, and when consciousness arrives is found closed again, so that many are ignorant of the fact that they ever breathe through the mouth. Adults who present symptoms of the practice of this habit during sleep will, as a rule, deny its existence, but if they are questioned closely they will usually admit that the mouth and throat are almost always dry in the morning, and that it may be several hours before those parts regain their normal condition.

For all cases in which the presence of the habit is known or suspected, and also to determine the existence of sufficient nasal capacity during sleep, it has been my custom, in the past few years, to direct the use of strips of a material known as "wash blonde" in such a way that, if the nasal passages are sufficiently free, the lower jaw will be held in place, and, as a consequence, nasal breathing enforced. With the kind assistance of Mr. S. V. W. Lee, recently under my professional care, this device has been much improved and is serving an excellent purpose.

The device consists of a piece of "wash blonde," a kind of "illusion," which is attached to straps of light webbing and adjusted to the head in the manner shown in the accompanying sketch.

The "wash blonde" is placed under the chin and the perpendicular straps buckled together at the top of the head.



In this way the needful support is given to the lower jaw. The perpendicular straps are held in position on the head by two back straps, which are looped on to them, and which are also regulated by a buckle. The buckle at the top of the head is padded to prevent uncomfortable pressure being made, and the whole appliance is so light and elastic that it is usually worn, after a trial or two, without the slightest discomfort.

The apparatus is made in two sizes, for adults and children, and is supplied by Messrs. F. Haslam & Co., 83 Pulaski Street, Brooklyn.

## FRACTURE OF THE RADIUS.

*NON-UNION; OPERATION; RECOVERY.*

By W. H. HODGMAN, M. D.,

SARATOGA, N. Y.

AFTER an interested perusal of the cases of non-union following fracture of the leg, reported by Dr. Fred. Jenner Hodges, of Chicago, in the *Journal* for October 10, 1891, I determined to operate, and, finally, to report the following case, not so much for the sake of reporting the operation itself as to illustrate what seems to me a somewhat unique cause for non-union:

On October 9, 1891, William Y., fifty-one years of age, a strong, well-developed, and healthy man, of excellent habits, was, while driving a team attached to a carriage, thrown out upon the ground and dragged some distance down a hill. The pole of the carriage had broken, plowed into the road, and overturned the vehicle. Just how the injuries were received, except that a wheel passed over the right ankle, he can not remember. To him the result of the accident was a broken right fibula in its lower third, a transverse and comminuted fracture of the lower end of the radius at about the junction of its middle and lower thirds, and a very oblique fracture of the same radius, the lower portion of which was about three inches above the transverse fracture. These, together with a number of cuts, scratches, and bruises on the face, limbs, and various other parts of the body, completed the casualties. The leg was put up in felt splints and fracture box until the swelling had subsided, when plaster was substituted. This was allowed to remain in place until six weeks after the injury was received, when, on removal, it was found to be united and apparently all right. The forearm, which was much swollen when first seen by me, was dressed with two straight, flat splints, somewhat wider than the arm. The outside splint reached from immediately below the olecranon process to a point midway between the wrist and the lower ends of the metacarpal bones. The anterior splint extended from the bend of the elbow to the wrist joint. The splints were each padded with two layers of Canton flannel, having their centers elevated by a narrow ridge made by several folds of the same material; all being held in place by strips of rubber plaster. The splints and forearm were retained in position in the usual manner by rubber plaster, roller bandage, and sling. After four or five days, the swelling having considerably subsided, the arm was carefully examined and the splints reapplied. In a few days more, the swelling having entirely gone out, the splints were firmly applied and not again removed until four weeks from the date of the injury. After the first dressing the patient suffered no pain or inconvenience whatever. At this time it was found that no union had taken place at either end of the fracture. I rubbed the ends together as well as I could, reapplied the splints, and left them on for

nine days. At the expiration of this time it was quite evident that some union had taken place in the upper or oblique fracture, though absolutely none in the lower or transverse fracture.

Acting now on the advice of one of the best surgeons in northern New York, I decided to operate without further delay. Preparations were made for a thoroughly aseptic operation, including sterilization by boiling of all the water to be used, and sterilization by steam of all instruments and sponges.

An incision was made directly over the center of the radius on its dorsal aspect, commencing about an inch below the lower fracture and extending about an inch and a half above. On getting the bone well exposed, it was found that the ends were not in perfect apposition. The lower end of the radius had a piece broken almost squarely out on its ulnar side that dipped into the bone nearly half its width, and within this notch the lower end of the upper piece was resting, thus creating a condition of things that, in this muscular arm, did not show any deformity to my eye or sense of touch. The small piece that had been broken out had disappeared. After separating and freshening the ends, it was found impossible to bring them together properly on account of the overlapping. The incision was now extended up the forearm so as to completely expose the upper fracture, when the cause of the overlapping below became apparent. The upper fracture, which was very oblique, had allowed the loose piece to slip, or be drawn directly downward by muscular action, until its lower end rested in the notch in the upper portion of the lower end of the radius, thus creating another malposition of the fragments that could not be detected until dissection had laid it bare. No nerve or fragment of muscle was found interposed between the ends, and if, as is now taught, the course or relation of the nutrient artery is not to be considered, then it must have been this slight slipping downward and the inability of the splint to hold the pieces firmly together that in this case caused, in one instance, delayed union, in the other non-union. For, as before stated, there was absolutely nothing perceptible in the patient's general condition to cause a suspicion in that line. The much-despised chain saw was now brought into use, and it did its work quickly, smoothly, and well. With it a small piece was sawed from each end, the bone drilled, and, with a doubled piece of No. 26 silver wire, brought together firmly and accurately. The oblique fracture in which union had commenced was, of course, not disturbed. The muscles and deeper tissues were stitched with catgut, the skin and areolar tissue with silk. No drainage. The external wound was seven inches in length. Iodoform, iodoform and sublimate gauze, a plain plaster splint from wrist to elbow, with sling, completed the dressing. The patient sat up the next day and had at no time any elevation of temperature or pulse, or sensation of pain in the wound. Thirty-eight days after the operation the plaster splint and other dressings were removed. The bone and soft parts had firmly and perfectly united. The muscles are now getting loose and free, with every prospect of a strong and perfect arm. To Dr. Inlay, Dr. Thompson, Dr. Humphrey, and Mr. Gates, student, I am much indebted for conscientious and valuable assistance.

**The Jefferson Medical College, of Philadelphia.**—The board of trustees, at a meeting held on April 7th, instituted a chair of clinical gynecology, with a seat in the faculty, and elected to the new chair Dr. E. E. Montgomery, who has been for a number of years professor of gynecology in the Medico-surgical College. They also elected the following clinical professors: Dr. F. X. Dercum, professor of nervous diseases; Dr. E. E. Graham, professor of children's diseases; Dr. H. Augustus Wilson, professor of orthopedic surgery; Dr. H. W. Stelwagon, professor of dermatology; and Dr. W. M. L. Coplin, adjunct professor of hygiene.

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FATAL MALARIAL POISONING.

In the *Johns Hopkins Hospital Bulletin* for December, Dr. Osler is reported, in the proceedings of the hospital society, as giving an account of two fatal cases of paludal poisoning. Malarial poisoning so seldom causes death in the latitude of Baltimore that these carefully studied cases are full of interest. One of them illustrated the algid type and the diagnostic value of examination of the blood. In the other case the diagnosis was befogged by the history of an insolation and by some pulmonary symptoms, so that before the patient's death the case was set down as one of low anomalous pneumonia. The blood was examined superficially and no malarial organisms were found.

The first, or algid, case was that of a sailor, thirty-four years old, recently from Savannah, without a history of chill or fever, but with persistent vomiting and great prostration. His temperature on admission was 101° F., and his pulse 104. The blood was examined at once, and, as was expected, Laveran's organisms were found in large numbers. Six or eight intra-corpuseular forms could be seen in the field of the one-twelfth immersion, the majority of which were without pigmentation. They underwent rapid changes of outline. An unusual proportion of the leucocytes showed pigment granules. Half-drachm doses of quinine were given every six hours; when vomiting was excessive the quinine was given subcutaneously. The treatment seemed to have the effect of diminishing the number of plasmodial corpuscles, but the patient died after being six days in the hospital.

The second, or supposed pneumonic, case, was that of a man, apparently in vigorous health, who had been employed as a berry-picker in July. He died at the end of a fortnight. The necropsy showed no pneumonia, although there were pulmonary congestion and œdema. The post-mortem diagnosis was that of malarial fever with malarial parasites in the blood and in the spleen. The microscopical examination was made by Dr. Welch, who noted that blood from the finger showed in small numbers malarial organisms—namely, spots of the shape and size of the red blood-corpuseles with pigmented plasmodia; free round pigment corpuscles, varying in size from that of blood plates to twice that size; and pigmented crescents, the pigment being in a ring in the middle. He found in one specimen of splenic pulp two free and active flagella. A few pigmented corpuscles were found in the capillaries of the brain.

The case last reported was the earlier of the two by a year or two; and, while Dr. Osler does not so state, he leaves the reader to infer that his experience with that case was a means to the almost immediate recognition of the malarial poisoning in the case of the young sailor.

MEDICAL MISSIONARY WORK IN EAST CENTRAL AFRICA.

From a publication issued by the Universities' Mission to Central Africa we learn something concerning the line of work performed in connection with the hospital at Zanzibar. That institution, manned and supported largely by men of the universities of Oxford and Cambridge, is little more than a dispensary at present, with one small ward near by. The cornerstone for a large hospital, situated close to the old Slave Market, in the capital of Zanzibar, was laid on May 12, 1891. Already the walls are rising—rapidly for that part of the world—and another year will see there a regularly equipped hospital, with trained nurses from England. The cost will not be less than \$10,000, providing two wards for the natives and some private accommodations for Europeans who fall ill with the tropical fever. These latter require prompt and special attention; many lives are lost by delay in seeking treatment. The location of the hospital is especially suitable for such relief, since its site is regarded as the most salubrious part of the town.

The paragraph relating to the small-pox epidemic of 1887 will be interesting reading to all who have not lost faith in Jenner's great discovery. The ravages of small-pox among the native Africans, when it is not tempered by vaccination, are extreme and almost beyond the range of descriptive language.

A LARGE FOREIGN BODY TOLERATED IN THE  
CONJUNCTIVAL SAC.

Dr. F. M. CHESLUM, of Baltimore, reports, in the *Maryland Medical Journal* for March 26th, a case illustrative of the remarkable tolerance of the conjunctiva of a large foreign body, provided that the substance gains entrance to the retrotarsal fold of the upper lid. His patient, a little girl of nine years, gave a history of having been struck on the right eye about four months before coming under his charge. The nature of the blow was not understood, and the results were apparently transient and not marked by painful symptoms. A mild astringent lotion was all that was used to allay a certain amount of conjunctival irritation. But a prominence of the upper lid was noticed, and a little later a dark object made its appearance at the inner canthus of the eye. On examination, there came into view a piece of round twig seven eighths of an inch long by an eighth of an inch in diameter. This had been under the lid nearly four months, in about the same position, until the child probably, while rubbing her eye, caused the piece of wood to appear at the canthus. Before this change of position, mere eversion of the lid would not have exposed the foreign body, since its situation was in the cul-de-sac, behind the tarsal cartilage. The length of time this visitor was detained was as remarkable as the slight degree of annoyance caused by it. The palpebral conjunctiva showed a certain amount of congestion, but the appearance of the eyeball was normal.

Foreign bodies, such as bits of wood, seeds of considerable size, and beads of different kinds, when they become lodged behind the upper tarsal fold, sometimes escape the attention of the

general practitioner, and the conjunctival irritation is treated as a conjunctivitis from cold or external violence; but ordinarily their presence is indicated by a painless swelling or elevation looking externally very much like a tarsal tumor. On palpation, however, the fingers recognize that there is a freedom of motion, as of a foreign body under the integument, that does not belong to a tumor of the lids.

MINOR PARAGRAPHS.

CHLOROFORM IN THE TREATMENT OF TYPHOID FEVER.

ACCORDING to the *Lancet*, Dr. P. Werner has treated 130 cases of typhoid fever with a one-per-cent. solution of chloroform, the employment of which was suggested by Behring's observations of the germicidal action of chloroform upon the bacillus. Werner gave a tablespoonful of the solution every hour or every two hours during the height of the disease and for some days after the temperature became normal. In all cases in which this treatment was adopted before the tenth day great improvement was manifested; the tongue did not become brown, diarrhoea and tympanites gradually disappeared, there was no tendency to bed sores, and relapse was very rare. His observations agreed with those of Steppe, who used the drug in 1890 in this disease. Possibly we may have in this a desirable substitute for the so-called Brand treatment, of which Osler says in his recent work: "To transfer a patient from a warm bed to a tub at 70° F., and to keep him there twenty minutes or longer in spite of his piteous entreaties, does seem harsh treatment, and the subsequent shivering and blueness look distressing. A majority of our patients complain of it bitterly, and in private practice it is scarcely feasible."

CATHETERISM OF THE BILIARY PASSAGES.

IN the February number of the *Revue de chirurgie* Dr. Terrier and Dr. Dally conclude an exhaustive article on catheterism of the biliary ducts in conjunction with cholecystotomy or in the treatment of the case after the performance of that operation. They think that this procedure is easier in pathological cases, especially those in which the passages are dilated in consequence of retention of bile, than it would be in experimental trials on the cadaver. In many cases it would be found difficult on account of curvatures of the cystic duct, or of the persistence of the valves, or of the cystic duct opening on the lateral wall of the gall-bladder. In some cases the difficulties will be insurmountable, while in others the exploration will be found quite easy. To formulate rules for this sort of catheterism is impossible; one can only be guided by one's anatomical knowledge. Forced catheterism, even with the finger placed under the liver in the abdomen, seems to be dangerous under all circumstances. Our information is as yet not sufficient to enable us to appreciate the value of *cathétérisme à demeure*. The instruments employed should always be sterilized.

THE SURGEON-GENERAL OF THE NAVY.

THE President has wisely settled the question of the succession to Surgeon-General Brown by re-appointing him. Dr. Brown had just completed his four years' tenure of office, and only about thirteen months remain before the time of his retirement will arrive. It is understood that nearly all the other candidates for the appointment made their applications with the proviso that they were not in the field if Dr. Brown's re-appointment was to be considered. Surgeon John C. Boyd will be appointed assistant to Dr. Brown, to take the place of Medi-

cal Inspector William K. Van Reyepen, who will join the San Francisco in a few weeks as fleet surgeon of the Pacific station.

A PRESCRIPTION FOR YOUNG PHYSICIANS.

ACCORDING to the *British Medical Journal*, a distinguished Vienna professor gives the following prescription to all young physicians who call to take leave of him before embarking on their professional career: *R* Veritatis, humanitatis, fidelitatis, aā infinitum. *Mi*sc. Ft. elixir vitæ. *Signa*: To be used constantly throughout life. It is easy, perhaps, for most men to start with a good stock of this spiritual elixir, but the difficulty is to find an apothecary who can dispense the prescription when the supply has run out.

ETHER-DRINKING IN RUSSIA.

THIS vice, says the *British Medical Journal*, has spread so rapidly in Russia that the Government has prohibited the free sale of ether and certain of its compounds. Such legislation has proved to be efficacious in diminishing the vice in Ireland.

ITEMS, ETC.

**Infectious Diseases in New York.**—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the week ending April 12, 1892:

DISEASES.	Cases.	Deaths.
Typhus Fever.....	3	1
Typhoid fever.....	11	3
Scarlet fever.....	258	23
Cerebro-spinal meningitis.....	6	3
Measles.....	460	25
Diphtheria.....	137	24
Small-pox.....	26	..

**The Circle of Willis**, we learn by a letter from Dr. Frank A. McGuire, is a society that has recently been organized in New York for the purpose of diffusing social ideas among the medical profession, to the exclusion of "shop." The society has twenty members, and is receiving accessions monthly. It will be seen that it is analogous to the Austin Flint Society, of Baltimore, mentioned by us recently.

**Gowers on the Nervous System.**—We learn that a German edition of the second revision has just been published in Bonn, also that an Italian translation is nearly ready.

**The Hospital Graduates' Club.**—The fifty-ninth stated meeting will be held at the "Arena," No. 41 West Thirty-first Street, on Thursday evening, the 28th inst. Dr. Norris is announced to read a paper on The Internal Administration of Ozone in the Treatment of Phthisis.

**The Middleton Goldsmith Lecture.**—The trustees of the Middleton Goldsmith fund have invited Dr. Francis P. Kinnicutt to deliver the lecture this year, on Friday, May 6th.

**Change of Address.**—Dr. Charles N. Cox, to No. 168 Halsey Street, Brooklyn.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from March 27 to April 9, 1892:*

- WOOD, MARSHALL W., Captain and Assistant Surgeon. The leave of absence granted is extended one month.
- MACAULEY, C. N. B., Captain and Assistant Surgeon, will report for temporary duty at U. S. Military Academy, West Point, N. Y., during the absence of Captain HENRY S. KILBOURNE, Assistant Surgeon, as member of the Army Medical Board, New York city, N. Y., and on return of that officer will rejoin his proper station.
- MERIWETHER, FRANK T., First Lieutenant and Assistant Surgeon. Ordered for temporary duty at Madison Barracks, New York, during

the absence of Captain HENRY S. TURRILL, Assistant Surgeon, as member of Army Medical Board, New York city, and on return of that officer will rejoin station.

HOFF, JOHN VAN R., Major and Surgeon. Ordered to St. Louis, Mo., to represent the Medical Department of the Army at the meeting of the Association of Surgeons of the National Guard, to be held in that city April 19 to 21, 1892.

WINTER, FRANCIS A., First Lieutenant and Assistant Surgeon (recently appointed), will proceed from St. Louis, Mo., to Jefferson Barracks, Mo., and report to the commanding officer of that station for duty.

The suspension of the operation of Par. 2, S. O. 13, January 16th, A. G. O., relating to APPEL, AARON H., Captain, and CABELL, JULIAN M., First Lieutenant and Assistant Surgeon, is removed.

GARDNER, EDWIN F., Captain and Assistant Surgeon, is granted leave of absence for one month on surgeon's certificate of disability.

SUTER, WILLIAM N., First Lieutenant and Assistant Surgeon. Resignation has been accepted by the President, to take effect July 28, 1892.

IRELAND, MERRITTE W., First Lieutenant and Assistant Surgeon. Ordered to Fort Yates, North Dakota, for temporary duty during the absence of Captain Alonzo R. Chapin, Assistant Surgeon, on sick leave.

HARTSUFF, ALBERT, Major and Surgeon. Granted leave of absence for six months, to take effect on or about July 10, 1892, with permission to go beyond the sea and to apply for an extension of two months.

BRADLEY, ALFRED E., First Lieutenant and Assistant Surgeon. Ordered to Columbus Barracks, Ohio, for temporary duty at that station during the illness of Captain Augustus A. De Soffre, Assistant Surgeon.

PURVIANCE, WILLIAM E., First Lieutenant and Assistant Surgeon (recently appointed), will proceed from Rossville, Ill., to Fort Riley, Kansas, and report for duty at that station.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending April 9, 1892:*

LEWIS, D. O., Surgeon. Detached from the Naval Hospital, Washington, and ordered to the Naval Hospital, Mare Island, California.

BERRYHILL, T. H., Passed Assistant Surgeon. Detached from the U. S. Steamer Pensacola and ordered to the U. S. Steamer Ranger.

BARNUM, MERRILL W., commissioned an Assistant Surgeon in the Navy from March 15, 1892.

FARWELL, W. G., Surgeon. Granted leave of absence for six months, with permission to leave the United States.

WOODS, GEORGE W., Medical Inspector. Detached from the U. S. Steamer Pensacola, and ordered to the Hospital at Mare Island, California.

BATES, N. L., Medical Director. Detached from the Naval Hospital, Mare Island, California, and ordered home.

BROWS, J. MILLS. Reappointed Chief of Bureau and Surgeon-General.

BOYD, J. C. Detailed as Assistant to the Bureau of Medicine and Surgery.

BARNUM, M. W., Assistant Surgeon. Ordered to the Naval Hospital, Washington, D. C.

SMITH, HOWARD, Surgeon. Granted leave of absence for six months, with permission to leave the United States.

McCULLOUGH, CHAMP CARTER. Commissioned an Assistant Surgeon.

#### Society Meetings for the Coming Week:

MONDAY, *April 18th*: New York County Medical Association; New York Academy of Medicine (Section in Ophthalmology and Otology); Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, *April 19th*: Association of Military Surgeons of the National Guard of the United States (first day—St. Louis); Medical Society of the State of California (first day—San Francisco); New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Medical Societies of the Counties of Kings and Westchester, N. Y.; Ogdensburg, N. Y., Medical Association; Passaic, N. J., County Medical Society (annual); Baltimore Academy of Medicine.

WEDNESDAY, *April 20th*: Association of Military Surgeons of the National Guard of the United States (second day); Medical Association of Montana (first day—Butte); Mississippi State Medical Association (first day—Natchez); Medical Society of the State of California (second day); Medical Association of Georgia (first day—Columbus); New York Academy of Medicine (Section in Public Health and Hygiene); Harlem Medical Association of the City of New York; Northwestern Medical and Surgical Society of New York (private); Medico-legal Society (New York); Philadelphia County Medical Society; Windham, Conn., County Medical Society (annual—Plainfield); Middlesex, Mass., South District Medical Society (annual—Waltham).

THURSDAY, *April 21st*: Association of Military Surgeons of the National Guard of the United States (third day); Mississippi State Medical Association (second day); Medical Association of Montana (second day); Medical Society of the State of California (third day); Medical Association of Georgia (second day); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private); Tolland, Conn., County Medical Society (annual).

FRIDAY, *April 22d*: Mississippi State Medical Association (third day); Medical Association of Georgia (third day); Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, *April 23d*: New York Medical and Surgical Society (private); Worcester, Mass., North District Medical Society (annual—Fitchburg).

## Obituaries.

EDWARD WIGHT CLARKE, M. D., OF ENGLEWOOD, N. J.

THE death of this very promising young practitioner took place on Monday, the 11th inst., after an illness of less than a week's duration. Dr. Clarke was born in Manchester, New Hampshire, on the 20th of October, 1862. In 1883 he received the degree of bachelor of arts from Columbia College, after which he took a special course in the same institution, and took the degree of master of arts in 1884. In 1887 he received his medical degree from the College of Physicians and Surgeons, taking the third Harsen prize. He then served the full term on the house staff of one of the surgical divisions of the New York Hospital. During his service in the hospital he showed much originality in treatment. Among other things, he devised a method of treating fracture of the patella by means of a subcutaneous suture. He was one of the founders of the Association of the Alumni of the New York Hospital. Since leaving that institution he had practiced in Englewood. The cause of his death was septicæmia occurring in the course of scarlet fever. He leaves a widow, a daughter of Dr. Banks, of Englewood, and two children.

## Letters to the Editor.

AN OPENING FOR MEDICAL LADIES IN INDIA.

111 NORTH EIGHTH AVENUE, MOUNT VERNON, N. Y., *April 2, 1892.*

*To the Editor of the New York Medical Journal:*

SIR: You had the kindness to insert in one of the January numbers of your journal a notice of the need of a fully quali-

fied physician to take the supervision of a medical mission in Ceylon. We received many responses to that appeal, and are happy to say that a suitable candidate has been found and is now under appointment for that work.

We have been requested to make another appeal for two fully qualified lady doctors for medical work in India, under the Zenana Bible and Medical Missionary Society of London, whose honorary missionaries we are.

There are 139,000,000 women in India, including 21,000,000 widows, 79,000 being children under nine years of age. *Thousands of women and girls die annually whose lives might have been saved by proper medical assistance.* There is only one missionary for every 250,000 of the population.

The Zenana Bible and Medical Mission, which was founded in 1852, is unsectarian and works in co-operation with different missionary societies in India. Its object is to give medical relief to the women of India and make known to them the gospel of Christ. The agencies it employs are as follows: Fully qualified lady doctors, lady missionaries, native Christian assistants, Bible women, day schools for girls, training schools, village missions, also hospitals and dispensaries, the attendances last year at which were over 22,000.

The society's work has nearly trebled during the past ten years. Appeals for more missionaries are constantly received, to which the committee are ready to respond as soon as suitable candidates can be found. The age of the medical ladies who apply should not exceed thirty years. The salary allowed is about \$650 to \$750 per annum, with extras, such as outfit, passage, rent of house, traveling, etc. The ladies must be earnest Christians, thoroughly unsectarian in their sympathies, and ready and willing to work with all evangelical churches and with all workers who love our Lord Jesus Christ in sincerity and truth. It is the custom of this society to place two medical ladies at a station, furnishing them with a hospital, dispensaries, medicines, and a suitable staff of trained native assistants. Its medical missionaries thus enjoy advantages which are not always afforded to the medical missionaries of other societies. We shall be glad to give further information about the work of this society to any one really contemplating offering herself for this work. We are also desirous of having an interview with such, and shall be glad to see any one at the address given above at any time during the last week in April or the first week in May. Any one desiring to apply should do so forthwith, as we wish to secure these candidates before we return to England, which we shall probably do in May. Sincerely,

MARY AND MARGARET W. LEITCH,  
*for seven years missionaries in Ceylon.*

## Proceedings of Societies.

### SOCIETY OF THE ALUMNI OF BELLEVUE HOSPITAL.

*Meeting of October 7, 1891.*

The President, Dr. EGBERT LE FEVRE, in the Chair.

#### An Extreme Case of Congenital Lateral Curvature.—

Dr. R. H. SAYRE presented a remarkable example of congenital lateral curvature of the spine in a girl fourteen years of age. At the time of her birth it had been noticed that she had a short, catching respiration, and a few hours later a careful examination had showed that there was a marked lateral curvature of the spine with rotation of the ribs on the left side. At

the age of six years she had had pneumonia, followed by an abscess, which had opened through the right thoracic wall. From its coming so closely upon the attack of pneumonia, it had been probable that this abscess had communicated with the pleura, and although it had undoubtedly aggravated the condition of the spine, it could not be said to have originated it, as this condition had long antedated the pneumonia. The child had received no systematic treatment up to the time of her first coming to the speaker, four days ago. Examination at that time had showed a large V-shaped gap in the ribs over the liver, which was probably not due to the absence of any ribs, but to a fracture of the costal cartilages *in utero*. This condition probably accounted for the extraordinary amount of malformation, which was greater, the speaker thought, than that of any congenital case on record. Her height was found to be four feet six inches and three quarters. During the past four days she had been stretched daily by means of the well-known Sayre suspension apparatus, and had gained each day about an eighth of an inch in height. He desired to call particular attention to this fact, for, while it was easy to understand how such suspension might cause a very temporary increase in stature, it was very surprising that this gain in height could be retained. A good deal of doubt had been expressed by various writers as to the possibility of increasing the height in this way, but he would remind his hearers of one or two similar cases which he had already presented to the society, in which such a result had been actually obtained, and where the measurements had been taken by others as well as by himself.

Dr. L. W. HUBBARD had seen in his service at the New York Orthopædic Dispensary two or three cases of quite marked lateral curvature with rotation and bulging of the ribs, in very young children, and the parents of these children had stated that the deformity had been first noticed either at the birth, or within a few days thereafter. The case just presented seemed to him to have originated from a congenital absence of the ribs, or else from a separation of the ribs at the sternal ends, thereby allowing the pressure of the uterine walls to crowd together the ribs, and so give rise to the deformity. Undoubtedly this had been stealthily increasing as a result of a lack of support on that side. Suspension and proper support would undoubtedly increase the height, but he hardly thought it would exert any very appreciable effect upon the deformity itself.

Dr. SAYRE said that there had already been some reduction of the deformity, as was shown by the fact that garments which could be buttoned around the chest a few days ago could not be readily so fastened. He thought, therefore, he was justified in looking for a considerable improvement in the deformity.

Dr. SAYRE also presented a young girl having some disability of one hand, the exact nature of which he did not fully understand. He presented her with a view of eliciting suggestions as to the aetiology and treatment. A year or so ago, she said she had been cut across the right wrist by a long, straight knife, and so severe had been the injury that the bones had been plainly visible in the wound. An effort had been made to unite the extensor tendons, as well as the lips of the wound, by sutures. She stated that about four months later it had become necessary to break up some adhesions, and that after this had been done the motion of the hand had been better. Electricity and massage had been employed for some time and had been of some service. She had been treated for a while at the orthopædic dispensary, but had become discouraged and had abandoned treatment. He had seen her for the first time that afternoon. The hand became blue and cold on slight exposure, and a hasty examination had showed a total paralysis of the digital flexors and extensors, for they were not under the control of the will,

and did not give any reaction with a strong faradaic current. A galvanic battery had not been at hand at the time this first examination was made. The interossei and the opponens muscles of the middle finger and thumb had appeared to be normal, as were also the flexors and extensors of the carpus. There had also been great rigidity of the knuckles, which projected into the palm just as they did in certain nervous disorders. The situation of the wound had not been such as to explain the condition by supposing that there had been an injury of a nerve, and, as the knife was said not to be curved, it could not be supposed that the flexor tendons in the palm had been severed, and that the attending surgeon had overlooked them when suturing the other tendons.

Dr. HUBBARD said that he had seen the case at the orthopaedic dispensary when the patient had first applied for treatment, and she had then mentioned certain points in the history which had not been given in the foregoing recital. The arm had been kept on a splint for a number of months after the injury, and then, after breaking up the adhesions, it had been again confined on a splint for about seven months. There had been considerable inflammatory reaction and some suppuration. He had felt quite sure that there had been some muscular control, and that at the time he had seen her the muscles had reacted to electricity. The action of the muscles above the carpus had been shown when the patient's fingers had been flexed. At first the fingers had been quite stiff and the circulation very poor, but under electricity and massage there had been a very noticeable improvement up to a certain point, and then it had been so slow that the patient ceased to attend regularly at the dispensary. He thought that the condition present was entirely due to the crippling of the tendons by inflammatory adhesions.

Dr. IRVING S. HAYNES fully concurred in this view.

Dr. SAYRE replied that he did not doubt that much of the disability was due to the crippling of the tendons by adhesions, but this did not explain the reason for the flexors not acting upon the terminal joints of the fingers, and what little resistance there was to the flexion of these joints seemed to be due to the action of the interossei and lumbricals rather than to adhesions.

**Vicious Union following Pott's Fracture; Operative Treatment; Exhibition of a Case.**—Dr. IRVING S. HAYNES read a paper on this subject. (See page 423.)

Dr. L. W. HORTCHKISS had seen during the past winter a case of Pott's fracture with bad union, treated in Bellevue Hospital according to the plan described in the paper, a simple osteotomy being done through the shaft of the fibula above the external malleolus. The result had been all that could be desired. He recalled seeing Dr. McBurney operate about six years ago in Bellevue Hospital upon a case in which both bones had been fractured. The case had been treated for some time after the injury by means of two lateral wooden splints without any attention being paid to the flexion of the foot. As a result of this the foot had become extended and abducted and the patient had walked on the ball of the foot while the ankle joint had been stiff and painful. The patient had accordingly sought relief in the hospital and the deformity had been perfectly reduced by an osteotomy on both bones. There were not in the hospital plaster casts representing the condition present before and after the operation.

Dr. HUBBARD had seen a number of these cases where, years after the operation, the disability had been extreme. Considerable relief had been afforded by a mechanical support consisting of a stout ankle-piece passing underneath the shoe, with a large pad to support the inside of the foot, and the usual bars passing up on either side of the leg. In the patient just presented there was evidently a shortening of the tendo Achillis,

and when the patient stood with the feet flat on the floor there was a tendency to outward deviation. He was of the opinion that a gradual shortening of the tendon would take place, and would ultimately lead to a deformity similar to, but not so great as, the original one. This might be prevented by flexing the ankle by a suitable traction apparatus. If this were not done, after a number of years the internal ligament would probably yield, and there would not only be deformity and disability of the foot, but the patient would in all probability suffer, as he had seen others do, from cramps about the ankle and tarsus, and, later on, even running up the leg.

Dr. SAYRE could not see the reason for the tendon contracting in the manner described, as the mere fact of the patient walking and attending to his daily occupation meant that the tendon would be frequently stretched, and hence the condition of the foot should improve instead of developing into an equinus. It would no doubt be wise to stretch the gastrocnemius muscle, and break up some of the adhesions still remaining in front of the ankle. He had seen many of these cases which had been originally treated as a simple sprain by rest in bed and the use of fomentations, and the large number of such cases would seem to indicate that the medical profession at large was inclined to overlook slight Pott's fracture. This was especially true where such fractures occurred in fat old ladies, whose abundant adipose tissue made it difficult to detect the exact nature of the injury to the bones.

Dr. HUBBARD explained that he did not mean that the deformity would result in an equinus, but that where there was imperfect flexion of the foot, the continued use of it in this position would, after many years, result in an equino-valgus and a crowding together of the small bones of the foot. Such cases occurred without any previous injury.

Dr. SAYRE said that he was well aware that a short tendo Achillis often gave rise to valgus and a breaking down of the arch of the foot, for Nature intended that the ankle joint should be bent to an angle of about 120° with the tibia, and when this degree of flexion could not be obtained the person must move forward by bending the medio-tarsal joint. Under these circumstances he was very apt to stretch the plantar fascia and break down the arch of the foot, thus giving rise to a valgus. He did not believe, however, that the tendo Achillis kept on shortening all this time.

Dr. HAYNES said that he only desired to emphasize one point touched upon in the discussion—viz. the importance of treating a sprain as if it were a fracture. The reason for this was obvious, as one phase of a Pott's fracture was a rupture of the internal lateral ligament, and if union occurred with this ligament elongated, the state of the ankle would be worse than if the original injury had been a fracture. Hence every sprain of the ankle should be treated with a plaster-of-Paris dressing; it would certainly get well more quickly than by any other method.

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## Book Notices.

*Hospitals and Asylums of the World; their Origin, History, Construction, Administration, Management, Legislation, etc.* By HENRY C. BURDETT, formerly Secretary and General Superintendent of the Queen's Hospital, Birmingham, etc. London: J. & A. Churchill, 1891. Vols. I and II. Pp. xvi-701; x-348.

To those interested in hospital construction the name of this author is well and favorably known, and the scope of the pres-

ent work will be appreciated by everybody when it is learned that the author has been engaged for the past twelve years in preparing and completing the material for publication—material that represents the experience of twenty-five years as a hospital official in various capacities and as a visitor to the chief institutions in most European countries, to those in several of the British colonies, and to those in the United States. It has been his aim to enable everybody interested to gain a more general and accurate knowledge of a work that must tend materially to “diminish suffering and to increase the comfort of those members of the community who are least able, or wholly unable, to make provision for themselves”; and this may, in part, be accomplished by intercommunication and co-operation among all administrative officers of asylums and hospitals throughout the world.

The first volume is devoted to a history of asylums and of their administration, and begins with the early history of insanity. Attention is called to the fact that Aretæus, of Cappadocia, and Paulus Ægineta, almost six hundred years later, insisted upon the rational treatment of violent maniacs and the employment of only the kindest and simplest restraint. But their teaching went unheeded or was forgotten in what Maxime du Camp called the period of “engulfment,” and less than a century ago Pinel succeeded in awakening public and professional conscience to a realization of public responsibility for the insane. The author finds that at Metz in the year 1100, and at Dantzic in 1320, there were asylums for the insane, thus disproving Desmaison’s contention that the establishment of the Valencia asylum marked an epoch in the treatment of these unfortunates.

From a consideration of the period of brutal suppression, ill-treatment, and cruelty to the insane, and of the early history of lunacy and asylum treatment in the British colonies and abroad, the author passes to the present condition of lunatic asylums, and gives an encyclopædic *résumé* of those institutions in various parts of the world.

As Americans our pride may be touched by such a passage as this: “Were it not for the lavish expenditure in sanitary matters and the introduction of all the latest scientific appliances for minimizing labor and risk, it would almost appear that lunatics in America were still regarded as a class to be confined first, and perhaps cured afterward, rather than as unfortunate beings for whose curative treatment these enormous buildings have been designed.” And: “So common, indeed, is it [overcrowding] that it may almost be said to be the rule, whereas in other parts of the world it is certainly the exception.” The justification of the former criticism may be found, in this State at least, in the Annual Report of the State Commission in Lunacy for 1890, and our acquaintance with other communities permits us to say that New York is not alone in the matter. Mr. Burdett is aware that the responsibility for this condition of affairs does not rest entirely upon the medical profession; and if more intelligence and less political jobbery were infused into the expenditure of the appropriations for the construction of insane asylums, the overcrowding at least might often be obviated, and it would be impossible to say, as has been said of the St. Louis Insane Asylum, that the money expended in the general construction of the institution would, if placed at interest, pay for the board and lodging of all the inmates at the best hotel in the city.

Regarding his criticism on the prevalent use of methods of restraint in most of our institutions, we must cry *peccavi*, and await the day when appropriations will be sufficiently generous to enable asylums to have that quota of skilled attendants that will enable them to dispense with what is yet often necessary in order to prevent the patients from harming themselves or others. This want, we believe, is oftener the *font et origo* of

the restraint employed than any lack of sympathy, intelligence, or progressiveness on the part of our superintendents of asylums.

The generous commendation the author bestows on whatever is commendable in American institutions shows that his criticisms are made in a spirit of fairness and not from a captiousness that we are often accustomed to from our English brothers.

The second volume treats of asylum construction, with plans and a bibliography. It would not be possible to do it justice in the space of a review, but we would commend it for careful perusal to all persons and boards interested in this subject.

*Transactions of the American Association of Obstetricians and Gynecologists.* Vol. IV, for the year 1891. Philadelphia: William J. Dornan.

This volume is quite abreast of those that have preceded it in scientific interest and value. To say that this association is composed largely of progressive men is only to state a well-known fact. They are to be congratulated upon the excellent character of the work that they are doing year by year and on the success they are having in presenting subjects for discussion that are of vital interest to gynecologists everywhere.

*Abdominal Surgery.* By J. GREIG SMITH, M. A., F. R. S. E., Surgeon to the Bristol Royal Infirmary; Lecturer on Surgery, Bristol Medical School; Late Examiner in Surgery, University of Aberdeen; Fellow of the Royal Medical and Chirurgical Society of London; Honorary Fellow of the American Society of Obstetricians and Gynecologists, etc. Fourth edition. Philadelphia: P. Blakiston, Son, & Co., 1891.

The fact that a fourth edition of this work has been called for within four years of the date of its first publication must be gratifying to the author. More than that, it is an evidence that the work is one of no ordinary value. Such a work was imperatively demanded by the marvelous extension of abdominal surgery within the past decade, and it is difficult to see how the demand could have been better satisfied. It is but just to say however, that there are some marks of haste in the preparation of this latest edition which might have been obviated had the requirements for its appearance been less urgent.

We have been unable to discover any reference to the use and value of the Trendelenburg posture, which is now recognized as one of the most valuable adjuncts in the performance of abdominal operations. On page 216 Leopold is said to have lost four out of eighty patients after vaginal hysterectomy, and, a little further on, “Sänger, Leopold, Olshausen, and a few others are said to have had results nearly as brilliant.”

On page 220 we observe that the author, in classifying cancer of the uterus, clings to the old division of scirrhus and encephaloid, which may well become obsolete. Why not say *hard* and *soft* cancer where the distinction is purely a clinical one? The use of clamps in preference to ligatures in vaginal hysterectomy is still advocated (p. 233), though it is admitted that there are disadvantages with the former and advantages with the latter. We are quite in accord with the positive statement of opinion, based upon experience, that in vaginal hysterectomy it is perfectly proper to leave the vaginal and peritoneal wounds open. Of course there are exceptions in which such a plan would not be the most desirable.

Upon the subject of ectopic gestation Tait’s record is quoted only to 1887. It must not be forgotten that much of the most valuable work in this field by Tait, Price, and others has been done since that date, and this oversight should not have hap-

pened in dealing with a matter of so great importance. Another oversight occurs in connection with the chapter upon appendicitis. It is true that McBurney's name is mentioned in connection with the disease, but it was deserving of far more extended notice, in view of the great value of the work that has been done by that distinguished surgeon in this field. We doubt not that proper appreciation will be extended in a subsequent edition, for there is no lack of fairness in the entire volume wherever it is apparent that good work has come to the author's notice.

There is no difficulty in recognizing the fact that the author is a man of positive convictions, and, while opinions are not advanced with unbecoming dogmatism, he has no hesitation in offering guiding statements, and we believe that, in the main, they will be found safe and trustworthy.

#### BOOKS, ETC., RECEIVED.

Bacteriological Diagnosis: Tabular Aids for Use in Practical Work. By James Eisenberg, Ph. D., M. D., Vienna. Translated and augmented, with the Permission of the Author, from the Second German Edition, by Norval H. Pierce, M. D., Surgeon to the Out-door Department of Michael Reese Hospital, Chicago. Philadelphia and London: F. A. Davis Co., 1892. Pp. xiv-3 to 184. [Price, \$1.50.]

Outlines of Zoology. By J. Arthur Thomson, M. A., F. R. S. E., Lecturer on Zoology in the School of Medicine, Edinburgh, etc. With Thirty-two Full-page Illustrations. New York: D. Appleton & Co., 1892. Pp. xvi-341.

Transactions of the New York State Medical Association for the Year 1891. Volume VIII. Edited for the Association by E. D. Ferguson, M. D.

Lectures on Tumors from a Clinical Standpoint. By John B. Hamilton, M. D., LL. D., Professor of Surgery and Clinical Surgery, Rush Medical College, Chicago. For the Use of Students. Second Edition. Detroit: George S. Davis, 1892. [The Physicians' Leisure Library.]

Aphasia due to Subdural Hemorrhage without External Signs of Injury; Operation; Recovery. By L. Bremer, M. D., and N. B. Carson, M. D., of St. Louis. [Reprinted from the *American Journal of the Medical Sciences*.]

Tobacco Insanity and Nervousness. By Dr. L. Bremer, St. Louis.

Annual Report of Surgical Operations performed by Horace Packard, M. D., Associate Professor of Surgery, Boston University School of Medicine, for the Year 1891, with a Report of a Third Series of Abdominal Operations, comprising Sixty-seven Cases.

Rupture of the Sac of an Extra-uterine Pregnancy through the Fimbriated Extremity without tearing the Fallopian Tube. Operation; Recovery. By Hunter Robb, M. D., Baltimore, Md. [Reprinted from the *New York Journal of Gynecology and Obstetrics*.]

Mme. Lachapelle, Midwife. By Hunter Robb, M. D., Baltimore. [Reprinted from the *Johns Hopkins Hospital Bulletin*.]

Treatment of Laryngeal Phthisis. By Robert Levy, M. D., Denver, Col. [Reprinted from the *Medical and Surgical Reporter*.]

Two Cases of Trephining for Traumatic Epilepsy. By Philip Coombs Knapp, A. M., M. D., and Abner Post, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal*.]

Diseases of the Urinary Apparatus. Phlegmasic Affections. By John W. S. Gouley, M. D., Surgeon to Bellevue Hospital. New York: D. Appleton & Co., 1892. Pp. xiii to 342. [Price, \$1.50.]

The Medical Annual and Practitioners' Index: A Work of Reference for Medical Practitioners, 1892. Tenth Year. Bristol: John Wright & Co. Pp. lii to 667.

Accidents from the Electric Current: A Contribution to the Study of the Action of Currents of High Potential upon the Human Organism. By Philip Coombs Knapp, A. M., M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal*.]

A Case of Tumor of the Cerebellum in which Trephining was done for the Relief of Increased Intracranial Pressure. By Philip Coombs Knapp, A. M., M. D., Boston. [Reprinted from the *Journal of Nervous and Mental Disease*.]

Astasia-Abasia. With the Report of a Case of Paroxysmal Trepidant Abasia associated with Paralysis Agitans. By Philip Coombs Knapp, A. M., M. D., Boston. [Reprinted from the *Journal of Nervous and Mental Disease*.]

The Treatment of Epilepsy; with Special Reference to the Use of Potassium Bromate, Magnesium Bromide, Nitroglycerin, Antifebrine, Sulphonal, etc. By Guy Hinsdale, M. D., Philadelphia. [Reprinted from the *International Medical Magazine*.]

Thirty-second Annual Report of the Medical Superintendent of the State Asylum for Insane Criminals, Auburn, N. Y. For the Year ending September 30, 1891.

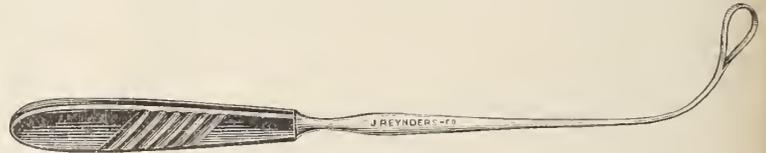
Removal of Superfluous Hair by Electrolysis. By F. J. Leviser, M. D., New York. [Reprinted from the *Medical Record*.]

### New Inventions, etc.

#### A LATERAL-CUTTING CURETTE.

By LEONARD A. DESSAR, M. D.

MESSRS. REYNDERS & Co. have made for me a curette which I find of great service in removing adenoid tissue from the lateral walls and vault of the pharynx, as well as from the fossa of Rosenmüller. The instru-



ment has but one cutting edge, the other being blunt, and two of them are required to entirely free the vault and sides of the pharynx of adenoid tissue. The curette is passed up into the vault close to the lateral wall and behind the arch of the palate. As the one edge is blunt, no injury can be done to the pharyngeal structures. A lateral sweep removes the adenoid growths from the vault and opposite side of the pharynx. The one curette cuts from left to right, the other from right to left.

### Miscellany.

**A Form of Painful Toe.**—The *Lancet* for March 19th contains the following article, by Dr. L. G. Guthrie:

The intense suffering caused by this complaint, and the prompt and certain relief which may be obtained by suitable yet simple treatment, lead me to record my own experience of a special form of painful toe. Both in symptoms and pathology the complaint is identical with that to which Dr. Auguste Pollosson, in 1889, gave the name "anterior metatarsalgia." Only in the latter the metatarso-phalangeal joints are affected, whilst in the former the distal phalangeal joints are alone involved. In order to avoid a more cumbersome designation I have called the former affection "a form of painful toe." In either case, under the influence of prolonged standing or walking in tight boots, the ligaments of one or more joints, metatarso-phalangeal or phalangeal only, become strained, slight subluxation takes place, the nerves are stretched and pressed upon by the partially dislocated bones, and the characteristic pain is produced. The pain occurs suddenly, and with a sense of something giving way at the site of the joint affected. It is relieved by taking off the boot and gently pressing the displaced bones into proper position. The reduction is always accompanied by a sharp twinge of pain, followed by instantaneous relief. I have only met with one case of the major affection. It was that of a tramear conductor, who suddenly developed the symptoms, and had suffered from them for three months

The pain was under the head of the third metatarsal bone, and he could relieve it by taking off his boot, flexing his toes while pressing gently with his finger on the site of the pain. His occupation prevented him from carrying out this treatment as often as he desired, so I directed him to wear a boot with a very broad sole, slightly convex on the upper surface, so as to support the sunken head of the third metatarsal bone, and with plenty of room across the base of all the toes. This treatment proved thoroughly satisfactory. The following are cases of the minor but similar affection—painful toe:

CASE I.—In the autumn of 1883, after a long day on duty as hospital dresser, I walked through the wet streets to the opera. The theatre was crowded, and I had to stand throughout the performance. Toward the close I suddenly felt most severe shooting and burning pain in the fourth toe of my left foot. The boring of a hot iron into the flesh might have caused similar pain. It extended up the nerves of the outer side of the foot and leg into the sciatic, with a numbing, sickening sensation. I limped home, with dismal misgivings lest I had fallen a premature victim to gout; but on taking off my boot I discovered that the last phalanx of the fourth toe was overextended, while the head of the second phalanx was slightly displaced downward. Reduction caused a sharp twinge of pain, followed by immediate relief. From this time for many months I was constantly liable to these attacks of pain, especially in hot, damp days, after standing or walking for any length of time. I learned to reduce the dislocation and obtain relief by treading heavily on the empty part of the toe of my left boot with the heel of my right, and then forcibly drawing the left foot back within the boot, at the same time elevating the toes against the "uppers." Both the displacement and the reduction were accompanied by a distinct click. This manoeuvre became necessary with more and more frequency, and the pain increased in severity until I had serious thoughts of having the toe amputated or the joint resected. At last, with the happy inspiration of Mark Twain's hero, who after twenty years' confinement opened his cell door and walked out, I discovered an equally easy means of escape. My boot, though quite comfortable when first put on, became too tight across the toes as soon as the foot became at all congested. Under this condition the last phalanges became jammed and fixed together, while the relaxed ligaments of the second joint of the fourth toe allowed the head of the second phalanx to drop and press painfully upon the nerves. I ordered a boot with plenty of room for lateral expansion of the toes, and I was at once freed from the attacks of pain which made my life a burden.

CASE II.—A gentleman recently consulted me on what he believed to be a soft corn between the fourth and little toe of the right foot. On examination, I could find no trace of the soft corn, but infantile paralysis had left his foot with slight talipes varus and marked pes cavus. The great toe was hyperextended and pointed outward at an acute angle from the metatarsal joint. The rest of the toes were crushed together in the form of a cone; the fourth toe was laterally flexed and almost hidden beneath the third. The calf muscles were wasted, and the limb was nearly three quarters of an inch shorter than the other. To counteract the shortening, he had worn for many years an extra three-quarter-inch heel inside his boot. The sole was not similarly raised, so he was compelled to walk in a downward plane, forcing his toes together at each step into his somewhat pointed and short boot. He suffered no inconvenience from these deformities until the beginning of the year 1891, when he acquired the habit of walking on the outside of his foot, bearing especially on the outer side of the little toe, in order to avoid resting his full weight on the ball of the great toe, which was unduly prominent and tender. In July, 1891, during a long walk, he was suddenly attacked by acute pain in the little toe. The sensation, he said, was as if a hot fusee were placed between his toes and were burning slowly outward through the little toe. From that time until I saw him three months later he had been constantly subject to these attacks of excruciating pain, and they had so increased in frequency and severity that he said he would have his toe amputated at once if he could not otherwise obtain speedy relief. He could wear a loose slipper with comfort, but on walking in a boot for even a few yards the pain occurred. It was not relieved by taking off the boot, but he showed me how, on gently pressing the tip of the little toe outward, the pain instantaneously ceased, the manoeuvre being accompanied by an extra sharp twinge of pain. Obviously his suffering

was due to slight inward displacement of the last phalanx of his little toe, and consequent stretching and compression of the nerves between the displaced bone and the adjoining toe. The treatment in this case was not so simple as in my own, owing to the various deformities of his foot. But, to make the story short, complete relief was obtained by a boot contrived on the following principles: Plenty of room was given across the toes, the little toe being especially relieved of all pressure. The outer side of the fore part of the sole was raised and the heel lowered, so as to throw his weight from the outer to the inner side of the boot, and to prevent forcing of the toes together. A graduated depression was made beneath the ball of the great toe in order to avoid walking on the downwardly displaced head of his first metatarsal bone.

Remarks.—These cases form additional links in the chain of evils attendant on wearing boots too tight across the toes. Patients will be probably loath to admit that a form of boot to which they have always been accustomed, and which they have regarded as both comfortable and elegant, can be the cause of their sudden attacks of pain. And the latter they will readily attribute to gout or rheumatism; for to the non-professional public, pain in a toe means gout, and pain elsewhere in a limb means rheumatism. Not only do the paroxysms of pain strongly resemble those of gout, but it is possible that the strained and unnatural position into which many force their great toes may account for the prevalence with which those parts become the primary seat of true gout.

**An Appreciative Notice of American Pharmaceutical Preparations.**—The *Lancet* for March 26th says:

Some years ago we had occasion to report favorably upon certain admirable products of this firm, and recently we have had submitted to us further interesting and new preparations, the results of the examination of which are well worthy of record. Liquid panerobilin, as its name indicates, contains the agents which prepare food for assimilation in the duodenum. It is a clear, syrupy, brown fluid, slightly alkaline to test-paper, and sweet at first to the taste and then persistently bitter. After acidulation with sulphuric acid, ether extracted a body which gave the well-known bile reaction with strong sulphuric acid and syrup (Pettenkofer's test). Emulsion of starch was readily liquefied, and slowly though distinctly converted. According to other reactions, the preparation contains glycerin and spirit. On suitable treatment, the panerobilin pills gave reactions confirmatory of the presence of both constituents—ox bile and pancreatin; while from the compound panerobilin pills—into the composition of which nux vomica, damiana, extract of colocynth, and quinine enter—the alkaloids of nux vomica and quinine were successfully extracted and identified. Lacto-preparata is described as artificially prepared human milk and sterilized, in which the tough character of the caseine is so modified that it will no longer coagulate into hard curds. It has probably therefore been malted or partly digested with diastase, for under the microscope a few cells of barley starch were recognized. On analysis, lacto-preparata gave the following results: Moisture, 1.7 per cent.; fat, 0.6 per cent.; mineral matter, 5.2 per cent. (mainly phosphate of potassium); sugars and albuminoids, 92.5 per cent. Lacto-cereal food is a somewhat complex mixture, and consists of partly digested milk powder, starch, dextrin, malted barley, desiccated bananas, cacao butter, and manna. It is characterized by a very agreeable flavor, and evidently contains a rich proportion of nourishing and probably easily digestible materials. Still more novel are the kuuysgen tablets made by this firm, which, when dissolved in water, yield a kind of effervescing kuuys (koumiss). The tablets consist of small cylinders which slowly dissolve in water with effervescence, and by putting twelve in a bottle of water provided with a screw stopper, an effervescent milk may be obtained. The liquid so prepared is sweet and resembles fresh milk. The greater part of the caseine is apparently in solution, as, on addition of acid, clots at once separate. These preparations furnish unmistakable evidence of the desire on the part of the manufacturers to place in the market products of a highly scientific kind, and, this being so, we may confidently recommend them to the notice of the profession.

**The Use of Gelatin Discs in the Eye.**—A paper was read before the Philadelphia County Medical Society on March 23d by Dr. John S. Stewart, Ophthalmic Surgeon to the Philadelphia Lying-in Charity, in

which he said that some excuse, perhaps, might be needed for bringing before the Society a subject which could be of practical interest to specialists of one department only; but it had occurred to him that a very brief account of one of the methods of applying medicaments to the eye, which, in his hands at least, had proved highly satisfactory, might be not altogether devoid of interest even to those engaged in other lines of work. He referred to the use of medicated gelatin discs, and would consider only the advantages of applying homatropine and cocaine to the eye by this means. Four years ago, in the article on Homatropine, published in the *Medical News*, he had called attention to the fact of having frequently observed an irritant action exerted on the deep structures of the eye by repeated applications of a watery solution of hydrobromide of homatropine. At that time it had been his belief that this irritation was the principal cause why ametropia could not be accurately estimated in very many cases where homatropine had been employed, and a considerable experience since in the use of watery solutions of the drug had tended only to confirm this opinion. That irritation was produced in every instance by this method of practice he did not pretend to say; but he was convinced that in all cases where there had been considerable and long-continued eye-strain, resulting from efforts to overcome particularly aggravating forms of refractive error, or where chorio-retinal irritation, due to other causes, existed, the homatropine as ordinarily used very often added to the intra-ocular disturbance, and thereby interfered with the attainment of the object for which it was employed—viz., the accurate estimation of the refraction of the eye.

Another objection which he had to the use of watery solutions of this drug was that a large proportion of the effect was expended on the nasal and pharyngeal mucous tract rather than on the eye, as intended. There was no doubt in his mind that both the irritant effects on the eye and the, at least, unpleasant ones on the nose and throat were directly due to the necessarily strong solutions employed—ranging, so far as he had been able to learn, from eight to twenty-four grains to the fluidounce—instilled in most instances a number of times within an hour.

It was said that medicated gelatin discs for ophthalmic use were first made in 1863 by Savory & Moore, of London; but, strangely enough, they had never been extensively used. About five months before, he had begun to try some of those made at the suggestion of Dr. C. A. Wood, of Chicago, by Messrs. Wyeth & Brother, of Philadelphia, and almost ever since, when he had had occasion to use homatropine alone or combined with cocaine for the purposes of refractive work, he had much preferred these discs to the watery solutions formerly used by him.

On first thought it might seem unlikely that a single disc, containing one fiftieth of a grain each of homatropine and cocaine, could exert sufficient influence on the accommodative power; but he had, in most instances at least, found as nearly complete paralysis of accommodation as he had ever been able to obtain with repeated instillations of two and three-per-cent. solutions of homatropine. The reason was not hard to discover. Absorption of the drug by the tissues of the eye took place about as rapidly as the drug itself could be liberated by the dissolving of the gelatin; but when a drop of solution had been instilled, a large proportion necessarily escaped with the tears, or, if it did not get away so quickly, was quite likely to produce in sensitive eyes the chorio-retinal irritation which so often interfered with obtaining the results for which the drug was used.

Very few of his patients who had had these discs in their eyes could detect any effect whatever in the nose or throat, and in these few instances the information was obtained only by questioning the patients on the subject.

In his practice at the present time, in all eyes suitable for the use of homatropine and requiring its use for the purposes of refraction, he was making use of discs containing one fiftieth of a grain each of homatropine and cocaine—either the hydrobromide and hydrochloride respectively, or the alkaloid. He had found it an advantage, but not always a necessity, in the case of most patients under twenty-five years of age, to insert a second disc of homatropine only (one fiftieth of a grain) into each eye as soon as the first was entirely dissolved—usually in about ten minutes. A small camel's-hair brush moistened served conveniently

to convey the disc to the eye, and, although it had been recommended to place the disc against the scleral conjunctiva—in the grasp of the lower lid—he much preferred raising the upper lid and inserting the disc beneath it, immediately above the outer canthus, then directing the patient to keep the lids lightly closed as in sleep, and to avoid winking until the discs were dissolved.

It had been urged against the use of the gelatin discs that the lids and eyes were thereby rendered very sticky and uncomfortable. His patients had not complained of this; but he thought the annoyance had been escaped, in large measure at least, by strictly following his injunction about keeping the eyes closed.

As to the reputed advantage of the combination of cocaine with homatropine, he had little to say. It was said, of course, that homatropine combined with cocaine dilated the pupil and paralyzed the accommodation more rapidly and effectively than homatropine alone, and that these results were more permanent. This seemed usually to be the case; but cocaine was used by him in these cases because of the quieting effect which it produced on most eyes, thus tending, in some measure at least, to overcome the irritant effect of the homatropine, and at the same time to facilitate the measurement of the ametropia.

On several occasions he had used the English preparation of Savory & Moore, of London; but he had no hesitation in expressing a preference for the Wyeth discs.

**The Iowa State Medical Society** will hold its forty-first annual meeting at Des Moines on Wednesday, Thursday, and Friday, May 18th, 19th, and 20th, under the presidency of Dr. George F. Jenkins, of Keokuk. The preliminary programme includes the following titles:

*Section in Practice of Medicine.*—Report, by Dr. Edward Hornbrook, of Cherokee; The Body Temperature in Health and Disease, by Dr. Gresham H. Hill, of Independence; Observations noted in Two Cases of Congestion, by Dr. C. S. Chase, of Waterloo; La Grippe, by Dr. H. A. Wheeler, of Onawa; Was it Scarlet Fever? History and Recovery, by Dr. J. P. Savage, of Sioux City; The Year's Progress in Bacteriology, by Dr. J. B. Ingels, of Meriden; The Pathology and Bacteriology of Tuberculosis, by Dr. M. N. Volding, of Independence; What is it? Why is it? by Dr. O. B. Harriman, of Hampton; Tuberculosis, by Dr. A. L. Wright, of Carroll; Hay Fever, by Dr. E. S. Blair, of Correctionville; Practice *vs.* Materia Medica, by Dr. H. Newell Sill, of Strawberry Point; My Experience in Intubation of the Larynx, by Dr. J. W. Kime, of Fort Dodge; Diphtheria, by Dr. C. M. Drumeler, of Panora; Pneumonia, by Dr. N. Agnew, of Storm Lake; The Rational Treatment of Inebriety, by Dr. A. W. McClure, of Mt. Pleasant; Atropine Poisoning, by Dr. J. M. Emmert, of Atlantic; Pneumonia as a Complication of La Grippe, by Dr. A. C. Bergen, of Sioux City; Diarrhœal Disorders of Children, by Dr. H. E. W. Barnes, of Macksburgh; Thrombosis and Embolism in Practice aside from Surgery, by Dr. Mila P. Sharp, of Storm Lake; Catarrh of the Bile Ducts, by Dr. F. W. Powers, of Reinbeck; A Case of Pulmonary Tuberculosis, by Dr. W. C. Bundy, of Aurelia; Diphtheria, by Dr. Milo Avery, of Aurelia; Antipyretics in Continued Fever, by Dr. R. L. Cleaves, of Cherokee; also papers by Dr. C. J. Hackett, of Le Mars, Dr. P. J. Farnsworth, of Clinton, and Dr. J. H. Divine, of Sioux Rapids.

*Section in Surgery.*—Report, by Dr. O. J. Fullerton, of Waterloo; Surgical Regeneration, by Dr. R. E. Coniff, of Sioux City; Intestinal Obstruction, by Dr. J. R. Guthrie, of Dubuque; Orthopædic Surgery, by Dr. J. W. Cokenower, of Des Moines; The Surgery of the Rectum, by Dr. Lewis Schooler, of Des Moines; Laparotomy, by Dr. A. J. Hobson, of Bristow; Oils and Fats in Surgical Dressings, by Dr. C. M. Hobby, of Iowa City; The Management of Compound Fracture, by Dr. A. B. Bowen, of Maquoketa; Resection of the Intestine, by Dr. P. M. Jewell, of Ossian; and a paper by Dr. T. J. Maxwell, of Keokuk.

*Section in Materia Medica and Therapeutics.*—Report, by Dr. J. M. Barstow, of Council Bluffs.

*Section in Obstetrics and Gynecology.*—Report—The Present Status of Obstetrics and Gynecology, by Dr. E. H. King, of Muscatine; Uterine Fibroids, by Dr. D. C. Brockman, of Marengo; Some Diseases of the Ovaries and Results, by Dr. J. C. Schrader, of Iowa City; Three Cases of Ovariectomy, with Comments, by Dr. H. L. Getz, of Marshalltown; The Effect of Higher Education on the Women of To-day, by Dr. J. S.

Braunsworth, of Muscatine; Reflections on the Present Status of Gynecology, by Dr. J. H. Kersey, of Stuart; Removal of the Uterine Appendages for Epilepsy—Case, by Dr. C. E. Ruth, of Muscatine; Uterine Polypi, with Report of Two Cases, by Dr. T. P. Stanton, of Chariton; An Epitome of Obstetric Practice, by Dr. H. R. Page, of Des Moines; and a paper by Dr. J. A. Scroggs, of Keokuk.

*Section in Ophthalmology and Otolaryngology.*—Report, by Dr. J. W. Dalbey, of Cedar Rapids; Corneal Ulcers, by Dr. F. E. V. Shore, of Des Moines; Methods of Middle-Ear Inflation, by Dr. J. M. Ball, of Keokuk; and a paper by Dr. Woods Hutchinson, of Des Moines.

*Section in State Medicine and Hygiene.*—Report, by Dr. Calvin Snook, of Fairfield; State Care vs. County Care of the Chronic Insane, by Dr. G. H. Hill, of Independence; Local Boards of Health, by Dr. G. A. Spilman, of Ottumwa; The Nature of Immunity against Infectious Diseases, by Dr. C. E. Stoner, of Des Moines; and a paper by Dr. C. B. Powell, of Albia.

*Section in Diseases of the Mind and Nervous System.*—Report, by Dr. P. W. Lewellen, of Clarinda; The Influence of Mind as a Cause and Cure of Disease, by Dr. R. Sears, of Marshalltown.

**A New Use for Aluminium.**—On the 8th of March letters patent were issued to the firm of A. A. Marks, of New York, for artificial limbs constructed in part of aluminium.

This metal, with its unlimited uses, seems to be peculiarly adapted for surgical appliances, instruments, and artificial limbs; its low specific gravity and its great comparative strength are qualities that are desirable to be combined in an artificial leg or arm.

There are amputations of the lower limbs that surgeons deem desirable to do, without sacrificing more of the member than the parts involved. We refer to amputations technically termed tibio-tarsal, tarso-metatarsal, and medio-tarsal. These amputations have always been in disfavor with artificial-limb makers, who have almost unanimously decried them, and in too many instances have persuaded the surgeons to sacrifice much of a healthy leg merely to obtain a stump that would better accommodate the artificial limbs that they were able to produce.

The new artificial leg constructed of aluminium, combined with the rubber foot, is adaptable to these amputations. The socket of aluminium incases the stump, and, on account of the strength of the metal, the socket does not increase the diameters of the ankle to an objectionable degree in order to obtain the requisite strength; the metal is cast into the proper shape to give ease and comfort to the wearer; the aluminium socket is terminated by a rubber foot, which not only simulates the natural foot, but provides a soft, springy medium to walk upon and a resistant phalangeal ball to rise upon while walking, running, or ascending stairs.

It is obvious that by this invention the amputation can be conditional upon the injury, and the artificial limb conditional upon the amputation. In this alone the invention of the aluminium and rubber leg will prove not only a boon to the one who has suffered the amputation, but the solution of a problem that has many times perplexed the operating surgeon, as it eliminates all the objections heretofore pressed against amputations in the region of the tarsus. The surgeon may thus rejoice in being able to observe the old and consistent law of amputating with the least sacrifice.

Aluminium also plays an important part in the construction of strong and durable artificial arms. The socket of an arm made of that metal is light and strong, and will enable the wearer to subject the artificial arm to severe uses without danger of destruction. It will not crack from overstrain like wood, it will not become soft and limp or foul from perspiration like leather; it is lighter than any other metal, and is amply strong for every purpose.

**The Histological Lesions produced by the Toxalbumin of Diphtheria.**—The following article, by Dr. William H. Welch and Dr. Simon Flexner, appeared in the *Bulletin of the Johns Hopkins Hospital* for March:

In a preliminary communication presented to the Johns Hopkins Hospital Medical Society, and published in the *Hospital Bulletin*, No. 15, August, 1891, we called attention to the histological changes in the organs of animals which had died of experimental diphtheria, following

the inoculation of pure cultures of the *Bacillus diphtherie*. Since then we have extended our investigations so as to include the study of the lesions produced by the inoculation of the toxic products of the diphtheria bacillus. This study virtually finishes the work we have undertaken, and it is hoped soon to publish our results in detail. However, in order to make our preliminary communication complete, we append this report.

The toxic products of the diphtheria bacillus with which we have operated were obtained by filtering through a new and sterilized Chamberland filter a culture of the organisms in glycerin bouillon several weeks old. The fluid so obtained was tested by means of cover-slips and inoculations on glycerin-agar, and proved to be sterile.

Guinea-pigs were used for the experimental inoculations. The sterile culture fluid was introduced subcutaneously into the tissues of the belly wall. The method pursued will be given in connection with the case of which the lesions are to be described. This guinea-pig received on the 10th of December, 1891, 1 c. c. of the filtrate. Not having succumbed, on December 14th it received 2 c. c. more. The animal died on January 5, 1892, the duration of life since the first inoculation having been three weeks and five days, and since the last, three weeks and one day.

At the autopsy the vessels of the subcutaneous tissues were injected, and hemorrhage had taken place into the tissues of the axillary and inguinal regions. The subcutaneous tissues were moist, but there was no actual oedema present. Neither was there a visible area of localized inflammation. There was no microscopical examination made, however. The lymphatic glands of the axillary and inguinal regions were enlarged and reddened; the cervical lymph glands were swollen, and the thyroid gland was greatly congested.

There was a considerable excess of clear fluid in the peritoneal cavity. Both layers of the peritoneum were reddened, the vessels of the visceral layer being especially injected. The spleen was enlarged to double the average size. It was mottled, and the white follicles were distinctly outlined against the red ground. The liver was dark in color and contained much blood. On the surface a prominent yellowish-white area, 2 mm. in diameter, surrounded by a zone of hyperæmia, was observed. Smaller dot-like points of the same color and general appearance were seen elsewhere in the liver. The kidneys were congested, and the cut surface was cloudy. The adrenal glands appeared normal, as did the mesenteric glands.

The pleural cavity did not contain such a marked excess of fluid. The pericardial sac, however, was distended with clear serum. Under the epicardium were many ecchymotic spots. The lungs exhibited areas of intense congestion, or actual hemorrhage into the tissues. The glands of the thorax were, perhaps, swollen.

The examination of frozen sections showed the heart muscle to be slightly fatty. The epithelium of the tubules of the kidney was extremely granular and much swollen, but not fatty. The liver was very fatty; the lighter areas and dots were seen to correspond to foci of dead liver cells, whose refraction was much greater than that of the normal cells.

Cultures were made from the blood and organs of the animal, and they remained sterile. Cover-slips were also examined and no organisms found.

The histological lesions observed in this case are identical with those described by us in connection with the inoculation of the living organisms. Lymphatic apparatus: In general, the changes are the same throughout. They are found in the greatest intensity in the glands of the axillary and inguinal regions, and less in the bronchial, cervical, mediastinal, and mesenteric glands. Yet these are considerably affected. The same fragmentation of nuclei, affecting the lymph nodes and sinuses, is met with. These fragments exhibit the variety of form previously described by us, and they have the same affinity for coloring agents. Much of the nuclear detritus is free, but a part is contained within large pale cells. In the spleen there is a similar diffuse fragmentation of the nuclei of the spleen cells. Both the lymphoid cells of the follicles and the larger cells of the sinuses are affected. Like the lymphatic glands, some of the nuclear detritus is inclosed in large cells. Besides the destruction of cells in the spleen there is hemorrhage into the organ, or an extreme degree of congestion, so that the tissue elements are widely separated from one another. Nuclear figures

occur in the lymph glands and spleen. In the former they are found among the fragmented cells.

Stained sections of the liver, especially those stained in methylene-blue and eosine, show the yellowish-white areas to be composed of hyaline, necrotic liver cells. The necrotic cells stain deeply in the eosine, and they are usually devoid of nuclei. They form, on the whole, more or less definite foci of hyaline cells, into which leucocytes have wandered. The largest area was 2 mm. in diameter, and the outlines of it were formed by hæmorrhage into the tissues, corresponding with the hyperæmic zone spoken of above. The cells in this focus have lost their nuclei, and they are intensely refractive. Many of the dead cells have retained their individuality, and, indeed, their borders are more distinct than those of the normal cells. Others, however, tend to become fused together and to lose their individual cell outlines. Occasionally, outside the main focus of hyaline cells, single necrotic cells occur which are surrounded by quite normal ones. Many leucocytes have wandered into this area of dead cells, and they are especially abundant at one place in the focus in which the hyaline and necrotic cells are in process of disintegration. An exquisite nuclear fragmentation is to be observed throughout this area.

Should the focus just described be compared to many similar foci which occur in the livers of animals dead of inoculation with the bacilli themselves, it will be seen to contain more leucocytes (polynuclear) within it. The explanation of this fact would seem to depend somewhat on the incubation time, but more on the progression or stage of the necrotic process. Inoculation of the bacilli usually leads to death in a very short time, often in twenty-four to forty-eight hours. In this inoculation with the toxic products alone the incubation period exceeded three weeks. On account of this, time has been allowed for the softening and disintegration of the dead cells, and leucocytes have been strongly attracted to these foci.

In the kidneys, besides the condition described in the frozen sections, a slight fragmentation of the nuclei of the epithelium of the tubules is encountered. The lungs exhibit areas of hæmorrhage into the alveoli, and in many of these there has been a desquamation of the alveolar epithelium. Sometimes the desquamated epithelial cells are quite normal in appearance, while at others they have fragmented nuclei. The collections of lymphoid cells around the medium-sized and larger bronchi show, however, more cells, the nuclei of which have suffered in this way.

The blood-vessels of the tissues generally contain fewer leucocytes in this instance than in those cases in which the bacilli were introduced beneath the skin. By the latter method an intense local inflammatory process is provoked, associated with the emigration of large numbers of polynuclear leucocytes. In the former, in which the filtrate, free from organisms, is used for inoculation, the local process is reduced to *nil*, there is no emigration of leucocytes, and the disease is general from its inception. This difference is sufficient to account for the occurrence of leucocytes in the one case and its absence in the other.

It may be considered as established now that the toxic products and not the bacilli themselves invade the tissues in diphtheria. This fact would at once suggest that the general lesions (those produced at a distance from the seat of inoculation in animals, and the situation of the local process in human beings) were the effects of the soluble poison diffused through the body. Hence it was desirable to demonstrate this assumption experimentally; and it is not unimportant to know that the lesions in the tissues produced by the bacilli and the toxic principle on the one hand, and the toxic principle alone on the other, are in perfect correspondence with each other. And, moreover, it would seem not to be superfluous to emphasize the occurrence of definite focal lesions in the tissues of the body, produced by a soluble poison circulating in the blood.

**Artificial Teeth from a Hygienic Point of View.**—"It is common experience among dentists," says the *Lancet*, "that a very large majority of artificial dentures worn are discolored and by no means devoid of unpleasant odor. This lack of cleanliness, which arises sometimes from neglect, but often from want of instruction on the part of the dentist as to the necessary *modus operandi*, is a fruitful cause of inflammatory conditions. Debris of food mixed with saliva and mucus

accumulating on a plate rapidly undergo decomposition, with the result of irritating the mucous membrane and producing a general inflammation of the oral cavity. The oral secretions become altered and vitiated, so as to cause dyspepsia, and caries of the remaining natural teeth is set up, which proceeds with great rapidity, especially in 'clasp' dentures, not from the friction, but because the inside of the clasps most generally escape the brush. The materials used in the construction of artificial dentures differ widely in their effect upon the tissues with which they come in contact. A larger number of cases of inflammation of the oral tissues occur where vulcanite is used as a basis than with gold or other metals, and so prevalent is this inflammation in the case of vulcanite that it has received the distinctive appellation of 'rubber sore-mouth.' Several reasons have been assigned for the effects produced by vulcanite. Nearly all this material is colored with mercuric sulphide (vermilion), which ingredient has been accused of being the cause of trouble; but an exhaustive investigation did not substantiate this view, one particular point being that 'rubber sore-mouth' often occurred where black rubber was used, which contains no vermilion. The porosity of vulcanite, especially when not sufficiently vulcanized, renders it liable to retain deleterious material if not kept scrupulously clean."

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

Original Communications.

STATISTICS OF  
OPERATIONS UPON TUBERCULOUS HIP JOINTS.\*

BY CHARLES T. POORE, A. M., M. D.,

SURGEON TO ST. MARY'S FREE HOSPITAL FOR CHILDREN, NEW YORK.

THE following paper is based upon sixty-seven cases of tubercular disease of the hip joint occurring in children from three to fifteen years of age, being all the cases operated upon from 1873 to January 1, 1892, and occurring in hospital practice.

Sixty-five joints were excised; in five, erosion was performed; in eight cases the trochanter major was trephined; and in eleven cases the central cavity of the femur was cleaned out. In all the cases of excision the disease was more or less pronounced, and always accompanied by abscess.

It has been the rule to open all abscesses as soon as discovered, and explore the joint if the disease is marked; the parts were scraped or excised, and of late all tubercular tissue has been removed as thoroughly as possible.

The joint was entered in fifty-one cases by the old excision over, or behind, the trochanter major and the diseased parts were removed. In the earlier cases the upper part of the femur was thrown out through the wound and the parts divided with a saw. Later, the bone has been divided *in situ* with a sharp osteotome and the head and neck then removed; the disturbance of the soft parts is much less by the latter method.

For the last eighteen months I have used the flushing gouge advocated by Mr. Barker, of London. It consists of



a Volkmann's spoon, with a perforation through the handle and opening in the bowl of the spoon. The dotted lines in the cut represent the perforation. The other end of the metallic portion protrudes beyond the handle, and is provided with a button for the attachment of a long piece of rubber tubing; it has also a binding screw for the purpose of clamping the end of the tubing to the button. The instrument was copied from a cut in the *British Medical Journal*, 1889, vol. i, p. 123, the only changes being the addition of the binding screw and the omission of the cut-off.

A long piece of India-rubber tubing, attached to the end of the gouge, goes to a vessel of sterilized water, in which is dissolved some boric acid; the vessel is raised higher than the operator, so as to give force to the current. As the infected tissues are scraped away by the spoon, they are swept out of the wound by the flow of water; further, the hot water tends to control hemorrhage. I have found that this instrument affords a ready means to scrape and clean out, not only joint, but abscess cavities.

In all recent cases the capsule and all infected tissues have been removed as thoroughly as possible, the acetabulum scraped, and carious bone about its rim removed. The parts were then flushed with mercuric solution (1 to 1,000), the wound partially closed with deep and superficial sutures, leaving a large opening leading to its deepest portion; this was stuffed with iodoform gauze, and over this the usual bichloride dressing. I have never seen any advantage in closing up entirely the wound, or only leaving a small opening for a drainage-tube. Whenever it has been done, suppuration and an accumulation of tubercular tissue in the cavity left by the removal of bone has followed. It is difficult to get away all infected tissue, and I doubt whether it is ever accomplished; and a good, free exit for such material is an advantage. I have also discarded the use of drainage-tubes, trusting to ample openings and iodoform gauze, and I think that my wounds have acted better since adopting this method; at least there has been less after-ereetting than formerly. There is another point gained by this method, and, that is, we get a good firm cicatrix above the truncated shaft which not only binds the femur to the pelvis, but also prevents, to some extent, the riding upward of the shaft when any weight is borne by the limb.

In fifteen cases access was gained to the joints by an anterior incision (Schede) made "on the outer side of the crural nerve, a little below and half an inch internal to the anterior superior spine of the ilium, and passing vertically downward four or five inches. The internal border of the sartorius is first exposed, then the rectus, outer border of the ilio-psoas muscle," or the incision may be made from the outer side and just above the anterior superior spine of the ilium downward on to the capsule of the joint. I think that the latter incision gives more room. The advantages of this incision are many: it readily exposes the joint without much disturbance of the soft parts; it gives a better view of the capsule, bone, and surrounding tissues. The joint can be cleaned out more readily than by the lateral incision, and it is the only method by which an erosion can be done without great displacement of the head and neck.

I have adopted it in all cases except those in which there are extensive sinuses behind and below the hip, or where there is reason to expect profound changes in the articulation. If, after gaining access to the joint by this method, a lateral incision is demanded, it can be made without any disadvantage to the patient. In regard to drainage after this way of reaching the joint, if thought necessary, a rubber tube can be passed out behind; but I have seldom used one. Thorough enretting and flushing out with hot water with partial closing of the wound and stuffing the rest with iodoform gauze has, in the majority of cases, prevented any accumulation of matter. If the case seemed to demand better drainage I would prefer to make an ample incision behind the joint and then keep it opened with iodoform gauze, discarding the use of a drainage-tube.

In my early operations the wounds were stuffed with balsam of Peru and oakum, then carbolized gauze was used; now all wounds are dressed with iodoform gauze.

\* Read before the New York Surgical Society, December 24, 1891.

In the early cases considerable elevation of temperature was the rule, in the later the exception; in the former class considerable suppuration always followed the operation; in the latter it has been much less, and, in some cases, entirely absent, depending upon the amount of disease and the thoroughness with which infected tissues could be removed. In many old-standing cases a comparatively clean operation is an impossibility, and suppuration, often profuse, must be expected, and in this class the advantage of a large drainage opening is great as affording ample room for the escape of pus and infective material.

The after-treatment is as follows: As soon as the patient is returned to bed, extension and a long splint extending from the axilla to the middle of the leg is applied, so as to keep the limb at absolute rest, and these are kept on until the wound has closed, the packing being removed and reapplied as often as required. Considerable oozing and bloody serum will saturate the dressings for a day after the operation, but after that, if the case goes on well, the discharge is slight. If at any time tubercular granulations make their appearance, the patient should be placed under ether and the parts thoroughly everted, any suspicious point being removed, either in the bone or soft parts.

If there are abscesses in the soft parts about the diseased joint, their cavities should be thoroughly everted with a flushing gouge and drained independently of the joint cavity if possible.

*Statistics.*—In sixty-four cases only one joint was involved, and in three both.

The head and neck were removed in thirty-six cases, and in twenty-four the section was made below the trochanter major. The head alone was removed in seven cases.

There were extensive bone lesions in thirty-six cases, while in the remainder the disease was limited to the head alone.

The condition of the parts removed varied from extensive infiltration and softening of the bone, with perforation of the acetabulum, to simple caries of the head or tubercular abscess.

In fifteen cases loose bone was found in the cavity of the acetabulum, and in seven the head of the femur was detached. In five of the latter cases the operation consisted only in the removal of the loose head and curetting the cavity. In four cases there was pathological dislocation of the head of the bone, or what remained of it, on to the dorsum of the ilium, and in three of these the end of the femur was ankylosed in this position, dead bone being imprisoned by the new tissue forming the bond of union between the shaft and the pelvis.

In eleven cases the acetabulum was perforated, and in nine intrapelvic abscesses were present. In one case the gut and bladder were perforated by the abscess; in one only the gut, at what point could not be made out, but it was probably low down, as in one well-formed faeces passed out through the wound, while in the other water passed from the perforated acetabulum out through the anus.

Secondary abscesses formed in quite a number of cases, especially those in which the wound had been closed by sutures and drainage-tubes used.

In ten cases the end of the bone had to be re-excised

after some time, and in thirty-five cases old sinuses everted on account of the appearance of tubercular granulations.

Simple erosion has been performed in five cases, and by this I mean that the joint has been opened by the anterior incision, the capsule removed as thoroughly as possible, but no bone operation of any magnitude done, the flushing gouge and scissors being alone used. Of these, only two patients have recovered without a regular excision, the remaining three coming to that operation.

The ultimate result in sixty-six cases is as follows. By cure is meant that all sinuses have closed and there is no symptom of trouble about the hip; by relieved, that sinuses are open:

There were thirty-two children discharged *cured*, twenty-five died, three discharged relieved, two discharged not improved, and four in the hospital.

Of those discharged relieved, in one the ultimate result is unknown, one died from causes not connected with the joint, and one, when last heard from, was evidently affected with amyloid degeneration.

Of those discharged not improved, one died shortly after leaving the hospital, and in one the result is unknown.

Of the cause of death, fourteen died from amyloid degeneration, one from amyloid degeneration and peritonitis, two from general tuberculosis, one from acute nephritis, one from septicaemia, one from heart failure, one from oema (uraemic), three from meningitis, and one from exhaustion.

In three of the fatal cases the wound was soundly healed and the children had the use of the limb some time before their death.

In one case the knee joint on the opposite limb had to be amputated on account of advanced disease of that articulation. The time that elapsed from the time of operation to the date of death varied from one day (the case of heart failure) to five years, the average being seventeen and a half months.

Of the cases of perforation of the acetabulum, seven patients died and four recovered.

Of the two patients with perforation of the gut, one died from heart failure soon after the operation; the other recovered and has had no further trouble. He has been out of the hospital for three years, and is well.

*Shortening.*—There are two factors going to make up the amount of actual shortening of the limb:

1. That dependent on the disease—atrophy and arrested growth.

2. The amount of bone removed.

The first may amount to more than that due to the real shortening of the femur from the removal of bone. Thus, in a case not operated upon, the limb, after ten years, is three inches shorter than the sound one.

Second, that due to the amount of bone removed. This is always equal at least to the extent to which the shaft is shortened, depending upon the point of section.

There must be some loss in the actual length of the limb, even when the head alone is removed.

I can only find the shortening recorded in fifteen cases,

and at the time of discharge from the hospital it was as follows:

In three cases it was three quarters of an inch, in five an inch, in two an inch and a quarter, in two an inch and a half, in one an inch and three quarters, in one two inches, and in one four inches.

There is another factor that contributes much to the difficulty in walking, and that is the riding upward of the end of the femur upon the pelvis when any weight is borne upon the limb and increases practically the shortening. This riding upward is due to the loose connection of the end of the femur with the pelvis. It sometimes amounts to more than the actual shortening, as measured from the anterior superior spine of the ilium to the malleolus, but it varies much in different cases. I depend upon two factors—first, when the section is made; and, secondly, the amount of cicatricial tissue formed about and above the truncated shaft of the femur and its condition. If only the head of the bone has been removed, the neck, unless it has been pulled away by too heavy an extension weight, will be confined in the cavity of the acetabulum by new connective tissue, and no riding upward can take place. On the other hand, if all the neck has been removed, and, further, if section has been made between the trochanters, there is nothing to prevent this displacement every time weight is thrown upon the limb but the amount and condition of cicatricial tissue around and above the end of the bone. For this reason I think that the more of this kind of a buttress is formed above the point of section, and the more compact it is, the more useful will the limb be. Therefore no attempt should be made to obtain immediate closure of the whole wound. It may appear to be more brilliant surgery, but, from my own experience, it is a detriment to the patient. There is another practical point—namely, not to keep the end of the bone away from the line of acetabulum by too powerful extension, or the cicatricial tissue formed will afford too lax a bond of union between the end of the bone and the pelvis, and a flail-like joint will be the result. A strong hip splint should be worn for at least one year after a cure, in order to prevent the new-formed tissue from being elongated.

Of the patients discharged cured, the present condition of twenty-three is absolutely known: One is well eighteen years after discharge; one is well eleven years after discharge; two are well nine years after discharge; one is well seven years after discharge; two are well six years after discharge; one is well five years after discharge; one is well four years after discharge; one is well three years after discharge; four are well two years after discharge; nine are well one year after discharge.

The amount of shortening in some of these cases has increased, while in others there has been but little, if any, change. One patient at the time of discharge had one inch shortening; in eight years it has increased to two inches and a half; one patient at time of discharge had an inch and a quarter shortening, in eighteen months had an inch and three quarters; one patient at time of discharge had an inch and a half shortening, at the end of six years two inches and half shortening; one at time of discharge had an inch and a half, at the end of one year an inch and a half; one

at time of discharge had an inch shortening, at the end of five years had an inch and a half; one at time of discharge had an inch shortening, at the end of two years had an inch and a half; one at time of discharge had an inch shortening, at the end of eighteen months had an inch; one at time of discharge had three quarters of an inch shortening, at the end of three years had an inch and a half; one at time of discharge had four inches shortening, at the end of fourteen years had seven inches shortening.

In the patient who at the time of discharge had four inches shortening, at least half of this was due to atrophy of the limb and arrest of growth. He now has seven inches shortening. For a time he wore a high shoe and would get along with but little difficulty, but he has discarded its use, and now goes about with the aid of a crutch. He is able to bear his weight on the limb and has considerable power over it.

The usefulness of a limb after excision of the hip joint depends chiefly upon the strength and firmness of the attachment of the end of the femur to the pelvis; the shortening, provided it is compensated for by a proper high shoe, is not the main impediment to easy walking.

Among the lower classes it is often impossible to prevail on the parents of these children to provide and keep in repair a high shoe, and they go about either walking on their toes with the foot in a position of talipes equinus, or, if the deficiency is great, with a crutch or cane, so that the best result of the operation is not obtained.

In those cases where much bone has been removed and where extension has been so great that the bones have been kept far apart, there is great danger that a flail-like joint will result, with no power in the limb to bear weight; a crutch is a necessity. On the other hand, if the parts have been kept in good apposition—that is, the truncated end of the femur well up—a flail-like joint is the exception. Some of my cases, I know, use a crutch; a few from necessity, but with most of them it is due to the fact that they have discarded their high shoe.

There is always some limp, a sinking down of the side of the body on which the operation has been performed, due often to the instability of the support. Notwithstanding this, most of them are able to get about without discomfort. In some cases there is no riding upward of the shaft, while in others it is the chief cause of the difficulty in walking. In many cases most of the normal motion of the limb can be performed while the patient is on his back, while in others flexion is difficult. The limb is certainly not so good as one ankylosed at a proper angle. A successful erosion gives as good a limb as after a cure by the expectant method of treatment.

Cases in which the acetabulum is perforated are not hopeless, provided good drainage is afforded, and this can only be obtained by an excision, the section being made below the trochanter major, no matter what may be the condition of the head. The presence of anyloid degeneration is not a contra-indication to excision, but rather an indication for it, provided the soft parts are not completely riddled with abscess and the bones profoundly diseased; in such a case an amputation affords the best chance for saving

life. Disease of the pelvic bones is of grave import, and these cases usually terminate fatally in my experience.

There are two operations connected with disease of the hip joint that I wish briefly to refer to—namely, trephining the trochanter major and neck, and cleaning of the medullary cavity of the femur.

Macnamara and others, a few years ago, drew attention to the fact that it was possible in cases of hip-joint disease beginning in the neck to trephine the neck through the trochanter major, and either remove the point of disease or afford drainage to the bone, and thus prevent the joint from being infected.

I have performed this operation upon eight children. The indications are symptoms pointing to disease beginning in the bone, such as painful spasm and night cries, the articulation itself not being involved.

The operation is easily performed by making an incision over the trochanter major, and then applying a three-eighth-of-an-inch trephine, so as to perforate the center of the neck as far as possible without entering the joint.

This is then flushed out with mercuric solution, a small Volkman spoon passed in to discover if possible any soft point, then a drainage-tube and iodoform, and, over all, the usual dressing applied.

In four cases diseased bone was found; in the other none. The immediate effect of the operation is always to stop night crying and spasm, and diminish the tenderness about the joint. The ultimate results were as follows: In two there was no return of any disease; the patients made a rapid recovery and have remained well ever since. The six other cases came to an excision, the pain after some weeks returning and the disease following its usual course. In the two patients discharged cured their histories were such as to leave no doubt as to the nature of the disease—articular osteitis. In some of the other cases I am now satisfied that the joint was involved at the time of the operation, and that it had been delayed too long. Recently I opened an abscess on the outer aspect of the thigh in a case in which I had trephined the neck two months previous. On tracing up the abscess, it was found that it had its origin in the trephine cavity, and from it protruded tubercular tissue; with a small spoon tubercular bone was removed. It is reasonable to suppose that the tubercular foci in the bone were finding an outlet through the trephine opening, and not into the joint. I think that my error has been in not operating earlier. The operation is certainly devoid of danger.

*Cleaning out the Central Cavity of the Femur.*—In some cases of joint disease, after the removal of the head and neck, the cut surface of the shaft presents a dark appearance, the bone is soft and infiltrated, the periosteum is thickened and easily detached, so that the whole shaft can be easily forced out through the wound, leaving the periosteum intact. If the medullary cavity of the femur is reached by the section, it is found filled with dirty, dark-colored material; the external shell of the bone is thinned, of a dark color, and soft. In cases where this condition exists the upper portion of the wound may do well, but a sinus, often several, will persist, through which the cut end of the

femur can be felt more or less eroded and from which the periosteum has retracted. If the wound is opened and a section made farther down, the same unhealthy condition will be found, and in a short time the cut end of the femur will present a condition and appearance the same as before. The wound will seldom close, and after a time amyloid degeneration shows itself, followed by a fatal termination. Since 1884 I have in all such cases made an opening into the shaft of the femur on its outer aspect just above the knee joint. Exposing the medullary cavity, a long probe, to which is attached a piece of silk thread and to this a long strip of iodoform gauze, is drawn through the whole length of the cavity in the bone so as to thoroughly remove its contents; it is then flushed out with bichloride solution, iodoform dusted in, a drainage-tube inserted in the lower opening, and the wound in the soft parts closed, except where the drainage-tube protrudes. The result of this operation is that all the diseased tissue is removed from the medullary cavity of the femur, and, unless there are other causes at work, the wounds close and recovery follows.

In twenty-one cases this condition of the shaft of the femur was found; in eleven, the central cavity was cleaned out, and in ten no operation was done; in the ten latter cases, eight patients died and two recovered. Of the eleven patients treated as above described, two died and nine recovered, one of the patients dying from heart failure twenty-four hours after the operation; the other, three years later, from amyloid degeneration, the femur giving no further trouble. By recovery is meant that the excision wound healed.

In one of the cases of recovery the whole shaft became enlarged, but has never given any discomfort.

## ERUPTIONS FROM IODIDE OF POTASSIUM,

WITH REPORT OF

A CASE OF DERMATITIS TUBEROSA FROM THE IODIDE.\*

BY GEORGE D. HOLSTEN, M. D.,

ATTENDING PHYSICIAN FOR DISEASES OF THE SKIN,  
BROOKLYN (E. D.) HOSPITAL DISPENSARY.

THE study of eruptions produced by the ingestion of various drugs has made rapid advances during the past few years. Among these drugs iodide of potassium occupies a prominent position, both on account of its frequent employment and because of its tendency to produce eruptions, whether given in large or small doses, or for a long or short period of time.

Iodide of potassium may produce a great variety of eruptions, the recognition of which becomes of importance, as the drug is employed so frequently in syphilitic as well as other affections, and failure to distinguish between a syphilitic or other eruption and one caused by the iodide may be of serious consequence to the patient.

The history of a case lately under my care is as follows:

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G. H., aged sixteen months, was taken sick with symptoms of coryza, followed by bronchitis, for which, among other remedies, a saturated solution of iodide of potassium, two drops every two hours, was ordered on April 5th. On the 8th an eruption of small, isolated, conical-shaped, light reddish-brown papules appeared on the face and extremities. The eruption increased in amount and the individual lesions in size. I first saw the case on April 23d. During this time the general health of the child had improved; the coryza and bronchitis had disappeared, the appetite had returned, and, except for the eruption, he was entirely well. The iodide had been continued up to about a week before I first saw him, and altogether less than a drachm and a half of the drug had been taken.

The lesions appeared on the face and extremities, none on the body. On the face they were on both cheeks and a few on the forehead; there were also a few small spots on the sides of the neck. Both arms and forearms from shoulders to wrists were occupied by lesions, as were also both lower extremities from hips to ankles. The hands and feet were free. On the legs the lesions were equally numerous on the posterior as on the anterior surfaces, while on the thighs only the anterior surfaces were affected, and much less than the legs, as regards both number and size of the individual lesions. The upper extremities showed more lesions on the arms, both posteriorly and anteriorly, while on the forearms the lesions were few.

The eruption was observed in all of its stages of development, from a small pin-head papule to a lesion an inch in diameter and half an inch in height. The eruption began as small elevations on the skin, most of them being of nearly normal color; others slightly pinkish and some white. To the touch they felt solid, and were movable with the skin, but gave the impression of being deeply seated. There was no surrounding erythema. Lesions beginning as vesicles or pustules were not seen.

As the papules became larger they began to flatten on the top, the border became smoothly rounded, the entire lesion was raised above the surrounding skin, and the surface was smooth and shining; the color varied from pink to yellowish-brown. When the lesions reached the size of a split pea the surface would become studded here and there with minute whitish specks, more numer-



FIG. 2.

of thin white fluid exuded. The largest of these tumors was on the outer side of the left leg (Fig. 1) and measured about an inch and a half by an inch, and over half an inch in height. It was oval in shape, the surface smooth and shining, and of a dark-red color. This was studded with a large number of these minute pustules. Pressure over the growth did not squeeze out any

fluid, but on puncturing these individual specks, minute drops of whitish fluid exuded.

Two days later all of the lesions, and especially the smaller ones, had increased very much in size; some had doubled; otherwise their appearance was as before.

On the 27th of April the smooth covering of the growth on the leg had come off, on removal of a mercurial plaster which had been applied, and small openings discharging pus were present; several days later this tumor presented a fungating appearance, being composed of small, round, dark-colored, fleshy projections, between which pus welled up on pressure. These fleshy projections bled easily on being touched. Several of the other growths on this left leg went through the same process as this one just described, but remained smaller in size.

The accompanying photograph (Fig. 2)—taken May 6th, a month after the iodide was first given, and more than two weeks after its cessation—shows several minute lesions on the legs which have appeared during the past week. These, beginning as papules, soon after formed a tiny vesicle on each of their apices which in a day or two changed into a pustule, but the solid character of the lesion beneath always remained evident.

The large lesions on the leg had assumed a fungoid or cauliflower appearance; the papillary growths were bathed in pus, which welled up alongside of them, and they bled easily on pressure or handling.

A week later the larger lesions on the face had become distinctly flatter, looking like patches of roughened leather set on the skin.

The treatment used in this case was: On the lower extremities, first a mercurial plaster, but this was soon discontinued and the growth destroyed by repeated applications of dichloroacetic acid. To the face, applications of ichthyol in watery solution were made, using at first a six-per-cent. solution which was subsequently increased to thirty per cent. This was also applied to one arm. As the lesions on the face and upper extremities were nearly the same as regarded size, appearance, and character, the right arm was left untreated for some time in order to observe the natural course of the disease and for purposes of comparison.



FIG. 1.

us around the periphery of the papules. These specks varied in number, being proportionately more numerous on the larger lesions, although there were some on which no such white specks could be seen. On puncturing these specks a minute quantity

of pus was exuded. In every instance the lesions treated with ichthyol solution healed more rapidly than those not so treated. Some of the lesions were also treated with salicylic acid in ointment and also in collodion, but, while this

removed the horny portion of the epidermis, it had no effect on the deeper portion of the lesions. The involution of the smallest lesions, which were not treated, was very slow. The action of the dichloroacetic acid was not altogether satisfactory; the amount of tissue destroyed was superficial, making repeated applications necessary. As the lesions extended deeply into the corium, scars were a natural sequence, but, as they now are smooth and show no tendency to contract, that feature offsets the superficial action of the acid.

The most usual form of eruption produced by iodide of potassium is one resembling ordinary acne, but differing slightly from that disease in appearing not only on the face, shoulders, back, and chest, which are the seat of acne vulgaris, but also on other portions of the body—the extremities—and in the individual lesions being smaller and without induration; in the contents being thinner in consistence and the tops more acuminate—differences, though very slight, still sufficient to cause an inquiry as to whether the iodide had been taken or not. They also resemble the acneform eruption of bromide of potassium, but are slightly smaller; the reddened base is generally absent, but when it exists the pustules are more acuminate than in bromide acne.

Vesicular and bullous eruptions are among the rarer forms of skin lesions. The vesicles may be preceded by an erythema, as in a case of Bérenquier's (1), in which numerous small discrete vesicles seated on a bright scarlet surface had appeared suddenly.

The bullous form is more infrequent than the vesicular. Morrow (2) has reported an interesting example seen by him at Charity Hospital, in a man aged fifty, who had, three days after beginning the use of the one-in-two solution of iodide of potassium, a drachm three times daily, an erythematous condition of the face with vesico-pustules. The drug being continued, the dermatitis increased and the vesicles developed into bullæ. Ten days later the face and neck were bright red and swollen, and the integument was infiltrated; the eyelids were œdematous, preventing the eyes from being opened, and the ears were swollen and covered with crusts from ruptured bullæ; the forehead was thickly studded with pustules. On the dorsal surface of the hands and wrists there were several bullæ, one on the right hand being as large as a pigeon's egg and surrounded by smaller ones. The mucous membranes were free.

McGuire (3) has reported a case of bullous eruption due to iodide of ammonium. After about twenty grains of the drug had been taken a vesicular eruption appeared on the scalp, face, and shoulders, which disappeared in a few days on discontinuing the medicine. Two weeks later the iodide was again given, and after four doses—in all, five grains—had been taken, the eruption reappeared and attained its maximum development in ten days after the drug was finally discontinued.

The special characteristics of this form are the development of bullæ of varying size, commingled with vesicles and pustules. Usually beginning as minute vesicles on an erythematous surface, they increase rapidly and develop into regularly rounded or globular bullæ, which may remain single or coalesce with neighboring ones until they attain

an enormous size. All portions of the body have been the seat of this bullous form.

Besides the varieties already mentioned, others have been seen and noted, such as an erythematous form occurring usually on the forearms, face, and anterior surface of the chest, either diffused or in discrete and irregular spots, or in circumscribed patches.

Rugg (4) reports a case in which, after four grains had been taken every four hours for several days, large red papules, with a shotty feel, came on the wrists and forearms, and from this a uniform erythema, followed by free desquamation, spread all over the body.

The erythematous form may subside in a short time or become intensified and develop into a papular or urticarial form, which may be general over the body, but is more usual on the hypogastrium and extremities; it is said to differ from ordinary urticaria in being brighter—of a rose-red—and of more exaggerated development.

Taylor mentions a case in Charity Hospital in which the urticarial eruption was confined to the face, the neck, and the backs of the hands and wrists; it was always reproduced after a few fifteen-grain doses of the drug, and vesicles usually appeared on the tops of some of the wheals within forty-eight hours.

A purpuric or hæmorrhagic form was first described by Fournier (5), who regarded it as rare, having seen only some fifteen examples. It has also been reported by Vidal (6), T. C. Fox (7), Stephen Mackenzie (8), and others. Mackenzie's case was that of a child who died after two grains and a half had been taken in a single dose. Silcock (9) reports a case in which the purpura disappeared upon the administration of arsenic, to reappear when that remedy was discontinued. In a case of Kuess's, hæmoptysis and metrorrhagia also occurred. Morrow (10) redeveloped the purpura four different times, thus proving its relation to the iodide. It was reproduced within forty-eight hours by five-grain doses of the drug.

Fournier describes this eruption as consisting of discrete, miliary, millet-seed-sized to lentil-sized spots, usually rounded, more rarely oval or discoid in form. Its seats of predilection are the legs, more especially the middle three fifths, avoiding the knees and feet, and it develops more profusely on the anterior than on the posterior surface. As many as a hundred discrete spots may be found on each leg. These purpuric eruptions usually appear in from one to three days after the commencement of the administration of the drug, and rapidly reach their height; if the medicine is discontinued, they disappear in two to three weeks.

A polymorphous form is also encountered, in which the eruption presents at the same time papules, tubercles, and pustules, the papules representing an early stage, the pustules a later one, in the same process. Ecthymatous conditions and furuncles may be evolved from hard papules.

Pellizari (11) has reported a case in which three eruptive forms were present at the same time. There were three slightly elevated papules, of a strawberry-color and slightly rough, on the left forearm near the wrist; on the arms and legs there were several bullæ, half an inch in diameter, surrounded by a circumscribed dark-red areola, and three tu-

mors larger than a nut deeply imbedded in the subcutaneous tissue. All of these elements disappeared rapidly on discontinuing the iodide, the bullæ leaving white scars. The eruption was redeveloped several times by the readministration of the drug, each renewal being accompanied by fever.

G. H. Temple (12) reports a sixty-year-old man with tertiary syphilis who received three times daily a grain (0.6) of iodide of potassium, with the effect that after eight days his hair and beard, normally white, became of a rose-red color. At the same time his linen and the handkerchief with which he wiped off the sweat also were dyed red. On his leaving off the medicament, the abnormal color gradually faded away, but returned on renewal of the drug.

This variety of the iodide eruption which I present was, I think, first described by Fisher (13) in 1859. He states that "a nodulo-pustular form is very rarely observed, and occurs most frequently in scrofulous individuals, usually upon the upper half of the body."

Hutchinson (14) reports a case which he saw of a syphilitic man affected with very severe iodism, with the development of a pustular eruption ending in the patient's death. On the face, arms, legs, and body there were innumerable purple or red, irregular elevations, raised a quarter to half an inch above the level of the skin; semi-fluent, fluctuant, or firm, varying in size from that of a hazel-nut to that of a walnut—one even measured two inches across—some with surfaces entire, others with the summit abraded and discharging a thin, yellowish, offensive stuff. They were both single and conglomerate, and had an inflamed areola.

Tilbury Fox (15) reports two cases; the first, that of a cachectic, feeble syphilitic, who was ordered ten grains of iodide three times daily, which four days later was increased to fifteen grains. The following day there appeared on the forehead, both eyelids, and scattered here and there on the face, scalp, and neck, small vesiculated spots similar to acne. The drug being continued, the following day the acne pimples had become large vesicles filled with a milky fluid, soon changing into thin, inodorous pus. The medicine was stopped, but the eruption increased in size, and some lesions burst, and showed a base covered with florid granulations.

The second case was that of an old woman for whom a mixture was ordered containing among other ingredients a small quantity of arsenic and three fifths of a grain of iodide to each dose. On the twenty-fifth day after she began taking this medicine an eruption of pale, shotty spots was observed over the forehead and the backs of the hands. These lesions increased in extent and intensity, though the medicine was stopped. On the seventh day after the appearance of the eruption bullæ had formed, which on the eighth appeared to be solid and inflamed, and were very painful to the touch. Four days later the eruption had almost entirely disappeared. A week later the medicine was again given, when, after five days, the same papular eruption appeared which developed into large, severe cethymatous elevations containing dark, puriform fluid.

Duhring (16), under the title of Circumscribed Phlegmonous Dermatitis due to Iodide of Potassium, describes a case in which, after the drug had been taken for several weeks, there occurred on the patient's forehead a slightly

inflammatory annular patch, half an inch in diameter, consisting of a number of pin-head-sized vesico-pustular lesions looking like an irritated patch of ringworm. This extended rapidly, and several similar patches occurred elsewhere upon the face. At the end of a fortnight the original lesion was nearly two inches in diameter, and consisted of a circumscribed and defined, irregularly rounded, elevated, firm, inflammatory, violaceous patch. The center was depressed and crusted, while the periphery was studded with numerous deep-seated, yellowish, sebaceous-looking pustules, presenting an acneiform appearance. On raising the central crust, a dark-red, shining, mamillated, or warty surface appeared, and on cutting into the pustules they bled, but did not exude their contents.

Besnier (17) has reported two cases as *acne anthracoidé iodopotassique*, in which the face and thorax were covered with veritable tumors of variable volume, of a reddish, coppery hue, flabby, almost fungous, and presenting punctate depressions or vacuoles analogous to those of anthracoid furuncle. It was impossible to express their contents, and incision gave exit only to blood.

Dr. Taylor (18), under the title *Dermatitis Tuberosa of Iodic Origin*, has reported the case of a syphilitic man in whom the lesions produced by the drug were tumors, deep red in color, of round or oval outline, in size from that of a three-cent piece to that of a quarter-dollar, pedunculated and sessile. The tumors on the side of the forehead and by the side of the nose were pedunculated and mushroom-shaped; the rest of the tumors had sharply defined vertical margins. A thin inflammatory areola was present around each lesion. In structure the tumors were soft, spongy, and non-resistant, the larger ones conveying to the fingers a sensation of bogginess and false fluctuation. On the surface of most of the tumors were a number of minute cribriform openings, from which a small quantity of pus could be made, on pressure, to exude, which, drying, formed crusts of various sizes. Each tumor reached its full development in about a week, after which the openings disappeared; the surface of the tumors now presented a uniform warty appearance. Pigmented patches, decidedly but superficially atrophied, were left. No subjective symptoms beyond a slight pruritic heat were complained of, and there were no systemic disturbances present.

Hallopeau (19) mentions the case of a man, aged forty-eight, who had an eruption on the face and upper extremities consisting of deep-lying scars and vegetations, which had been preceded by bullæ and vesicles. The cicatrices were isolated and depressed, with thin centers, and occasionally covered with crusts and vegetations; they were roundish in outline; in size, from that of a split pea to that of a small coin. A few were elevated above the surface. From the patient's history a diagnosis of syphilis was made, and a gramme of iodide a day was given. After several days there appeared on the backs of the hands blebs with cloudy contents, which dried into a crust; on other portions of the body the same appearances were manifested. After the patient had taken the iodide for fourteen days it was suspended, and after three weeks' time again given, when, on the fourth day, with intense fever, the vesicular formation

again began. A third trial resulted in the same manner. There was therefore no longer any doubt that the eruption was due to the drug, or that the scars and vegetations were the sequelæ of the blebs, which after drying left a scar, and from these scars the vegetations gradually developed.

Hyde (20) has reported two cases also, under the designation of *Dermatitis Tuberosa* due to the Ingestion of Iodine Compounds. The first was that of a girl, aged eighteen, who took, three times daily, teaspoonful doses of a solution containing a grain of iodine and a drachm of iodide of potassium to the ounce. On the third day, attended with moderate coryza, there appeared a number of semi-solid papules on the forehead and two or three on the dorsum of the hands. In the evening of the same day the entire scalp and forehead were covered with small and large lesions of the same general character, rapidly increasing in size.

The drug was continued for nearly a month longer, with constant aggravation of the cutaneous symptoms. Dr. Hyde describes her appearance when he first saw her as follows:

The scalp was completely covered with closely packed pigeon's egg-sized tubercles, the matted hairs projecting through and between them, all smeared with a puriform mucus mixed with the fatty base of the sebum. The forehead, temples, cheeks, neck, and back were generally and symmetrically covered with superficially seated, small egg-sized, semi-solid, discrete and confluent, oval, roundish, and irregularly shaped tubercles, of a dull-reddish hue, some standing out to the extent of several millimetres prominently from the general surface. Their surfaces were usually flattish, occasionally fissured and macerated with a mucoid secretion. Many certainly resembled large-sized secreting condyloma. None were true bullæ, and none when punctured extruded their contents. Some had the appearance of an irregular furrow filled with mucous-pus at the summit, the general line of this furrow corresponding to the axis of the long, oval-shaped lesion, resembling the sausage-link tumors of *mycosis fungoides*. They were evidently masses of softish, vascularized epithelium, secreting superficially a thick, grumous, mucoid fluid, in places commingled with pus.

There were two large, compound nodules on the flexor aspect of the right forearm, two on the left hand, and several on other portions of the body. Iodine was detected chemically in the urine. The patient's general health was excellent. The eruption promptly subsided as soon as the drug was stopped, leaving dull-red infiltrations in patches, covered with light and dark crusts superimposed upon a secreting surface. Here and there slight and superficial atrophy of the skin in patches resulted. After two weeks' time the drug was again administered, with the result of producing the same eruption.

The second case was that of a male infant, seven months old, who, since the age of seven weeks, had been taking a medicine containing, among other ingredients, a grain of iodide of potassium in each dose. When first seen he was covered on the scalp, face, ears, neck, and forehead with an eruption made up of closely packed, confluent, softish, and semi-solid tubercles, of a deep mahogany-red hue, dry and moist in different parts, of about the size of a large pea; roundish or oval in shape, quite commonly flattened

at the apices, often presenting a depression similar to an umbilication, in places smeared with mucus. Some of the lesions suggested in appearance that they had boiled-sago-grain contents; in others, far more numerous, they were simply closely packed, flat-topped, deep-red tubercles of the sort already described, looking very much like mollusca, with semi-solid contents. They were not interspersed with pustules or bullæ, and bore no signs of traumatism.

The pathology of iodide eruptions has been studied by different observers. Thin (21), in examinations of a bullous eruption, found the sebaceous glands unaffected, but the walls of the blood-vessels of a limited area were diseased, permitting the escape of blood, which displaced the connective tissue, pierced the rete, and accumulated under the horny layer of the epidermis. He considers that the injury in its mildest form is seen in acne where limited œdema with congestion of the vessels occurs; and that in severer grades, as in bullous and pustular eruptions, there is an effusion of serum, with more or less of the formed elements of the blood; while in the worst forms, as in iodide purpura, destruction of the walls of vessels and hæmorrhage takes place.

Vincent Harris (22) also reports a case in which he found disease of the blood-vessels, which were numerous, dilated, and sheathed with exudation corpuscles, the effusion being greatest in the papillary layer, which was flattened out. The sebaceous and sweat glands were unaffected.

On the other hand, Adamkiewicz (23) considers the sebaceous glands the starting-point of the eruption, because he has detected iodine in the contents of a pustule; but, as Duckworth (24) records a case of eruption on cicatricial tissue, where probably glands no longer existed, and as eruptions have also been noted on the palms, where normally sebaceous glands do not occur, this theory can not be considered correct.

As to the causation of these eruptions: In a certain number of cases, especially of the severe hæmorrhagic and bullous affections, grave structural changes have been found in some of the internal organs, notably the kidney and heart. This has led to the opinion by some observers that deficient elimination should be held responsible for the skin manifestations. Iodide of potassium is a diuretic by its irritant action on the glandular portion of the kidney, and the iodide can be detected in the urine. Large doses will often produce free diuresis where small ones fail, so that, as has occurred on a number of occasions, an eruption was not produced while patients took large quantities of the salt, but, on their ceasing its ingestion or diminishing the dose, the toxic effect on the skin appeared. But deficient elimination is not present in every case, and that theory will not explain why eruptions have occurred when only a small quantity has been taken, or a small single dose, as in Mackenzie's case. We are therefore compelled to fall back on the term *idiosyncrasy*.

These idiosyncrasies are not manifested by the skin alone, but other tissues may be involved, either in connection with the cutaneous lesions or singly; as, for instance, the congestion, with excessive secretion, of various mucous membranes, which is of more frequent occurrence than skin

rashes, and differs in being more transitory; while an eruption on the skin persists, and usually increases in severity, so long as the drug is continued and even after it has been suspended.

There is perhaps no drug respecting which idiosyncrasy is more common, and the dose required to show this idiosyncrasy so variable. In some only half a grain may be necessary, while other persons may be so tolerant of its effects as to take with impunity over an ounce a day. From this peculiar tolerance and variability in the amount taken, the conclusion can be drawn that it is not the amount of iodide given to patients, but the effects produced, which should be watched, for in some patients a small dose of a few grains daily will achieve more good results than a large quantity given in another case.

Hallopeau (19) has reported a case in which he regarded the idiosyncrasy as having been developed gradually through the long previous use of the drug.

The various cutaneous manifestations of iodide of potassium are supposed to be due to the contained iodine, but that the physiological effects of iodine and iodide of potassium are identical has not been proved. H. C. Wood (25) quotes Kammerer and Professor Binz as asserting that iodides are decomposed in the tissues, and act by liberation of the contained iodine. With these views Wood is not in accord, holding that they have not been proved, and maintaining, further, that the general professional opinion is that iodine and iodide of potassium differ in their therapeutic action. Gaglio (26), from his studies of this subject, concluded that the assertions of Binz were not proved.

Iodide is absorbed, and is eliminated chiefly by the kidneys, and to a greater or less extent by all the mucous membranes and the skin.

Ehlers (27) made seventy quantitative examinations of the urine, and found that an average of eighty-two per cent. of the iodide could be recovered. When symptoms of iodism developed, the urine showed a diminished elimination of the drug, the iodism disappearing as its elimination increased.

Professor Sée (28) asserts that the elimination takes place slowly and intermittently, so that the drug when given continuously accumulates in the system. He further states that it can be found in the saliva after it has disappeared from the urine. The iodine seems to be eliminated partly as an alkaline iodide and partly in organic combination.

It has been further affirmed that the iodide of ammonium stands first in its irritating property and the iodide of potassium next, and that the sodium salt is the least irritating of all. That the large number of cases reported are in connection with the potassium salt is probably due to the fact that this is employed far more frequently than the two others. In Duffey's (29) case iodide of potassium twice developed an eruption; the sodium salt was then employed, in doses of ten grains three times daily for eight days, without producing any eruption. The ammonium salt was then given in two ten-grain doses, and within twelve hours the eruption manifested itself.

Ringer (30) reports a case in which thirty grains a day of the iodide of potassium after five days developed a pustular

eruption; this disappeared in a few days after stopping the drug. The ammonium salt was then tried, but, after the second dose of ten grains, redeveloped the eruption. The iodide of sodium was then substituted in the same doses and continued for four days, but without bringing out the eruption, which, however, promptly reappeared after a single dose of the iodide of ammonium.

Lesser (31) reports a case of erythema nodosum which came on in two days after the internal use of the iodide of potassium. The use of the sodium salt was followed by the eruption in a less severe form. The treatment, after being changed to the subcutaneous use of the potassium salt, was not followed by any eruption.

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340 LAFAYETTE AVENUE.

**Cocaine Fatalities.**—"At a recent meeting of the Société de Chirurgie of Paris, a letter from Professor Germain Sée was read in which he stated that he had collected particulars of two hundred and sixty accidents with hypodermic injections of cocaine, of which twenty-one terminated fatally. The professor considers the drug to be dangerous, and pronounces himself opposed to its employment."—*Druggists' Circular and Chemical Gazette*.

## ASTHMA :

ITS PURELY NERVOUS ORIGIN AND  
AN EFFICIENT TREATMENT.

By B. O. KINNEAR, M. D.

ANY chronic disease which interferes with the entrance of oxygen into the air cells and proves an obstruction to the natural aeration of the blood is a cause not only of distress to the patient from his inability to respire freely, but every function of the body becomes slowly and steadily diseased. This may not be shown for some time in asthma, for the attacks are at first transient, and for a long period the system seems to recover its full vigor between the seizures.

Nevertheless, after a lapse of years, changes in nutrition take place throughout the whole body. Constipation is apt to follow, more or less emphysema results, the heart is weakened, and the right ventricle hypertrophied from the unusual effort required during the spasmodic arrest of normal inspiration.

The digestion is disordered. The nervous system deteriorates. There is more or less constant discharge of mucus from the lungs; the muscular system is enfeebled, and nearly all the processes of nutrition, secretion, and excretion are vitiated. The bronchial mucous membrane is thickened or hypertrophied.

Asthma is one of the most painful and distressing diseases known, yet in itself comparatively rarely proves fatal; yet there is evidently no doubt, from the general impairment of health, that it paves the way for other disorders to invade and assault the already debilitated citadel. These new assailants are noted as the cause of death, whereas had not asthma been present the patient might have recovered. My intent is to present the treatment of asthma and its complications by the use of cold over the spine, as well as to give an explanation of why cold over this region will in many cases restore to full health, and in others repair the diseased condition inducing the spasmodic onslaught, and reinvigorate the whole body to such a degree as to constitute almost a new life; or to revivify the vital powers to such an extent that life becomes once more "worth living," and not a perpetual struggle for breath, as it practically ultimates in a large number of unfavorably progressive cases.

Dr. Alfred L. Loomis, on page 59 of his *Text-book of Practical Medicine*, says: "The spasmodic contractions of the bronchial tubes may be regarded as due to a neurosis, which depends upon the existence of a peculiar diathesis. Some muscular spasm or contraction of the circular muscular fibers of these tubes is the essential element of the asthmatic paroxysm, and the consequent narrowing of the tubes is a necessary mechanical result."

Koss, in his *Diseases of the Nervous System*, page 522, declares: "The symptoms are mainly caused by spasmodic contraction of the muscular tissue of the bronchial tubes.

"The asthmatic paroxysm may be excited by direct irritation of the trunk of the vagus; in other cases it is caused by a reflex irritation of the sensory nerves of the lungs themselves, or of those of remote organs, such as the stomach, the intestines, or uterus.

"An attack sometimes results from central irritation, and it is then generally associated with hysteria."

Flint, in his *Practice of Medicine*, remarks, page 216:

"It is a neuropathic affection, tonic spasm of the bronchial muscular fibers being induced by a morbid excitation through the nervous system.

"The exciting causes of the paroxysms doubtless exert their effect through the excito-motory or reflex function of the nervous system.

"Asthma is always nervous."

He also states on page 218: "Mental emotions sometimes act as an exciting cause of the attacks."

And every physician of middle age is aware that severe shock may give rise to asthma in persons who had previously been quite free from the disease. A noticeable symptom given by nearly all authors as preceding the attacks is a much increased flow of limpid urine, which occurs frequently in nervous people not subject to asthma.

Ranney, in his *Lectures on Nervous Diseases*, page 723, informs us that "spasmodic asthma may be benefited by galvanism of the neck.

"Its beneficial effects are probably due to changes induced in the vagi."

The evidence that this disease is of nervous origin, affecting the circular bronchial muscles, might be greatly multiplied both from authoritative writings and from the records of individual observation; but enough testimony has been adduced to prove that the direct factor giving rise to the asthmatic paroxysms is the narrowing of the smaller bronchial tubes, so that oxygen can not enter the air cells and be absorbed into the circulation, such closure being due to contraction of the muscular fibers around the bronchi.

It therefore clearly appears that if a reasonable hypothesis can be presented demonstrating why these small muscles contract, "by a morbid excitation through the nervous system" the profession will approach nearer than hitherto to a knowledge of the originating cause of asthmatic spasms, and will thus be so much closer to an appropriate and effective treatment.

Gray, in his *Anatomy*, gives us the information that "anterior and posterior branches from the pneumogastric follow all the ramifications of the bronchi." This fact goes to prove that some of the "central cells" of the pneumogastric are the active cause in effecting contraction of these tubes—first, because a nerve separated from its center loses its function; second, when the center is hyperactive, this activity is declared at its terminal end, as illustrated and confirmed constantly by reflex action, and, as the writer believes, from *central* action also, in nervous people, demonstrated in motor nerves by twitching of muscles in various parts of the body, and particularly in chorea. The next question that confronts us is: What condition of these central nervous cells will give rise to contraction of the bronchial tubes? The reply naturally is: An increased activity of the cells, an irritation of them, an overflow of nervous force from them to the bronchial muscles. What can induce this abnormal overflow? What power irritates the cells to so energetic an action, with such distressing

results? It seems to me that the only reasonable and natural explanation lies in the fact of an abnormal circulation of the blood within the group of cells of the pneumogastric issuing nerves to the ramifications of the bronchi.

A condition of dilated blood-vessels, with a hyperactive circulation through the center, would allow of increased nutrition of the cells and a greater impulsion from them than is natural in health; therefore a stimulation of their function, and more forcible nervous currents sped to the muscles about the bronchi, with a resulting contraction and narrowing of the tubes; and, as an outcome, the attack of asthma.

If this hypothesis is true, then any remedy or remedies which will contract the dilated blood-vessels in these centers, either directly or by withdrawal of the excess of blood from them, thus allowing of arterial closure to normal caliber, will most quickly relieve the acute seizure, and, if the blood can be prevented from returning in undue quantity to the center, hinder the recurrence of this painful and distressing disease. That just such an effect may be induced I have now proved in a number of people suffering, many of them for years, from asthma.

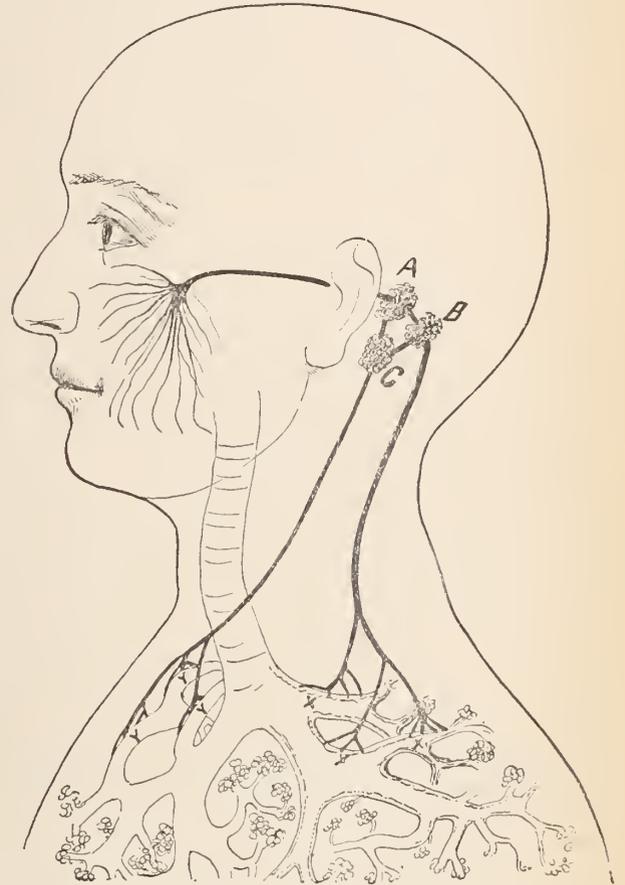
My own belief is that there are two varieties of nerve involved in the production of the disease. They are the motor, already spoken of, and the accompanying trophic or nutritive nerve, which latter terminates in the cells of the lungs and the cells of the bronchial mucous membrane. It is now very generally recognized that every motor nerve has a second function—viz., that of regulating nutrition to all cells in the area over which the motor is distributed, so that nothing new is advanced by this statement; but a satisfactory explanation is thereby added to the pathological effects produced upon the bronchial mucous membrane in many cases. The effect here referred to is the congestion and thickening of that membrane in many chronic cases, this very turgescence adding a further obstruction to the entrance of air into the air cells; as well as from the hyperæsthesia of the mucous membrane induced, causing, when irritated by smoke, dust, ipecac, odors of various kinds, sudden colds, etc., a reflex spasm of the tubes through the sensory nerves. These trophic nerves appear, therefore, to arise in the same group of pneumogastric cells as the motor. The accompanying cut, used in my article read before the Hay Fever Association, in Bethlehem, N. H., in 1890, and produced in their report of 1890 as one of four illustrations of the nervous centers involved in that disease, demonstrates very clearly the hypothesis advanced. The centre, B, shows a group of pneumogastric cells distributing nerves to the bronchial mucous membrane, X, X, X, X, causing, when the center is hyperæmic, tumidity of the mucous membrane of the tubes.

The central group of cells, C, the nerves of which terminate on the muscular striæ surrounding the tubes Y, Y, Y, when hyperæmic, gives rise to contraction of the muscles and the closure of the tubes.

The expansions, O, represent the air cells.

By excluding, then, the excess of blood from these respective centers, their function is brought to the normal; consequently the muscles about the bronchi expand, and the swelling of the mucous membrane subsides.

This result is attained by ice applied over the spine in such a way that, the circulation being naturally distributed over the body, the congestion of the centers is at once lessened in the acute attack; and, by an expert application of the same remedy, used for weeks in some cases and for a much longer time in others, the blood is kept away in excess from the centers, the weakened coats of the arterioles within them recover their normal, or almost normal, contractility, and either great relief or a cure is obtained.



But this is not all the good which may be assured by the use of this remedy.

If there are cold extremities, as is frequently the case in asthmatics, they are warmed and strengthened also by the increased nutrition due to a larger supply of blood.

If there is indigestion, the condition may be much benefited through a more active circulation induced in the gastric glands, the pancreas, and liver, resulting in a larger supply of digestive fluids. The secretions throughout the intestines are increased for the same reason, and peristaltic action renewed by reinvigoration of the muscles around the intestines, and constipation relieved, if present, to a great extent, in some cases wholly. These results are due to the fact, proved now by hundreds of cases, that ice over the spine dilates the arteries throughout the body, distributing the blood to organs and tissues where there has been an insufficient supply.

The excessive secretion from the bronchial tubes, a very distressing factor in chronic forms of the disease, is largely diminished also by ice over the spine.

By the relief to the contraction of the tubes and the subsidence of tumidity of the bronchial mucous membrane, the hypersensibility of the whole tract is lessened, so that reflex spasms are much less liable to take place.

Reflex spasms also, from indigestion and impacted rectum, disappear as well by the relief given to these conditions.

It is most astonishing and delightful to witness the change from deficient to healthy action in various organs, as well as a return to normal nutrition and strength throughout the whole body, under the expert use of cold over the spinal nervous centers, due in large measure to the distribution of a sufficient circulation to parts of the economy where it has been less than normal, and, oppositely, the abstraction of blood from other portions of the same where circulation has been excessive.

Many people who have lost weight rapidly regain it, and stouter persons lose flabbiness and become solid to the touch, with a great addition to the physical strength. While the writer is convinced of the truth of the hypothesis set forth, he does not expect to convince his medical *confrères* of the same by an essay, yet, from the results obtained in the following cases, he hopes to induce those who have time for study to investigate Dr. Chapman's system for themselves in reference to the treatment of asthma, and, in fact, in reference to the general treatment of disease, which the author of this paper has found of immense service to himself, as well as to patients suffering from a variety of complaints.

I hold, with Dr. Chapman, that the health of the body is regulated and controlled by the combined normal action of five sets of nerves—viz., the sensory, the motor, the trophic, the sympathetic or vaso-motor, and the nervous supply to glandular organs, which latter may be accounted as a division of trophic nerves, as they have to do with secretion and excretion.

And, finally, that a limited or excessive amount of blood circulating within their centers constitutes not only disease in the centers, but through that abnormal condition disease is invariably demonstrated at the termination of their nerves. The application of ice over the spine is always soothing and agreeable when necessary, but particularly to those people who are always chilly and nervous. It relieves the surcharged nervous centers of their blood in such cases, and warms and nourishes the whole body.

CASE I.—Mrs. —, of Boston, Mass., sixty years of age; treated in 1882. She had been a sufferer from asthma for sixteen years, the disease increasing in intensity year by year until at the time of examination she was confined to her bed three or four days out of each week, with dreadful distress during the whole attack. She had become emaciated to such a degree that the husband of the patient remarked to me: "Doctor, my wife is but a bag of bones now, and you will freeze her to death by applying ice over her spine." He, however, decided to try the remedy. The appetite was very poor, and she suffered greatly from indigestion. The whole body was cold to the touch, but the legs and arms especially so. The pulse was rapid and weak, the bowels were constipated, and the patient was exceedingly nervous. Ice was applied in a full-length bag, extending from the fourth cervical to the third lumbar vertebra, and used four

hours a day, an hour at a time. The patient was wheezing at the time of the first application, which discomfort was relieved during the first hour, and the patient's nerves were much soothed as well.

The progress upward was most rapid and well pronounced from the outset of treatment. Some attention was given to the digestion, and a few laxative eholagogue pills were used during the first few weeks. Her appetite speedily improved, and she gained very fast in weight. The body and extremities became permanently warm. The general physical weakness disappeared wholly. Natural action of the bowels gradually recurred. The pulse beat much more strongly and regularly. The general nervous hyperæsthesia departed and the paroxysms of asthma grew less violent and frequent, while their duration was shortened to scarcely an hour at a time after three months' treatment. She used to say: "Doctor, directly I find the attack coming on I apply the ice and it is at once checked, passing rapidly away." This patient was practically well in six weeks, and during the rest of her life remained almost wholly free from the disease and its distressing results. She died some four years afterward from another disease.

I should consider that the emaciation, weakness, dyspepsia, constipation, etc., relieved also by the treatment, had been wholly caused in this patient by the severe and protracted asthmatic paroxysms, interrupting free oxygenation of the blood, therefore vitiating its quality and so hindering normal nutrition throughout the body. Secretion and excretion could not be sustained naturally. This result illustrates the rapid benefit which is obtained by the treatment in a case of uncomplicated asthma in a person of originally strong constitution.

CASE II is that of a boy of about twelve years of age, treated in the Catskills during August of 1885. He was the son of the man in charge of a New York fishing club, and inherited the disease from his father, a man of about forty-five years of age. The father had been afflicted with asthma since early boyhood, and was of an exceedingly nervous temperament. The boy seemed well and full of life and spirits, but suffered with nocturnal attacks frequently for several successive nights, lasting from about midnight until daylight. He used a ten-inch ice-bag between the shoulders, from about the first dorsal vertebra downward, twice a day and for three quarters of an hour at a time for a few days. Afterward once a day was found sufficient to check the attacks and lengthen the periods between them. He used the bag by my advice for several months. I heard of him again in 1887 as quite well. When the bag was applied the first time his attack was relieved and he was sound asleep in fifteen minutes. This case is particularly interesting as being one of hereditary asthma.

CASE III.—Mrs. D., sixty-six years of age, living in Boston, had been troubled with asthma for many years, particularly in damp weather. For several years has had chronic bronchitis. The heart is weak, the digestion poor, the circulation feeble, and there is a tendency to constipation. A son of hers, a physician, died of consumption. He was a very large man, and until attacked looked the picture of health. This patient was much benefited by the use of ice over the spine from the second dorsal to the third lumbar vertebra. The spasmodic seizures were much relieved in duration, frequency, and intensity. The large amount of watery mucus usually coughed up daily greatly lessened and the appetite and general strength improved. She used the treatment for more than a year under my care, at times remaining quite free from the disease for weeks together, a most unusual experience; but she had to use the bag steadily

three or four times a week to retain the improvement. She then removed to Concord, N. H., since which date I have heard nothing from her. The results achieved appear to the writer satisfactory when her age is considered.

CASE IV is that of a shop girl, naturally delicate, and overworked during the two preceding years. She had a large number of fainting spells, a weak heart, a poor digestion, was exceedingly nervous, and was troubled with constipation and dysmenorrhœa. She also had frequent headaches. The treatment had to be used with great care in this case, as the patient was so thoroughly exhausted, and it was necessary to her support that her work should be continued. The use of the ice was combined with tonics and laxatives, and she gradually improved in all respects, and at the termination of eighteen months was as well as she probably ever could be. The asthma had quite gone; her nervous condition was much improved. The bowels only needed occasional assistance. Menstruation was normal, her circulation was good, and she was enabled to perform her daily work without great fatigue. Her headaches were less frequent and her sleep refreshing.

CASE V was that of the brother of an old professional friend. He was forty-three years old. Had suffered from asthma many years. When examined he was in a pitiable condition. He had not been free from the asthma for three months, was greatly emaciated, and had a constant cough night and day, which would continue hour after hour, and had almost completely prostrated him. He was suffering from night sweats, with some slight rise of temperature. There was no consolidation of the apex of either lung. There was a good deal of frothy and mucous expectoration. His appetite was capricious and small. His bowels were constipated, and his legs, arms, feet, and hands cold. The whole external surface of the body had a bluish tinge. Ice was used night and morning for an hour and a half over the last eight dorsal and first three lumbar vertebrae. In three weeks' time he recovered almost full strength, with a great increase of weight, a good appetite, and the only trace of asthma left was a slight wheezing on over-exertion. Against my own judgment he persuaded me to let him take a journey and do some important business requiring fatiguing exertion. Almost immediately after his return he was attacked most violently with all his former symptoms, and rapidly retrograded to his former condition. The treatment was carefully continued for some time, but without good effect. I discontinued the use of the bag, feeling that his vitality was at too low an ebb to afford him benefit. He died some months afterward.

My impression is that, could the patient have continued to rest after making his remarkable gain for some months, he might have fully recovered; but, having a wife and children dependent upon him, he felt that as soon as he had gained he must use his strength, and in consequence relapsed.

There is no doubt that a fruitful source of the spasmodic seizures of asthma is bodily exertion, and an uneasy mental condition another.

CASE VI.—Mr. F. G. L., fifty years old, examined in July, 1888. Has had asthma for forty-four years. The disease has increased in violence, particularly during the past two years. Has not now been free from asthmatic breathing for six months. There are frequent and exceedingly violent nocturnal spasms of the disease. The only relief to be obtained of late at these times has been given by injections of morphine, one third of a grain, atropine, one one-hundredth of a grain, often twice in the night. The patient is learning to depend on opium for relief. He suffers with great mental depression. The apex of the head espe-

cially is abnormally hot. The digestion is not so good as formerly. The bowels constantly tend to a more severe constipation. The legs and feet are a good deal cooler than the upper body, but very much colder during the nocturnal attacks. For two months at Bar Harbor this gentleman required constant attention. The first improvement noted was a better circulation in the lower body, while the ice-bag, when applied over the dorso-lumbar region, soothed the patient, frequently checked the attacks, and enabled him to do without morphine. His appetite and digestion began to improve. The head became much cooler and the spirits improved. After his return to Boston the general strength increased, and during the past two years he has never had to resort to morphine. The spasmodic attacks have been infrequent and much less violent. He has continued the treatment at intervals, and while he will probably never fully recover from the disease, he is much stronger than for several years previous to treatment, unless he be subject to great and long-continued bodily fatigue, mental strain, or exposure to cold or damp.

I believe not only that the attacks may be held in abeyance, but that they will lessen in number and severity with increasing age. The arterioles in the pneumogastric center will never probably, after forty-four years' dilatation, contract to the normal; but, by a sufficient use of the treatment to keep the circulation throughout the body properly distributed, thereby both withdrawing excess of blood from the centers as well as nourishing and strengthening the whole physical framework, comparative freedom from the nocturnal attacks may be assured, and a state of health secured. In one of my cases of hay fever treated during the season of 1891 the asthma concurrent with the nasal trouble in this patient was wholly relieved.

46 WEST SEVENTEENTH STREET, NEW YORK.

## THE NATURE OF INFLAMMATIONS IN THE LIGHT OF RECENT DISCOVERIES.

By W. P. CARR, M. D.,

PROFESSOR OF VISCERAL ANATOMY AND DEMONSTRATOR OF ANATOMY  
IN THE MEDICAL DEPARTMENT OF COLUMBIA UNIVERSITY, WASHINGTON, D. C.

So much of the mystery connected with this subject has been cleared away by the investigation of recent observers that we are now in a position to drop much of the old mysterious technology in regard to inflammation and to explain its varieties and phenomena as clearly and rationally as we can explain any biological process.

Before beginning to discuss the subject in a connected manner, I will make the following propositions, which I consider either as axioms or as propositions proved, and acknowledged as proved, by the majority of the profession.

I. All inflammations are, strictly speaking, local, as we know of no disease in which all the tissues of the body are inflamed. Even if specific fevers be regarded as inflammation, or fermentation, of the blood, having in addition in many instances lesions of solid organs or tissues, we must remember that the blood is only one of the many tissues of the body, and hæmatitis is as much a local affection as peritonitis.

II. The effects of local inflammations may become general in at least three ways. First, by the action upon the

nervous system of septic poisons absorbed into the blood. Secondly, by direct injury or irritation to the nerves in the inflamed area, causing shock, pain, loss of sleep, and reflex disturbances of the general nervous system. Thirdly, through the drain of suppuration.

III. Every cell in the body is directly or indirectly under control, more or less complete, of the nervous system. This includes the blood cells, which are controlled indirectly by the vaso-motor nerves.

IV. The following phenomena of acute inflammation have been actually observed—viz., a dilatation of the capillaries of the part, a slowing of the current, accumulation of leucocytes around the periphery of the vessels, complete occlusion of the vessels in places by the leucocytes, stasis, clearing of the lumen of the vessels by the passage into the tissues of these aggregated cells, escape of plasma into the tissues, transformation of escaped cells into connective-tissue cells, and, in septic inflammations, the presence of bacteria in the interior of escaped white blood-cells, sometimes showing evidence of degeneration or digestion by the cell.

V. The escape of leucocytes from the blood-vessels and their transformation into connective tissue also take place normally and in normal tissues.

VI. The escape of plasma also takes place normally for the purpose of bathing and nourishing the cells of the body, and is returned to the blood-vessels by means of the lymphatic circulation.

VII. The plasma that escapes in inflammation serves as a culture medium for the escaped round cells, and exerts a germicidal action upon bacteria.

VIII. This escape of blood elements, which is the essential feature of inflammation, is therefore only an exaggeration of a normal process.

IX. Aseptic inflammation can be caused only by destruction or irritation of tissue by mechanical or chemical means, or by heat, cold, or electricity, under conditions that prevent the access of bacteria. But any aseptic inflammation may quickly become septic by access of germs to the tissues.

X. Aseptic inflammation is only a process of repair, and consists essentially of a replacing of destroyed tissue by connective tissue formed from the colorless blood-cells. Aseptic inflammation of a low degree may be indefinitely prolonged by the circulation in the blood of some toxic substance, purely chemical, which continues by its presence to irritate or destroy tissue. Otherwise, aseptic inflammations either become septic or result in repair, or what we term resolution. This repair may be delayed by lowered vitality of the tissues, and in case of bone injury by lack of bone-forming material in the blood plasma.

If we consider these propositions proved, as I think we must, then we may give a more definite explanation of aseptic inflammation than has yet been done.

Take, for instance, a contusion with subcutaneous laceration of tissue. The injured afferent nerves carry an impulse to the vaso-motor centers (we need not now consider where these are situated), and through the vaso-motor nerves the capillaries are dilated. This dilatation causes a

slowing of the blood current, and either opens pre-existing stomata in the capillary walls, or causes a relaxation and separation of the single layer of cells forming these walls, so that plasma begins to flow out through these openings. Many of the openings become choked by the colorless corpuscles that come lazily floating in the periphery of the slow blood-current and are swept into the openings or stomata by the outgoing plasma. Other leucocytes catch against these, and the vessel becomes entirely occluded in places. Stasis results. But the cells finally pass out by amoeboid movement or are forced out by the blood pressure, the lumen of the vessel is re-established, and the current begins again. The cells after their escape wander about for a time by their inherent power of amoeboid movement, nourished by the plasma that accompanies them, and which continues to pass out of the vessels and be absorbed by the lymphatics; but, finally, they become fixed, shoot out processes, and are thus transformed into connective tissue. It is possible that these cells may proliferate after their escape, and that there may also be proliferation of the older connective-tissue cells, but I regard this as improbable. The new connective tissue is laid down around capillary loops that shoot out from the blood-vessels just as they have been seen to do in the developing chick, and thus the destroyed tissue is replaced. Such cells as were killed in the original injury break down and form a mass of *débris* that is carried off by the lymphatics or absorbed by leucocytes as food. This *débris* has been called pus; but it is not what we commonly understand by pus, and should not be so called. The amount can not exceed the amount of tissue originally killed, and if the tissues remain aseptic, it is always completely absorbed. Not only so; this absorption must precede the connective-tissue formation, and the amount of new connective tissue usually corresponds to the amount of tissue destroyed. Sometimes, however, when there is more irritation of nerve terminals than destruction of tissue, the new connective-tissue formation may be excessive. Particularly is this the case when the nerve irritation is increased by some form of chemical toxæmia, intestinal toxæmia, lithiasis, etc.

Aseptic inflammation, however, almost invariably terminates in rapid resolution, and leaves little trace behind. But any inflammation may become septic. And undoubtedly in open wounds this result is usually brought about by contact with some substance containing germs upon its surface. Rarely germs are deposited in the wound from the air or from particles of dust floating in the air. Still more rarely, we must believe, with all the evidence before us, true auto-infection takes place from germs floating in the blood of the individual. We can readily understand how this occurs in those diseases where pathogenic organisms are in the circulation, and it is more than probable that even in the blood of apparently healthy individuals some of the milder kinds of pathogenic germs may occasionally be found. Such germs are not vigorous and are not able to harm active cells, but, when brought in contact with injured cells and dead *débris*, may multiply, become vigorous, and cause serious results. They may cause suppuration, or may seriously interfere with the healing of the wound without

DR. SAYRE'S ARTICLE ON HIP-JOINT DISEASE.



c



b



a

CASE I.



a



c



b

CASE III.



c



b



a

CASE IV.—RIGHT.



c



a



b

CASE IV.—LEFT.



a



b



c

CASE V.



a



b



c

CASE VI.

causing suppuration, especially if the tissues are already weakened by malnutrition or toxæmia. Pyogenic bacteria may also gain access to subcutaneous lesions through microscopic abrasions of the cuticle, or, as recently pointed out by Dr. Welch, of Baltimore, from the deeper layers of the epiderm itself. Dr. Welch, in a paper read before the Congress of American Physicians and Surgeons, recently announced the discovery of a germ, very much like the *Staphylococcus pyogenes albus*, almost invariably present in the deeper layers of the epiderm, not amenable to washing or superficial disinfection, and capable of producing pus under favorable conditions. He regards it as the usual cause of stitch abscess. He has also made the following interesting observations: Healing by first intention is not proof that no organisms were present, as he has found germs in the serum from such wounds. They were never abundant, however, nor of a virulent kind. He also finds that the power of a germ depends largely upon the amount of poison it carries with it, and that if germs are freed from the culture medium, rich in poison, in which they have been developing, they are much less active. He also finds the blood serum to have antiseptic properties, and that some tissues are much more resisting to germs than others in the same animal.

Thus the peritonæum was able to dispose of twenty times as much of a certain culture fluid, containing pyogenic bacteria, as was required to cause suppuration in the eye of the same animal.

We must conclude, therefore, that the tissues of the body are able to kill and dispose of a certain variable number of most kinds of bacteria, and that this power is modified by at least six factors—viz.:

1. The kind of tissue.
2. The condition of the tissue as to vigor of its cells and antiseptic properties of its blood plasma.
3. The kind of germ.
4. The number of germs.
5. The condition of the germ, both as to vigor in multiplying and producing poison, and as to whether or not it is accompanied by a quantity of its poison, and thus armed and enabled to destroy at once a number of cells in its immediate vicinity, and thus gain time for reproduction.

Therefore, when germs gain access to an area of inflammation, we are confronted by a very complex problem.

If a limited number of germs be present, if they are not too vigorous in producing poison, and if this poison is not of too virulent a kind, they are eaten by the white blood-cells that come pouring from the vessels, or are killed by the blood serum, and find their way into the leucocytes by chemotaxis; and the result is the same whether we call it phagocytosis or chemotaxis. The germs are destroyed and resolution and repair take place, as in aseptic inflammations.

But in other cases the germs are too powerful. They kill the cells by the excretion of poison, and this may take place after the germ has got inside the cell. Should this state of affairs occur in the deeper tissues, those cells in the center of the inflamed area are killed, and can not, of course, form connective tissue; but those around the periphery make their usual change into connective tissue, and thus wall up the pus and germs, forming an abscess. Here,

shut up with their own excretions, the germs may, after a longer or shorter time, die, and the fluid in the sac become absorbed, leaving a cheesy mass that may remain indefinitely. More or less of the poison, however, passes by osmosis or is forced by pressure through the abscess wall, is absorbed into the lymphatics, poured into the blood, and gives rise to systemic symptoms by its action on the nerve centers.

In other cases the inner layers of the sac are killed by the virulence of the poison, and form fresh pabulum for the imprisoned germs, while fresh layers of cells are continually deposited on the outside. Thus the abscess grows until some surface is reached upon which it may burst.

In such cases as this we have practically an aseptic inflammation, around and outside the abscess wall, caused and maintained by the chemical poison transuded or forced through the wall from the active poison factory within, while the wall checks the movements of the germs and prevents a general and rapid spread of the inflammation.

After the abscess breaks, if not into some cavity, the larger portion of the germs and the poison are extruded and usually the cavity soon closes, largely by contraction of its walls, partly by formation of connective tissue, which is now produced more rapidly than it is destroyed. But should the abscess break into a cavity, such as the peritonæum, the germs, finding themselves in new pabulum, and already armed with a large amount of poison, increase rapidly and overwhelm the system by the rapid production of their deadly excretion. Unless this is promptly removed, there is but the faint hope for the patient that the germ may succumb to the combined action of its own poison and the antiseptic serum, before the organism attacked.

That this fortunate termination may ensue is probable, in some instances, when even the peritonæum is invaded by pyogenic organisms. It must be due to the fact that the germ, when weakened by the antiseptic serum, is even more susceptible to its own poison than the patient; that recovery takes place from typhoid fever and other specific diseases. Otherwise the germs would continue to increase *ad infinitum*, or, at least, until the death of the patient. It is well known that many germs are readily killed by their own excretions. Those that produce lactic acid are readily killed by lactic acid; those that produce substances like carbolic acid are readily killed by carbolic acid.

But we may have a form of septic inflammation where the germs are so active and where their poison is so violent that the cells are killed too quickly, and the inflammation extends too rapidly, for any limiting wall to be formed. Such inflammation is produced by the erysipelas germ when once it has become lodged under the skin in the cellular tissue. Here, again, our only hope is that the germ may succumb first to the combined power of its own poison and the antiseptic action of the lymph or that it may at least become so enfeebled as to die without leaving progeny.

Diffuse suppuration may also be produced by slow and comparatively mild germs when the tissues of the body are much enfeebled by malnutrition, hæmorrhage, shock, etc., or by the action of a poison—such, for instance, as the ab-

sorption of ptomaines from the intestine. Here the inflammation fails to be limited because the cells of the body are too feeble to act promptly, and, perhaps, because the blood plasma has lost its antiseptic properties.

On the surface of a tissue, or in open wounds, the process is modified by the fact that the germs and their poison are free to flow away from the body with the pus, and, as there is no pressure, there is little absorption of poison. Hence it takes a large area of superficial inflammation to produce systemic symptoms, and, as the absorption is slight, the destruction of cells is less active than the process of repair. Consequently, unless we have to deal with germs of unusual virulence, such as those that produce hospital gangrene; or, unless the tissues of the body are so feeble as to allow of phagedenic ulceration, the destroyed tissue is entirely replaced by connective tissue, and we have what we call healing by second intention. In those exceptional cases, however, the destruction will continue to spread until the germs are destroyed by caustics or other means.

Thus we see that every form of acute inflammation is a conservative process; and not only so, that it is only an excessive activity or exaggeration of the normal functions of living tissue.

We see that it consists essentially in all cases of a warfare of the blood elements upon bacteria and a replacing of destroyed tissue by round cells from the blood. Why, then, may we not define inflammation as *an unusual activity and concentration of blood elements in a tissue for the purpose of repairing injury or repelling noxa?*

And this definition need not be limited to acute inflammations. For, although there is some difference of opinion about chronic inflammations, particularly the scleroses, as to whether connective tissue is formed first, or whether destruction of cells takes place first, we must regard them as conservative. We must admit that they consist in a formation of connective tissue or glia, either for the purpose of replacing destroyed cells or for the purpose of walling out and limiting the action of a poison or irritant, a noxious substance.

Understanding thus the nature of inflammation, and being able to explain all its varieties, we are surely in a better position to prevent the dangerous forms—to prevent, in fact, all forms except the aseptic, and to guard against the danger of auto-infection and of operating upon tissue enfeebled by the absorption of ptomaines from the intestine.

### HYGIENIC CLOTHING.\*

By FRANK H. DANIELS, A. M., M. D.,  
VISITING PHYSICIAN TO THE MANHATTAN HOSPITAL.

At the present day scientific clothing enters so largely into the modern economy that it is important for us medical men to look back occasionally and review the progress which has been made in this department. Not as tailors, to be sure, for with the æsthetic side of this question I will

not weary you. But as hygienists it is necessary for us not only to be abreast of the times, but also to understand thoroughly what is required of good clothing, and how that requirement can best be filled. The outer clothing may indeed adorn; the inner must be made on scientific principles, and the latter is of the greatest importance.

An ideal clothing is one which does not interfere with the functional activity of the skin, while it at the same time protects it against sudden changes of temperature. The normal skin is an excretory as well as a secretory organ, excreting a small quantity of salts, a little carbonic acid, and a large quantity of water in the form of perspiration, both sensible and insensible. The total amount excreted by the skin is, as you know, large, and has been estimated by Sequin as eleven grains in a minute, or more than two pounds in the twenty-four hours.

The quantity of carbonic acid thrown off by the skin of a healthy man in twenty-four hours is about one hundred and fifty grains; this quantity is, however, increased by a rise of temperature or by exercise. The quantity of oxygen consumed is about the same; but the thickness of the human epidermis affords a great obstruction to any diffusion between the gases in the blood of the cutaneous capillaries and the external air.

According to Foster, the proportion of the insensible to the sensible perspiration will depend on the rapidity of the secretion in reference to the dryness, temperature, and amount of movement of the surrounding atmosphere. Thus, supposing the rate of secretion to remain constant, the drier and hotter the air, and the more rapidly the strata of air in contact with the body are renewed, the greater is the amount of sensible perspiration which is by evaporation converted into the insensible condition; and, conversely, when the air is cool, moist, and stagnant, a large amount of the total perspiration may remain on the skin as sensible sweat.

This excretory activity, or, as we shall call it, the functional activity of the skin, is usually dependent upon vascular dilatation. When the excretions of the skin are diminished, the cutaneous blood-vessels are usually found contracted; and *vice versa*, when these vessels are dilated, the excretions become increased in quantity. And by this contraction and dilatation of the cutaneous blood-vessels, with the accompanying variation in the quantity of perspiration, the temperature of the body is largely regulated. It is found that the excretory organs of the human body will do each other's work to a certain extent, and that, if the skin is not acting normally, its excretions are taken care of by the other excretory organs—viz., lungs, kidneys, and bowels. The balance of health is, however, under these circumstances, disturbed, and such vicarious action will not be long tolerated.

It will be seen from the above how important is a normal cutaneous function, and how far-reaching is any disturbance of its proper activity. It may be stated as facts, firstly, that, excluding contagious diseases, all acute forms of disease may be avoided if the skin is acting properly; secondly, all chronic diseases may be held in check by keeping up the functional activity of the skin. Whenever

\* Read before the Harvard Medical Society of New York City, January 9, 1892.

a patient, suffering from chronic disease of any internal organ, seeks our advice, we always do everything in our power to keep the skin in an active condition; and we find that, when the latter gives out, our treatment is of little avail.

The function of the skin being threefold (an excretor of gases, an excretor of fluids, and a heat regulator), a perfect clothing must answer a threefold requirement, and we will now investigate the properties of fabrics in general use with regard to their porosity, hygroscopic qualities, and heat-conducting qualities.

Linen, silk, cotton, and wool are the only materials we shall consider, as they are the only ones which are now, or ever have been, used to any extent in clothing.

No kind of clothing fabric yields warmth; it can only preserve the natural warmth of the body, and prevent its radiation or conduction, and this it does well or badly according as it is a bad or good conductor of heat.

Count Rumford was the first to experiment in this direction, and he proceeded as follows: Several thermometers with long stems were wound about with a certain weight of the different materials to be tested, and, after being plunged into boiling water, and allowed to cool to a certain point, were then placed in a freezing mixture. The time required for the different thermometers to reach certain points was then noted, and in this way he was able to determine which material protected the bulb of the thermometer best from the surrounding medium, or, in other words, which was the best non-conductor of heat.

These experiments show that raw silk, as spun by the worm, is the best non-conductor, and that raw wool is the next best, followed by silk thread, spun wool, cotton, and linen. Raw silk can not be used, so that wool stands at the head of our list, and raw wool stands to spun wool as a non-conductor as eleven to nine—*i. e.*, it is over twenty per cent. better.

Parkes's experiments have shown that the hygroscopic properties of wool, as compared with cotton or linen (and these two stand about the same in this respect), are twice as great when weight is compared with weight, and four times as great when surfaces are compared. Perfectly dry wool can absorb fifty per cent. by weight of water, and retain from twelve to eighteen per cent.

The function of perspiration, as well as of heat regulation, takes place best when the fabric next the skin is a thoroughly porous one; and Pettenkofer's experiments have shown that, if heavy flannel be taken as allowing one hundred parts of air to pass through, linen will allow sixty and silk only fourteen parts to pass through.

The *Medical Record* for January 15, 1887, said: "There is no doubt that wool stands at the head of the materials out of which clothing is made. Its virtues depend upon its being a poor conductor of heat, its porosity allowing the passage of the exhalations from the skin, its power of absorbing moisture, and giving it up slowly and gradually."

Nearly a century ago Count Rumford said that woollen clothes greatly promoted insensible perspiration, owing to the strong attraction which subsisted between wool and watery vapor which was continually issuing from the human body. "It is evidently not due to the warmth of the covering; for

the same degree of warmth produced by more clothing of a different kind does not produce the same effect. It is a mistaken notion that it is too warm a clothing for summer. I have worn it in the hottest climates, and in all seasons of the year, and never found the least inconvenience from it. It is the warm bath of a perspiration confined by a linen shirt, wet with sweat, which renders the summer heats of tropical climates so insupportable; but flannel promotes perspiration, and favors its evaporation; and evaporation, as is well known, produces positive cold."

It will be seen from what has already been said that wool answers each one of the requirements of a perfect clothing material in the highest degree; and it only remains for us to determine how wool shall be used so as to take the greatest advantage of its properties. Until recently the only woollen fabric we have been acquainted with practically has been flannel, where the wool is first spun and then woven more or less tightly into a fabric. By this means the value of all the properties which make wool pre-eminent as a clothing fabric is diminished; and laboratory experiments made with wool as it comes from the sheep do not agree with those made on flannel—*i. e.*, spun and woven wool. In order to preserve the absorptive property of wool in the highest degree, the fibers must be arranged with their points against the skin, and not longitudinally, as in a woven fabric. This idea has already been recognized and taken advantage of by the originator of the Jaros hygienic underwear, and I pass around for your inspection a few garments made from this material. It is, as you will see, unspun wool caught into the mesh of a loosely knitted cotton back in such a manner as to preserve unimpaired all the properties which make wool valuable as a clothing fabric. Let me briefly recapitulate the qualities demanded of a clothing fabric, and then tell me if this fabric does not answer these requirements in the most admirable manner. It should be hygroscopic, porous, and so loosely woven as to include more or less air in its meshes. For, as has been pointed out above, less heat is lost by radiation if the body is surrounded by a layer of air heated to the body temperature or thereabout. Krieger has already called our attention to the fact that the outer framework of a fabric is but secondary in importance of action as a covering or clothing material when the material next the body has the important qualities just mentioned as being possessed by the Jaros hygienic underwear. I have here a sample of the latest production of the Jaros Company, which may be said to be the most perfect clothing fabric made. The framework or back of this is silk, rendering the fabric still lighter. The arrangement of the wool is such that, by capillary attraction, perspiration is absorbed, and carried to the silk or cotton back, whence it is evaporated into the surrounding atmosphere; and this attraction is so great that the back may be thoroughly saturated, while the wool next the skin is perfectly dry. When our clothing is damp from perspiration, or from any other cause, our bodies lose just as much heat as the moisture in the clothing is capable of absorbing. The importance of always having dry material next to our skin is evident; and the material which will retain the least moisture is the best. Woolen fiber is found

to answer this purpose more nearly than any other. The Jaros material is highly porous, allowing free ventilation; at the same time a large amount of air can be caught, and rendered to a certain extent immovable, thus preventing too rapid loss of heat by radiation. Von Ziemssen, in vol. xviii of his *Encyclopaedia*, says: "A material of loose texture confining much air in its interstices is warmer than the same amount of clothing material closely woven. Wool or cotton carded and spread out in the shape of a wadding and held will make a warmer garment than the same quantity spun and woven and similarly covered. This applies with force to underclothing." This fabric does not shrink; for cotton, the material of which the framework is made, never does to any extent.

While citing perfection attained in clothing materials, we are confronted by the Jaeger material, or stockinet, a loosely-knitted flannel made of pure wool, and comparing most favorably with the pure knitted woolen garments of the old established and renowned manufacturers, Cartwright & Warner, of England. Carefully selected wool is, no doubt, the great claim for this fabric, which is well as far as it goes. In the Jaros material, on the contrary, we find a practical accomplishment of scientific theories, the caprice of no one scientist having been followed out, and, in contradistinction to "systems," in which the professional world finds nothing new, we have a simple, practical, scientific material.

It is only recently that I have had my attention drawn to this Jaros wear, and have had an opportunity of testing it; and I must confess that nothing has given me such personal satisfaction and comfort. I have gone out into the cold from a small, overheated tenement-house room after performing a difficult and tedious obstetrical operation, with my white shirt saturated with perspiration, and have felt no trace of chill. And I have found on reaching home that, although my white shirt and the cotton back of my Jaros wear were wet, the wool next the skin was perfectly dry, as well as the skin itself. And this winter, for the first time in years, I have had no nasal catarrh, from which I usually suffer every autumn and winter; and I attribute my escape so far solely to my Jaros underwear. And, in this connection, let me say that Dr. O. B. Douglas, in a discussion before the Post-graduate Clinical Society, on the treatment of nose and throat diseases, expressed himself equally pleased with this wear.

Underwear of this description is of inestimable value to those whose occupation compels them to go from place to place where the temperature is continually changing; for, no matter how high or how low the temperature of the surrounding air is, the skin is perfectly protected against any sudden change.

I do not wish to be understood as detracting in the least from Professor Jaeger's due deserts; for he is entitled to great credit for what he has done in insisting upon the value of wool as a material to be worn next the skin. But he is simply re-echoing what Count Rumford said a century ago, which I have already quoted to you this evening. He has founded no new system; he simply insists that pure fine wool is better than the mixtures we have been using.

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CRANIECTOMY IN MICROCEPHALY.

In a recent paper on microcephaly M. Lannelongue strongly affirms the belief that the condition is due to a maldevelopment of the brain, and that the changes in the cranium are secondary, thus agreeing with Broca and others. Although the primary defect may not be in the cranial bones, there is abundant evidence in many cases that the brain is exposed to abnormal pressure. Believing this to be true, Horsley, as reported in the *British Medical Journal* for September 12, 1891, decided to operate upon a patient under his care. The child was three years old, usually restless, and never happy when quiet. He had an idiotic expression, and often made fretful noises, and placed his hands to his head, as if in pain. He was unable to swallow unless the food was pushed well back into his throat. His muscular development was excellent. The head was decidedly microcephalic, but symmetrical. The pupils were unequal.

An operation having been determined upon, an incision through the scalp, to the left of the median line, was made, extending from the frontal eminence backward. The flap was turned back and a strip of periosteum removed, half an inch broad and four inches long, tapering at the points. The underlying bone was removed along the same lines. The dura mater was exposed and bulged slightly. Healing of the wound was perfect. Undoubted improvement was soon noticed in the child's intelligence and general behavior, and the result was distinctly in favor of the opinion expressed by Lannelongue.

In Mr. Horsley's second case the result was less favorable. At the time of operation the child was seven years old. At its birth, which had occurred at the seventh month of gestation, there had been no fontanelles. From the eighth month it had been subject to convulsions. Its intelligence was slight and it was unable to speak. It was restless, often passionate, and decidedly idiotic in appearance. The head was of fair size, but the frontal region was very small.

In the operation a portion of bone was removed similar in shape to that in the first operation. A transverse incision was also made along the coronal suture as far as the pterion, and a narrow strip of bone removed. This was done with a view of relieving the speech center. During the operation the pulse became quick and irregular and the respiration was accelerated. These symptoms continued, hyperpyrexia developed, and the patient died.

From his own experience and from the collation of published cases Mr. Horsley is convinced that the operation should be performed in all cases, as the condition is otherwise hopeless and interference has evidently secured notable improvement in some instances.

## CAN THE PERIOD OF DESQUAMATION IN SCARLET FEVER BE SHORTENED?

It is the general belief that particles of cuticle cast off during the period of desquamation are active sources of infection. It has been alleged that the free use of antiseptic gargles and mouth-washes, together with the removal of epidermic scales as rapidly as they are formed, will destroy all contagion. It is the custom of many physicians to have the body bathed daily with warm water and anointed with oil or carbolized vaseline. A three-per-cent. ointment of carbolic acid, to which a little thymol is added, is said to make an admirable preparation for this purpose. This undoubtedly reduces to a great degree the risk of infection to others. That it materially shortens the period of desquamation is doubtful, though it is said that it tends to avert the sequelæ.

Jamieson, who has written much upon the subject, in an article in the *Lancet* for December 12th, proposes resorein as an agent that will actually accelerate desquamation. Its power to cause the outer layers of the epidermis to separate without injury to the deeper parts is well known. Used in the form of an ointment, it has not been found to have this result in scarlet fever, but in combination with soap it is said to be very active. Salicylic acid must be added to render this soap stable. In this form resorein seems to shorten the desquamative period decidedly. The soap should be used with warm water, and after it has been thoroughly washed away with clear water the body should be anointed with some simple oil.

## MINOR PARAGRAPHS.

## LEPROSY IN MINNESOTA.

WE would call the attention of those health authorities whose notions of leprosy are apparently contemporary with those of the first century of the Christian era to an article in the *Lancet* for March 26th, that has been indorsed by the well-known secretary of the State Board of Health of Minnesota, Dr. Hewitt, and by that excellent sanitarian, Dr. Henry B. Baker, of the Michigan State Board of Health. The article in question is by Dr. Gronvald, of Minnesota, and describes the experience of that State during the past forty years with the lepers among its Scandinavian population. It is stated that all leprosy persons are registered and kept under observation, and all suspicious persons are visited by inspectors of the State board. The only thing that the board requires is for the affected person to have his own bed and utensils. And yet, with so little interference with the freedom of the individual, there are but eighteen cases of leprosy in the State; in none of the descendants of lepers has there been any sign of the disease discovered; no leper has been born in Minnesota; and so no ground has existed for the exhibition of officious zeal in declaring a patient to be an outcast and treating him as such.

## A NEW METHOD OF ENTERORRHAPHY.

IN the *British Medical Journal* for April 2d Mr. F. Bowrenman Jessett reports a new method of enterorrhaphy with decalcified-bone tubes. The latter are of cylindrical form, one end flaring so that its diameter is double that of the opposite end, and the length of the two tubes is two inches and a half.

He designates the tubes as male and female, the former consisting of two parts: a cylindrical portion fastening into the proximal end of the intestines, and a sliding cylinder or spur that enters the female tube. In the flaring end four holes are drilled, through which pass two long threads of chromicized gut, armed with needles at each end. The intestine is excised, and the male tube is inserted into the proximal end of the intestine as far as the flange, the spur projecting beyond the divided end; the threads are passed through all the coats from within outward and held by clamp forceps, while the female tube is in like manner introduced into the distal end. The spur of the male tube is now passed into the female tube, the corresponding threads are tied, and the proximal end of the intestine is steadied with the left thumb and finger, while with the right thumb and finger the distal end is slipped over the proximal for a quarter or half an inch. With four quilt chromicized gut sutures the intestine is sewed and the operation completed. While this operation seems simple, the necessity of having prepared tubes of different sizes on hand presents the same objection that has been urged against Senn's plates.

## INDURATION OF THE STERNO-CLEIDO-MASTOID MUSCLE IN THE NEW-BORN.

DR. CLARENDON RUTHERFORD, professor of descriptive anatomy in the College of Physicians and Surgeons, of Chicago, has sent us an account of another case in which this condition was observed, and under circumstances similar to those recently reported. It occurred in May, 1890, in a first child, the head and shoulders of which were large. The induration was on the right side and extended from the clavicle upward about two inches. The muscle was somewhat tender on manipulation. The face was slightly turned to the left side and the head drawn toward the right shoulder. The swelling was first noticed during the fourth week after delivery, which was instrumental. The umbilical cord was around the neck, and the traction on the head and shoulder might have done the damage. The induration disappeared in about four weeks, after the use of an ointment of sodium iodide, potassium iodide, and vaseline. The child did not grow until after the disappearance of the swelling. There were no glandular enlargements.

## METALLOTHERAPY IN A CASE OF HYSTERIA.

IN the *Gazette des hôpitaux civils et militaires* for April 2d, Dr. Moricourt gives a minute history of a case of hysteria major in which, after long-continued treatment of various sorts, the patient was hypnotized and, metalloscopy being practiced, found to respond to aluminium and especially to gold. Gold coins were accordingly employed, applied to the forearms, and slow but complete recovery took place. On examination after the lapse of more than a year from the time of discontinuing treatment, the patient, a girl of nineteen, was found still quite free from hysterical symptoms, except that she could not help laughing whenever a funeral procession passed.

## THE INFLUENCE OF PURPURA HEMORRHAGICA ON MENSTRUATION AND PREGNANCY.

IN the concluding part of volume xxxiii of the *Transactions of the Obstetrical Society of London*, for the year 1891, we find, a carefully prepared article by Dr. John Phillips dealing that rare occurrence, purpura hemorrhagica as a complication of the generative functions in women. Dr. Phillips thinks the following conclusions justifiable: 1. That the prognosis in cases of

pregnancy complicated by this disease is extremely grave, the large majority proving very rapidly fatal. 2. Death may be due to post-partum hæmorrhage or to some constitutional condition, allied to septicæmia, of the nature of which we are so far ignorant. 3. That abortion or premature labor inevitably takes place, but at variable periods, owing either to the serious general disturbance, or to hæmorrhage into the placenta. 4. That the ordinary purple rash may be modified somewhat, first appearing as a bright red stain, darkening in a few hours' time. 5. That apparently, so far as has been observed, the disease is not, as a rule, transmitted to the fœtus; but that it may be classed as one of the causes of fœtal mortality *in utero*.

#### THE ETIOLOGY OF PUERPERAL ECLAMPSIA.

In the *Comptes rendus hebdomadaires des séances de la Société de biologie* for March 25th M. Combemale and M. Bué, of the clinical laboratory of the Lille faculty of medicine, give brief accounts of four cases of puerperal eclampsia in which they found the *Staphylococcus pyogenes aureus* or the *Staphylococcus pyogenes albus*, especially the latter, in the blood, either during or immediately after labor, and succeeded in cultivating it. The authors do not draw the positive conclusion from these few facts that the micro-organism is the cause of the convulsions, but they intimate that that is probable.

#### THE CITY BOARD OF HEALTH.

CERTAIN resignations of officers are announced as having recently being made "by request," and it is intimated that the requests were made on account of the officers' political affiliations being distasteful to the powers that be. In another instance an excellent officer, a physician of high attainments and of long experience in the board's employ, is said to have been made to change places with his deputy. We hope it will be shown that the newspapers are wrong in attributing these changes to political motives, or at least that the medical members of the board of commissioners protested against them.

#### ITEMS, ETC.

The American Pædiatric Society will hold its fourth annual meeting in Boston on the 2d, 3d, and 4th of May, in the Boston Medical Library Association Building, No. 19 Boylston Place. The preliminary programme gives the following titles: The president's annual address, by Dr. William Osler, of Baltimore; Experiments as to the Value of Nascent Ozone in Certain Forms of Diseases of Children, with Demonstration of an Efficient Generator, by Dr. Augustus Cailé, of New York; Manifestations of la Grippe in Children, by Dr. C. Warrington Earle, of Chicago; An Epidemic of Alopecia in a School of Girls, by Dr. C. P. Putnam, of Boston; a discussion on The Relation of Rheumatism and Chorea, by Dr. C. W. Townsend, of Boston, Dr. M. Allen Starr, of New York, and Dr. Samuel S. Adams, of Washington; The Nomenclature of Diseases of the Mouth, by Dr. T. M. Rotch, of Boston; Report of the Committee on Nomenclature of Stomatitis; Pseudo-diphtheritic Processes, by Dr. W. D. Booker, of Baltimore; The Treatment of Diphtheria by Sublimations of Mercury, by Dr. Dillon Brown, of New York; Typhoid Fever in Children under Two Years, by Dr. W. P. Northrup, of New York; Typhoid Fever in Children, by Dr. C. Warrington Earle, of Chicago; Typhoid Fever in Infancy, by Dr. W. S. Christopher, of Chicago; Acute Emphysema in Children, with Report of Cases, by Dr. F. Forchheimer, of Cincinnati; Pre-tubercular Anæmia, by Dr. B. K. Rachford, of Newport, Ky.; Prevention *versus* Medication in the Management of the Diseases of Children, by Dr. I. N. Love, of St. Louis; Syphilitic Broncho-stenosis, by Dr. A. Seibert, of New York; A Simple Method for Clinical Examinations of Breast Milk, by Dr. L. Emmett Holt, of New York; Sacro-coccygeal Tumor in a Child Three Weeks Old; Op-

eration; Recovery, by Dr. F. Huber, of New York; Two Tracheal and Bronchial Casts, by Dr. F. Huber, of New York; A Case of Death from Laryngismus Stridulus in Incipient Rhachitis, by Dr. Samuel S. Adams, of Washington; and The Value of Milk Laboratories for the Advancement of our Knowledge of Artificial Feeding, by Dr. T. M. Rotch, of Boston.

**The Presbyterian Hospital.**—Appointments on the medical staff have recently been made as follows: Dr. Frederick E. Lange, consulting surgeon; Dr. Francis P. Kinnicut, Dr. William P. Northrup, and Dr. Walter B. James, visiting physicians; and the following-named gentlemen as consultants in special departments: Dr. T. Gaillard Thomas in gynecology, Dr. M. Allen Starr in neurology, Dr. Francke H. Bosworth in laryngology, Dr. Charles Stedman Bull in ophthalmology, Dr. Albert H. Buck in otology, Dr. Newton M. Shaffer in orthopedics, and Dr. George Thomas Jackson in dermatology.

**The Grant Monument and the Medical Profession.**—A meeting of "representative physicians and surgeons of New York city" was held at the Holland House on Wednesday afternoon, for the purpose of securing the co-operation of physicians in the work of providing for the construction of General Grant's tomb.

**The Brooklyn Surgical Society.**—At the meeting of Thursday evening, the 21st inst., the special order of business was a paper by Dr. George Wackerhagen.

**The Societe de biologie.**—At the meeting of March 26th Professor Chauveau was elected president for the term of five years, as the successor of Professor Brown-Séguard.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from April 10 to April 16, 1892:*

WELLS, GEORGE M., First Lieutenant and Assistant Surgeon, is relieved from duty at San Carlos, Arizona, and ordered to report in person to the commanding officer, Fort Grant, Arizona, for duty at that station.

GLENNAN, JAMES D., First Lieutenant and Assistant Surgeon, is relieved from duty at Camp Oklahoma, and ordered to Fort Sill, Oklahoma Territory, for duty at that station, relieving Captain Francis J. Ives, Assistant Surgeon, who, on being so relieved, will report in person to the commanding officer at Fort Sheridan, Illinois, for duty at that post. S. O. 86, A, G. O., April 12, 1892.

CHAPIN, ALONZO R., Captain and Assistant Surgeon, is granted leave of absence for three months on surgeon's certificate of disability.

GORGAS, WILLIAM C., Captain and Assistant Surgeon, is granted leave of absence for two months, to take effect on or about May 1, 1892, with permission to apply for an extension of one month.

ARTHUR, WILLIAM H., Captain and Assistant Surgeon, is relieved from duty at Fort Grant, Arizona, and ordered to Vancouver Barracks, Washington, for duty as Post Surgeon at that station, relieving Captain Louis Brechemin, Assistant Surgeon. Captain Brechemin, upon being relieved by Captain Arthur, will return to his proper station, Presidio of San Francisco, Cal.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending April 16, 1892:*

DIXON, W. S., Surgeon. Ordered to the Smithsonian Institution.

#### Society Meetings for the Coming Week:

MONDAY, April 25th: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, April 26th: Louisiana State Medical Society (first day—New Orleans); Medical and Chirurgial Faculty of Maryland (first day—Baltimore); Texas State Medical Association (first day—Tyler); New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society (private); Buffalo Obstetrical Society; Medical Society of the County of Putnam (quarterly), N. Y.; Boston Society of Medical Sciences (private); Hunter-

don, N. J., County Medical Society (Flemington); Litchfield, Conn., County Medical Society (semi-annual).

WEDNESDAY, *April 27th*: Louisiana State Medical Society (second day); Medical and Chirurgical Faculty of Maryland (second day); Texas State Medical Association (second day); New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Medical Society of the County of Albany, Auburn, N. Y., City Medical Association; Philadelphia County Medical Society; Gloucester, N. J., County Medical Society (quarterly); Middlesex, Mass., North District Medical Society (Lowell).

THURSDAY, *April 28th*: South Carolina Medical Association (first day—Georgetown); Medical and Chirurgical Faculty of Maryland (third day); Louisiana State Medical Society (third day); Texas State Medical Association (third day); New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopædic Society; Hospital Graduates' Club (New York); Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private—annual); Hartford, Conn., County Medical Association (annual); Pathological Society of Philadelphia.

FRIDAY, *April 29th*: South Carolina Medical Association (second day).

SATURDAY, *April 30th*: South Carolina Medical Association (third day).

#### Answers to Correspondents:

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## Reports on the Progress of Medicine.

### CUTANEOUS AND VENEREAL DISEASES.

BY SOPHIE KUPFER, M. D.

**The Treatment of Eczema by Thilanine** is the subject of a paper by Dr. Saalfeld (*Therap. Monatsheft*, November, 1891). Thilanine is obtained by the action of sulphur upon lanolin, and contains three per cent. of sulphur. It is a yellowish-brown ointment, having the consistency of lanolin. It is of value in superficial inflammations of the skin, and is advantageously substituted for the inert ointments, as it is more energetic in action. The author has used it in several cases of eczema, and has never found it to produce any irritation, while it has always yielded excellent results. In other cutaneous affections—such as herpes zoster, syccosis vulgaris, and a case of chrysoarobin dermatitis—he has likewise obtained excellent results from its use.

**Nitrate of Silver for Weeping Eczema.**—Dr. Leven (*Therap. Gaz.*, Feb. 15, 1892, p. 114) recommends the use of a one-per-cent. solution of nitrate of silver in obstinate cases of weeping eczema. Several applications are to be made during the day, the part to be covered with a bismuth ointment in the intervals.

**Eczema of the Face and Scalp in the Infant** is treated by Dr. Baumel (*Nouv. Montpel. méd.*, Jan. 2, 1892, p. 19) in the following manner: The hair is cut off and a hood of oil-silk is worn during the night. This hood favors perspiration, and the secretions soften and loosen the crusts. Simple poultices will accomplish the same object. The crusts are then very simply detached by washing with soap and water in the morning. The following ointment is then applied twice daily: R Vaseline, ℥j; iodoform, gr. xv to ℥j, according to the age of the patient. He gives internally a teaspoonful of the syrup of horse-radish root twice daily, and regulates the nursing and diet.

**Exfoliative Dermatitis.**—Dr. Stephen Mackenzie (*Lancet*, Jan. 2, 1892, p. 27) describes a cuticular glove, obtained from the hand of a patient fifty years of age. He had shed the skin of his hands at regular intervals twice during the year. The exfoliation was preceded by redness and pain in the parts, and an eruption of red spots.

**The Contagiousness of Leprosy** is the subject of an article by Dr. Thin (*Lancet*, Jan. 16, 1892, p. 134). He investigates the origin of leprosy in the town of Parcent, Spain, which, now a leper colony, was free from the disease in 1850. At that time a leper settled in Parcent and became intimate with another man, a native of the town. They ate and drank from the same dishes and occupied the same bed. Within a year the latter had contracted the disease, and from this nucleus leprosy spread, until, at the date of observation, sixty cases of the disease had occurred, and forty-five persons died. The intimates of the person mentioned were the first to be affected, while those who shunned his society remained free from the disease. The disease likewise spread to a neighboring town. Dr. Thin also relates the case of a healthy infant who contracted the disease from a wet-nurse, and who in turn infected his brother.

**Amygdalitis and Cutaneous Eruptions.**—The connection between these affections is the subject of a paper by M. Le Gendre, in *L'Union méd.* (Jan. 21, 1892). He notes a case of amygdalitis in a woman, aged thirty-three years, in the course of which several successive eruptions of purpura and papular erythema appeared. They ended when the amygdalitis disappeared. The patient had mild fever, fugitive pains in the joints, and marked debility. He reports three other cases, in the first of which an erythema multiforme appeared on the fourth day of a follicular amygdalitis; in the second, a month had elapsed before the appearance of articular pains and purpura, the patient having been in a very debilitated condition in the interim. The third case was that of an attack of amygdalitis that appeared between two eruptions of erythema polymorphum. M. Le Gendre urges the investigation by bacteriologists of the connecting link between tonsillar and cutaneous manifestations.

**A Case of Traumatic Pemphigus** is recorded by Dr. Phillippi (*Monatsheft für prakt. Dermat.*, i, 1892, 42). The patient, a woman of thirty-one years, complained of severe pains in the feet and legs, more pronounced after she had been standing or walking for any length of time. An eruption of vesicles then appeared upon the dorsal surface of both feet and on the lower third of the leg. A large serpiginous blister was found when she presented herself for examination, and several pigmented spots, of about the size of a quarter of a dollar, where a crop of blisters had been.

**Pyrogallic Acid in Psoriasis.**—Dr. Grellety (*Gaz. méd. de Paris*, Feb. 6, 1892) gives the following formula for the local treatment of psoriasis: R Salicylic and pyrogallic acids, āā ℥jss.; alcohol and ether, q. s. to dissolve; collodion, ℥ijss. This preparation has no toxic properties.

**Antiseptics in Skin Diseases.**—In an article in the *Rev. gén. de clin. et de théor.* Dr. Arnoz lays down the following general rules for the treatment of diseases of the skin: The general indications are: To obtain cutaneous and intestinal antiseptics; to relieve itching; to remove the thick scales in certain diseases; to relieve the congestion or to stimulate cutaneous circulation; to apply certain specifics for destruction of irreparable lesions; to use for this end internal or external medicaments, not very numerous in all; and to prescribe diet and heat cures. As for antiseptics, in simple cases, in which no special action is required, he recommends boric acid. Its action, he asserts, is sufficiently antiseptic, and, though it is not very energetic, it is neither irritant nor toxic. To produce sealing of the skin he uses salicylic acid or tincture of iodine. In syphilitic ulcerations, mercury, and in tubercular, iodoform are used.

**Hydrotherapy and Nerve Remedies in Dermatoneuroses.**—M. Jaquet (*Rev. gén. de clin. et de thérap.*, No. 8, 1892), after applying the usual remedies in a case of lichen planus, had recourse to hydrotherapy with a very good result. He had, during a month and a half, treated the patient with baths, Fowler's solution, etc., with no result. He then ordered a daily douche of a temperature of 95° F., to be followed by a short cold douche. In a few days a great change took place. The itching was stopped, and the eruption began to disappear during the third week of treatment. The treatment lasted six weeks, when the patient was completely restored. Five months later a relapse occurred, which subsided rapidly upon employing the douches. The action was, in his opinion, that of regulating the nervous system, and thus relieving the severest symptom of the disease—viz., the pruritus. M. Jaquet calls

attention to the nerve remedies which are very efficacious in itching affections. Antipyrine and the bromides are of great value.

**Syphilitiform Erythema** is, according to M. Fournier (*Rev. gén. de clin. et de thérap.*, No. 8, 1892), a disease which is often confounded with true syphilis. It develops in children between the ages of three and eight months, and may appear suddenly in a child whose health has been good, but who suffers (in most cases) from diarrhoea. The site it occupies is the genital region and the internal surface of the thighs, in particular the cutaneous folds. It begins as a papulo-vesicle, which resembles closely a vaccine papule. The vesicles may be isolated or in groups, but they gradually coalesce and form one large lesion. In the second stage the center becomes depressed, the vesicle ruptures, and the surface is eroded and, when not properly treated, simulates a moist papule. Generally, the affection remains a purely local one, though in some cases the glands become involved. Usually a second crop appears at the end of several days, passing through the same succession as the preceding one. When treated, it lasts at least a week before cicatrization occurs. When neglected, its course is long. The treatment should be only local—cleanliness, washing with borie-acid solution, and dressing with bismuth, zinc oxide, salol, or iodoform. The diagnosis is of the utmost importance, as it is very undesirable to institute mercurial treatment in non-syphilitic children, particularly when diarrhoea is present. A careful family history should be obtained, and if the parents are healthy, the diagnosis is easy to make. If acquired syphilis is suspected, a very careful examination will reveal the initial lesion. When no previous history can be obtained, other signs of syphilis must be looked for. Deformities, coryza, mucous patches in the mouth, all may aid in the diagnosis.

**Cod-liver Oil in Lupus Vulgaris.**—A woman, thirty-three years of age, had a patch of lupus vulgaris on the left cheek, which was cured by the scraping method. The right cheek then became similarly affected. Iodoform was used, but with no success (*Rev. gén. de clin. et de thérap.*, No. 3, 1892). M. Zilgien then applied the following dressing. He dipped a band of iodoform gauze into cod-liver oil and alternated this dressing daily with simple iodoform powder. Wherever the oil was applied, rapid cicatrization took place.

**A Rare Form of Skin Disease** is described by Dr. Kenwood in the *Lancet* (Jan. 9, 1892). It is an aberrant form of urticaria, occurring as the consequence of a severe body chill. No concomitant derangement of the digestive or reproductive organs was found, though there was an accentuation of the color and acidity of the urine. When seventeen to eighteen years old, the patient first noticed the occurrence of swellings whenever she had a chill. Otherwise she was in excellent health and of a slightly florid complexion. The eruption consisted of wheals, six inches in diameter, appearing three days after the chill, when the other effects were somewhat spent. They occurred upon any part of the body. The lips and eyelids, particularly the lower eyelids, were frequently attacked. The pharynx was involved upon one occasion. The area to be affected first assumed a slight blush, sometimes bright like erythema, but more generally of a dusky hue. A faint tingling pain manifested itself at this time. When rubbed, the center rose, became relatively blanched, and then the lesion spread rapidly by an indefinite border until it reached the limit of its extension. It now appeared as a pale swelling, surrounded by a faint red line. The tingling sensation, which was always slight, was greater in the stage preceding the swelling, and diminished gradually, disappearing when the wheal reached its maximum. At this stage there was no subjective sensation of any kind, unless the wheal was rubbed or pressed. The duration was two days in bad attacks, but the lesions had come and gone in as many hours. They left no trace. Sometimes, early in the attack, friction over an apparently normal area produced wheals. The feature of special interest in the case was that some of the swellings had assumed the character of a condition described as acute circumscribed cutaneous œdema. There were present in most attacks three or four œdematous tumefactions of the skin and subjacent tissue, firm and knobby in consistency, with ill-defined borders, and slightly paler in hue than the surrounding skin. They pitted very slightly upon pressure. Their favorite site was the skin over the deltoid muscle of the arm, and that over the buttocks. In a recent attack, swelling of the tongue was caused by one of them. They were never less than two inches and a half in diame-

ter, and were generally of an oval shape. Their similarity to the wheals was shown by their changes of development, the rapidity of their appearance and disappearance, and the common cause producing both. There was at first a blushing area, then a rapid swelling, growing paler as it increased in size, and finally the surrounding zone of skin became slightly redder in color. There was no defined border, and subjective sensations were not present.

The author, considering the various features of the case, concludes that it is a hybrid of the following three conditions: (1) Common acute urticaria, (2) urticaria gigans, (3) acute circumscribed œdema. As the patient was of a somewhat rheumatic constitution, the treatment instituted was with a combination of salicylate of sodium and iodide of potassium.

**Heat in the Treatment of Syphilis.**—Dr. Aussass (*Jour. des mal. cut. et syph.*, January, 1892) presented before a society a young man, seventeen years of age, who had become infected from a wet-nurse. From the age of fifteen years on he had had a persistent headache, which yielded neither to mercury nor to large doses of iodide of potassium. Residence in a warm climate improved him a little. The doctor then ordered daily hot baths in combination with mercurial friction, and obtained a brilliant result in a very short time. The benefit was due, in his opinion, to the more rapid elimination of the mercury under the influence of the hot baths, and to an increased receptivity of the body for the remedy.

**Primary Chancre of the Cheek.**—A case is reported by Dr. Shield (*Lancet*, Jan. 30, 1892) occurring in a widow, thirty-four years of age. No history of infection could be obtained. All that was known was that the sore had existed for two months. It was a dusky-colored swelling, of the size of a florin, and situated in the center of the left cheek. The edges were sharply defined and there was neither ulceration nor discharge. The submaxillary glands were enlarged, and the skin was covered with a dusky syphilitide. Mercurial treatment was instituted, and under it the rash had faded and the chancre had become reduced in size.

**Succinimide of Mercury for Injections.**—In the *Arch. für Derm. und Syph.* (January, 1892), Professor de Amicis gives a formula for the hypodermic injection of mercury, which he has used with great success. He injects a one-per-cent. aqueous solution of succinimide of mercury, to which he adds a one-per-cent. solution of cocaine. It yields good results in both secondary and tertiary lesions. Its activity is as great as that of the bichloride, and it produces much less pain and irritation.

**The Modern Treatment of Syphilis.**—Dr. Finger (*Med.-chirurg. Wochenschr.*, Feb. 5, 1892) advocates the use of baths in the pustular and ulcerated forms of the disease. He considers the absorption of mercury in considerable quantity as the first advantage of this method, its local action upon the lesions themselves the second. He dissolves two and a half to eight drachms of bichloride of mercury in about fifteen ounces of water, and adds the whole to a bath having a temperature of 78° to 80° F. This temperature should be maintained by the addition of hot water. The patient remains in the bath from half an hour to two hours. It is taken daily and is to be followed by an hour's rest in bed. If the lesions are only upon one limb, an arm or foot bath will be sufficient. For this a drachm and a half to three drachms of the bichloride should be used.

For children the author advises a mode of treatment rarely employed—viz., the application of mercurial plasters. The back, chest, arms, and legs are surrounded in definite rotation with the plasters, which are left *in situ* for several days until they fall off spontaneously. Treating of the hypodermic method, he calls attention to the superiority of the intramuscular method over the subcutaneous injections of insoluble salts. He warns against the danger of cumulative action in these cases. The mercurialism can not be met excepting by surgical means involving an incision over the site of injection, and removal of the injected material. He advocates the use of a one-per-cent. solution of corrosive sublimate plus a twenty-per-cent. solution of common salt as the best preparation for injection. A solution composed of sodiodate of mercury, fifteen grains; potassium iodide, twenty-five grains; distilled water, two drachms and a half, is the most energetic, according to him, and is sufficient, being injected five to six times at intervals of a week, to accomplish a complete cure.

**Aristol for Venereal Ulcers** is recommended by Dr. Güntz (*Memo-rab.*, Jan. 23, 1892) as a substitute for iodoform. He considers iodoform the best remedy, but recognizes the objection to its odor. Aristol should not be remedy in the form of an ointment, but should be applied directly to the wound. It is insoluble in water, but forms a tough brown pap with olive oil, which is, however, difficult of application. The undissolved powder itself is inert. Therefore the ulcer should be strewed with the powder, and a drop of olive oil be allowed to fall slowly from a glass rod upon it. Without waiting for the solution to be effected, the ulcer is promptly covered with some fine impermeable tissue, under which the solution takes place slowly. No cotton or charpie should be applied to the ulcer. If the secretions are very profuse, or if the ulcer is in an unfavorable location, this dressing must be secured by means of court-plaster. The application should be renewed twice daily, after careful removal of that previously applied. Its advantages are that it is painless, odorless, and non-irritating, and that there are no inconveniences attaching to its use. Painful ulcers become painless, and previously bedridden patients become able to go about after its use. If, however, as is the case in eroding or torpid ulcers, the healing tendency is not sufficiently rapid, recourse to iodoform must be had.

Although aristol is not curative in soft chancres, nevertheless, where it is substituted for iodoform, there is no danger that the lesions will assume a more serious character. This happens frequently when mercurial ointments are used. In hard chancres its action is better. But it is of especial value in secondary lesions, in ulcerating gummata, in tubercular syphilides, etc. Although, if continued long enough, this treatment will effect a cure, nevertheless it is hastened by the internal administration of antisyphilitics.

**Ointments.**—Dr. Wende (*Buff. Med. and Surg. Jour.*, January, 1892) lays down the following essentials for a good ointment basis:

1. *Proper Consistence.*—It must be soft, smooth, and pliable, readily admitting of a uniform application.
2. *Homogeneity.*—It must be perfectly homogeneous, free from grittiness and irritating bodies.
3. *Durability.*—It must not show a tendency to change its physical and chemical peculiarities on exposure or long keeping.
4. *Miscibility.*—It must be capable of easily receiving the ingredients to be combined or incorporated.
5. *Power of Imbibition.*—It must be capable of absorbing liquids, especially water.
6. *Limitations of Temperature.*—It must have a melting-point somewhat higher than the temperature of the body. It must not liquefy.
7. *Inability to produce Irritation.*—It must be perfectly bland and neutral in reaction.

**Syphilis and Heredity.**—Dr. Molfese (*Il Progresso medico*, Jan. 20, 1892) cites the case of a young man, twenty-three years of age, who contracted syphilis and was treated with protiodide of mercury and ealomel. Intense headache, evening fever, and profuse night-sweats ensued after a short period. Inguinal, cervical, and submaxillary adenitis was present. There were mucous patches on the sides of the tongue, on the pillars of the fauces, on the soft palate, and at the angles of the mouth, and a maculo-papular syphilide covered the body. The bichloride of mercury was then injected, and marked improvement was noted after the tenth injection. Disappearance of the headache, fever, and eruption marked the improvement, but the mucous patches persisted, breaking out anew in another place when they disappeared from a previous one. During two years of observation it was found that, if for any period, however short, there was an interruption of the injections, the submaxillary and inguinal glands became swollen and painful. Not fully two years after the date of infection the patient married a healthy woman, who, ten months later, gave birth to a healthy child. The patient had, immediately preceding marriage, subjected himself to a treatment of eighty injections. Neither mother nor child showed any evidence of syphilis. The woman, becoming pregnant for the second time, aborted at five months, and two months later again conceived, and aborted at three months. After the first abortion glandular enlargement was found; she lost flesh, and had rheumatoid pains. Two months after the second abortion she again conceived, and was delivered at term of a healthy child. The woman underwent no treatment,

with the exception of taking a few ounces of iodide of potassium. The husband received fifteen hypodermic injections, but this was when the pregnancy had already advanced to six months. Dr. Molfese concludes, therefore, that the mother was infected, not from the husband, but from the first foetus; and that a syphilitic father who has borne to him one healthy child can not count upon immunity from the disease for other offspring.

## Miscellany.

**Hippocrates** was the theme of a "bibliographical demonstration" in the Library of the Faculty of Physicians and Surgeons of Glasgow, on November 23, 1891, by Dr. James Finlayson, the honorary librarian. Written out from memory, it appears in the April number of the *Glasgow Medical Journal*. The greater portion of it is as follows:

*Value of Historical Studies.*—In resuming our "bibliographical demonstrations" to-night, I wish to take the present opportunity of saying that I have long desired to try this method of directing the attention of some of our students or young graduates to the history of medicine. I believe that the history of our art is not only full of interest to us as students, but that it is of great importance to us as practitioners. To those, especially, who have only recently entered on practice, it seems to me that some knowledge of the history of medicine affords the only means of supplying the place of personal experience, in judging of the ever changing phases of our art. The history of various revolutions in theories and in practice, and the indications thus afforded of the lines on which steady and substantial progress has been made since the earliest times, or, on the other hand, of the pitfalls into which our predecessors have been entrapped, seem to me the only way of securing for the inexperienced any sense of "perspective" in looking at new facts and new ideas as they arise.

But the history of medicine seems never to have been much of a success in the schools of Scotland; even when taught, as it has been in Edinburgh, by a man of the greatest eminence and ability, the success is reported to have been dubious, or at least slight. In England, so far as I know, the results have not been much better, although the requirements of the Royal College of Physicians of London in the examination for its membership have kept the subject more alive there than here.

*Method of Bibliographical Demonstrations.*—I have for a long time thought that this subject, like most of our medical subjects, should be approached—if approached at all in the form of lectures—by the practical methods we now adopt in other departments. My own personal experience was that I only began to feel the reality underlying such names as Hippocrates, Galen, Avicenna, Bonetus, or Morgagni, when I was led, during my connection with the medical library in Manchester, to handle the works of the giants of the past. When thus made to realize the substantial character of their contributions, an occasional dip into their writings, if even only to read their title pages, the headings of their chapters, or a short passage on some subject having a special interest at the moment, gave me, from that time, a sense of a certain personal acquaintanceship with the writers, very different from the mere shadowy idea previously gathered from seeing or hearing their names in a book or a lecture. After such a glimpse, one sometimes felt impelled, and certainly more prepared, to gather up from historical or biographical works more detailed information as to the lives and doctrines of those who had left their mark for all time.

In charge of a valuable medical library in this great medical center, I have often thought of trying how far the method of "bibliographical demonstrations" could be made available in stimulating interest and laying the foundations for future study; but the pressure of practical work, of a varied but always of a more urgent kind, has hitherto prevented me from undertaking the experiment. Nearly two years ago I obtained permission from the Council of the Faculty to give demonstrations in the Library to any members of the profession I might think of inviting, but I was only able to make a beginning this winter. The

slight preliminary experiments already made this month seemed so encouraging that I have now ventured, at this third meeting, to enter upon a demonstration of the Hippocratic writings.

Our meeting here is small, but, in my view, that is one of the conditions of success in this plan. We wish the numbers to be such that you can all sit around the table on which the books are placed, see them when demonstrated, and look at them quietly for yourselves after the demonstration is over. I began the demonstrations with old anatomical works containing many curious and attractive illustrations, so as to cultivate this habit of personal examination; in the subject before us to-night the illustrations must be drawn from selected passages which I will read from the books before you.

The next point of difficulty which had to be faced was the selection of an audience. Our over-pressed students can scarcely be expected to take the trouble of learning about anything which "does not pay" at the examinations, although at my second demonstration this winter of books bearing on Physiognomic Diagnosis, to which students were invited, I had a goodly number of them—as many, indeed, as desired. After consideration, it seemed to me that the most suitable audience for my purpose was such as I have to-night—an audience selected chiefly from the residents at the various hospitals here, according as they were understood to be interested in such matters, with the addition of any one else who expressed a desire to come. As most of you here have been more or less associated with me as hospital assistants, I felt that whatever deficiencies I showed in carrying through this new enterprise, I would at least receive a sympathetic hearing and a kindly judgment.

*Peter Lowe's Translation of the Prognostics.*—In this library it may be legitimate to begin a demonstration of the Hippocratic writings by showing you the first translation into English of any portion of them. This was made by Peter Lowe. He published his translation in 1597, and obtained a charter for our Faculty in Glasgow from James VI in 1599. His translation is notable as being the first attempt to render into English, for the use of practitioners, any of the great Hippocratic treatises. But we can not regard it as a very scholarly translation. Indeed, it appears, from the researches of Dr. Creighton, that his translation of the Presages (as he calls the Prognostics) was made neither from the Greek nor Latin, but from the French version by Canappe, published in Lyons in 1552; this, again, was from the Latin edition of Rabelais, and founded on the text of Copus. The source of Peter Lowe's translation is shown not merely by such things as the headings of the chapters in the Presages, but by its association with a translation of the Oath also; and, above all, by the prefixing of the same Life which occurs in Canappe's French translation, but not in Rabelais's edition.\* In this Life, by a curious misprint, "Pereno" occurs in all the four editions of Peter Lowe's translation instead of Zeno (the Eleatic philosopher), who is referred to as a contemporary of Hippocrates.

It is in the Prognostics that the celebrated passage occurs describing what is known as the "facies hippocratica." I will read you Peter Lowe's rendering of it in his translation of The Booke of the Presages of deuyne Hippocrates. I quote from the third edition, but I believe it is the same text as in the first, published in 1597:

*"How the Physitian or Chyrurgian may presage by signes of the Face, in sicknesse.*—It is requisite to consider and contemplate the Face of the sicke. First to know if it be such as in health, or but a little different: and if it be so, the Medicieir Chirurgian may have a good presagment and hope of Recoverie. But if it be greatly altered, and changed, as followeth, hee shall esteeme it in perill and danger of death, when the nose and nostrills are extenuated and sharpened by the same maladie, and the eyes hollow, and the temples, viz., the parts betweene the eares and forehead are cleane, and the skinne of the brow is hard, dry, and loose, and the eares cold and shronke, or almost doubled, and all the face appeareth blacke, pale, livide or leaden, and greatly deformed, in respect of that which it was in time of health."

On reading any rendering of this passage one is at once reminded

\* Some further details on this subject may be found in *Account of the Life and Works of Maister Peter Lowe*, by James Finlayson, M. D. (Glasgow, 1889); also in an article by Dr. Charles Creighton on Falstaff's Deathbed, in *Blackwood's Magazine*, March, 1889.

of the celebrated description in Shakespeare of the death of Falstaff, where Dame Quickly says:

"For after I saw him fumble with the sheets and play with flowers, and smile upon his fingers' ends, I knew there was but one way: for his nose was as sharp as a pen and a' babbled of green fields," etc.—Henry V, Act ii, scene 3.

The question has arisen as to how Shakespeare could have obtained access to the description of the *facies hippocratica*, and it has been suggested that Peter Lowe's English translation may have been available for one who had "small Latin and less Greek." So far as the dates go, they might, indeed, fit in, as Peter Lowe's translation was issued in London in 1597, and King Henry V was first published in 1600. After a full investigation of the subject, however, Dr. Creighton has come to the conclusion that this translation is *not* the source of Shakespeare's phrases.\*

*Chronology—Hippocrates a Reality.*—I have placed on the board some dates to guide you in your ideas of the time, according to the best authorities, when Hippocrates flourished, adding various dates selected from different countries for the sake of comparison:

	B. C.
Hippocrates.....	(about) 460-357
Socrates.....	469-399
Zeno, the Eleatic philosopher, born.....	488
Plato.....	428-389
Aristotle.....	384-322
Roman Decemviri created.....	451
Virginus killed his daughter.....	458
Second return of the Jews under Ezra.....	458

But on looking at such a table one is reminded of important preliminary questions which have been raised—viz., Was there such a man? Were not the Hippocratic writings merely a miscellaneous collection, issued under a traditional name?

The first question seems capable of a satisfactory answer in the affirmative. M. Littré, in his valuable edition of Hippocrates, in the ten volumes now before you, has gone into this matter critically in the elaborate introduction contained in the first volume. M. Littré was a learned member of our profession; he is the same of whom you have all heard as the author of this great French dictionary, in four large volumes, which I show you here. Some of you may also have heard of him as an exponent of the positive philosophy of Comte. M. Littré (vol. i, p. 29) quotes a passage from one of the dialogues of Plato (*Protagoras*), where Socrates is represented as saying to one of his auditors, who happened to be called Hippocrates—

"If for example you had thought of going to Hippocrates of Cos, the Asclepiad, and were about to give him your money, and some one had said to you: You are paying money to your namesake Hippocrates, O Hippocrates: tell me, what is he that you give him money? How should you have answered?

"I should say, he replied, that I give money to him as a physician.

"And what will he make of you?

"A physician, he said." † (Jowett's Translation, second edition, vol. i. Oxford, 1875.)

M. Littré contends that this passage from Plato, who lived shortly after the date ascribed to Hippocrates, proves that Hippocrates was a physician; of the Island of Cos; of the family of the Asclepiade; that he taught medicine, and received fees for doing so; further, that as the words are put into the mouth of Socrates, these two great men must have been contemporaries. This little glimpse shows you the kind of evidence which can be adduced to prove the veritable existence of Hippocrates and his approximate date. Another passage is quoted by M. Littré (vol. i, p. 72) from Aristotle, who, although somewhat later, is still near enough to be an important witness (*Politics*, Lib. vii, cap. 4), "When we speak of the great Hippocrates we understand not the man, but the physician."

\* See *Blackwood's Magazine*, March, 1889.

† M. Littré quotes another passage from Plato (*Phaedrus*) where Hippocrates is spoken of as an individual and as a writer of authority. The passage is quoted also by Dr. Warburton Begbie (*Selections from the Works of*): London, 1882, p. 385.

In his elaborate and learned introduction, M. Littré goes into this discussion in great detail, quoting from Plato, Aristotle, and others; certain phrases in their works being adduced to show that these ancient authors were familiar with certain portions of the Hippocratic writings.

From the necessity of this accumulation of proof, it must be evident to you that there is no *reliable* Life of Hippocrates. Three lives are referred to, the most important being one by Soranus, or rather according to Soranus (*κατά Σωρανόυ*). This has been repeatedly published, and is appended to the edition by Ermerins, as I show you, both in a Greek and Latin text. There are insuperable difficulties in deciding who this Soranus really was. It seems certain that he was *not* the same as the Ephesian Soranus otherwise well known in medical literature, although this biographer is also said to have been of Ephesus; it has been further supposed that there was also a Soranus of Cos, who explored the records of that island, and whose materials were used for the purpose of this biography.

The portraits of Hippocrates are all without authority. I show you some representations copied from busts or antique gems. I also show you portraits prefixed to certain editions of his works, but as none are authentic, we need not linger on this subject.

*Hippocratic Writings: Genuine and Spurious.*—Although the personality of Hippocrates as a physician and an author is clearly established by the best historical evidence, the authenticity of the various treatises ascribed to him is quite open for discussion. The general consensus of critics points to there being three different groups of the treatises bearing his name.

1. Genuine works, undoubtedly Hippocratic.
2. Spurious works, certainly not written by the great Hippocrates.
3. Dubious works.

Of the spurious and dubious works one or two may have been earlier, but the most of such are regarded as being of later production.

It is quite possible that some of the spurious writings of later date may have been "Hippocratic" in the sense of being written by one of that name, although not by our author, who is distinguished sometimes by the adjective "Magnus,"\* to indicate his pre-eminence among all those of the same name, and often, indeed usually, by the adjective "Cos," to indicate the place of his birth.

*Pre-Hippocratic Works.*—The most interesting question as to the authenticity of the writings turns on the date of certain of the works ascribed to Hippocrates being really *before* his time, a subject discussed with great learning by Houdart, Littré, Ermerins, Adams, Greenhill, and others. That there were ancient medical writings *before* Hippocrates may be taken as certain. One of the Hippocratic treatises regarded as undoubtedly genuine by M. Littré (tome i, p. 320) is that *On Ancient Medicine*. His opinion is based on a quotation from the *Phaedrus* of Plato, and is supported by an elaborate argument; this argument is not admitted as conclusive by Dr. Adams; but the latter points out, as an evidence of the reality of an ancient medical literature before the time of Hippocrates, that "Xenophon, who was almost contemporary with Hippocrates, puts into the mouth of Socrates, who was certainly nearly of the same age, the saying that there were many medical works then in existence (*Memorab.*, iv)." If we accept the treatise *On Ancient Medicine* as really by Hippocrates Magnus, its very title may be taken as implying a pre-existing literature. If this treatise is rejected, we have the testimony of another, universally admitted as written by Hippocrates—viz., *The Regimen in Acute Diseases*. In this book the writer begins with the words "Those who composed what are called *The Cnidian Sentences*"; we have thus clear proof of some ancient literature in medicine available for Hippocrates to profit by and criticise. It would seem as if Cnidos had been a rival school to that of Cos, to which latter Hippocrates belonged; and these *Cnidian Sentences* have been supposed to be the analogue in that school of the *Cosan Precognitions* pertaining to Cos. This latter work was long regarded as a production of Hippocrates, but is now supposed by many to be a part of that earlier literature on which our author founded his work.

It could not escape attention that three of the Hippocratic treatises—(1) *The Prognostics*, (2) *The Cosan Precognitions*, and (3) *The Prorrhetics*

\* See the passage already quoted from Aristotle, where he is called "the great Hippocrates."

ies—were in many ways similar. The first was universally regarded as the most perfect, and so at one time the others were ascribed to subsequent and somewhat inferior authors or imitators. The resemblances are well brought out in tabulations, such as I now show you in M. Houdart's book. A critical comparison shows that both the *Prorrhetics* and the *Precognitions* contain the names, in detail, of individual patients from whose cases some special prognostic is drawn, whereas the *Prognostics* contain no such personal details. It seems pretty clear, therefore, that the *Prognostics*, a much more finished production, omitting all personal memoranda, must have followed instead of preceded the other two; and, as the *Prognostics* are universally admitted to be by Hippocrates, we have very probably, in these other two, specimens of the work of earlier observers, by whose labors Hippocrates could profit, and in doing so could fairly enough rear for himself such a surpassing reputation as the "Father of Medicine"; for then, as now, acuteness of personal observation and independence of thought were quite compatible with profiting by the labors of others and the experience of the past. I have already read a short extract to you from the *Prognostics*, describing the "facies hippocratica." This work is undoubtedly one of the greatest and most celebrated of the Hippocratic writings.

*Aphorisms.*—Another equally famous is the *Aphorisms*. I have selected the first and last aphorisms as specimens. The translations which I propose reading to you are from Dr. Adams's admirable rendering; but I avail myself of two of his alternative translations in the first aphorism, as somewhat more impressive, in my view, than those in his text:

I. 1. "Life is short, and the art long; the time is urgent; experiment is dangerous, and decision is difficult. The physician must not only be prepared to do what is right himself, but also to make the patient, the attendants, and externals co-operate."

The first clause, familiar to so many, is recognized by comparatively few, even of the cultured, as being in the works of Hippocrates. The first portion of the aphorism has the gravity of the philosopher; the second shows the practical experience of the physician; I am sure you will find as you go on in the profession that all the difference between success and failure often depends on whether the physician possesses this invaluable power of compelling patient, attendants, and even external circumstances to co-operate with him in the proper management of the illness. Mere knowledge and skill often fail for the want of some measure of this power.

The last aphorism is also celebrated, and I read it to you now, although some doubts exist as to whether it has not crept into the first book of the aphorisms from a continuation by a later writer:

VI. 87. "Those diseases which medicines do not cure, iron (the knife?) cures; those which iron can not cure, fire cures; and those which fire can not cure, are to be reckoned wholly incurable."

*Hippocratic Oath.*—The Hippocratic Oath is so widely known that perhaps it is scarcely necessary to read it; some modification of it was used when graduates in medicine were sworn in at the University here in my time; and even now it survives, to some extent, in the declaration still made by you. It will be better, however, for me to read this short Hippocratic piece in full, so that you may catch its full spirit and meaning. The rendering is by Dr. Adams, whose translations I use here whenever available:

"I swear by Apollo the physician and Esculapius and Health [Hygeia] and All-heal [Panacea] and all the gods and goddesses, that, according to my ability and judgment, I will keep this oath and this stipulation—to reckon him who taught me this art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous.

"I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion.

"With purity and with holiness I will pass my life and practice my art.

"I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work.

"Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption, and, further, from the seduction of females or males, of free-men and slaves. Whatever, in connection with my professional practice, or not in connection with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret.

"While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times! But should I trespass and violate this oath, may the reverse be my lot!"

There are two points in this oath to which I wish to call your attention. The opening phrase, "I swear by all the gods and goddesses," has been recognized as mentioned by Aristophanes, where one speaker says: "What better oath than that of the brotherhood of Hippocrates?" The other answers: "Well! I swear by all the gods" (Littre, tome i, p. 31\*). The other point in connection with the oath, to which I direct your attention, is the remarkable passage forbidding those who are thus sworn to cut for the stone. Hippocrates practiced various grave surgical operations, and it has been a matter of wonder that this one should be forbidden. Some, indeed, have sought to solve the difficulty by suggesting that he does not refer to lithotomy, but to castration.†

It is almost certain that the operation referred to was really lithotomy; the separation of this operation from the ordinary practice of surgery is indicated by the Founder of our Faculty here, for Peter Lowe passes it over in his *Discourse of the Whole Art of Chyrurgerie*, which was published while he was in Glasgow in 1612, referring its discussion to his treatise entitled *The Poore Mans Guide*. The operation from the time of Hippocrates till very recently was practiced by a set of men outside of the profession. In the Burgh Records of our city we have the following suggestive entry:

"27th March, 1688.—The said day there was ane testificat produced in favor of Duncan Campbell, subservyit be the haile doctors and most part of the chyrurgians in toune, of his dexteritie and success in cutting of the ston, as also in sounding with great facilitie, and hes given severall proofes thereof within this burgh, whilk being taken to the said Magistrats and Counsell their consideration, they nominat and appoynt him to cutt such poor in toune as he shall be desyred be the Magistrats, in place of Evir M'Neil, who is become unfit to doe the same through his infirmitie."—*Memorabilia of the City of Glasgow*, Glasgow, 1868, p. 258.

*Qualifications and Functions of the Physician.*—With regard to the necessary conditions for the successful study of medicine, I read you the following short extracts from "The Law"; I desire your special attention to the profound wisdom of the last clause:

"Whoever is to acquire a competent knowledge of medicine ought to be possessed of the following advantages: A natural disposition; instruction; a favorable position for the study; early tuition; love of labor; leisure. First of all, a natural talent is required; for when Nature opposes, everything else is vain; but when Nature leads the way to what is most excellent, instruction in the art takes place, which the student must try to appropriate to himself by reflection, becoming an early pupil in a place well adapted for instruction. He must also bring to the task a love of labor and perseverance, so that the instruction taking root may bring forth proper and abundant fruits.

... "But inexperience is a bad treasure and a bad fund to those

\* M. Littre departed from this view of the passage while treating of the oath (see tome ii, p. 48); M. Petrequin, however (*Chirurgie d'Hippocrate*, tome i, Paris, 1877, p. 172), still adheres to this meaning of the passage.

† This question is discussed in an elaborate note, at the end of the oath, by M. Petrequin (*Chirurgie d'Hippocrate*, tome i, Paris, 1877, p. 192); he comes to the conclusion that the oath refers to lithotomy, and that it was proscribed owing to the disasters following its practice at that time.

who possess it, whether in opinion or in reality, being devoid of self-reliance and contentedness, and the nurse both of timidity and audacity. For timidity betrays a want of power and audacity a want of skill. There are, indeed, two things, knowledge and opinion, of which the one makes its possessor really to know, the other to be ignorant."

The following celebrated passage is from the *First Book of the Epidemics* (ii, 5):

"The physician must be able to tell the antecedents, know the present, and foretell the future—must meditate these things and have two special objects in view with regard to disease—namely, to do good or to do no harm. The art consists in three things—the disease, the patient, and the physician. The physician is the servant of the art, and the patient must combat the disease along with the physician."

Objection has been taken to the instruction that the physician should "do no harm" as being unnecessary and too trivial, but after twenty-three centuries the retention of this clause must be held to be still essential by all who have seen much of practice. In connection with this same spirit, I may refer to what has been called the "Hippocratic Paradox." A thesis by G. A. Langguth, *De paradoxico hippocratico* (4to, Wittenberge, 1754), discusses this paradox at some length as you see. The paradoxical passage referred to is found in the treatise on *Articulations* (40), which is regarded as genuine; it occurs in connection with the treatment of injuries to the ears:

"For it is a good remedy sometimes to apply nothing at all, both to the ear and to many other cases."

In connection with these same ideas, I have to call your attention to a passage in one of the Hippocratic treatises; although it is considered to be of a later date than our author himself, this is of little importance under the circumstances; he speaks of Herodius (his own teacher and the inventor of medical gymnastics) as having occasioned the death of not a few patients, affected with fever, while subjecting them to treatment by means of vapor-baths and violent exercises instead of rest (Littre, tome v, p. 303).

The passage in which Hippocrates, according to the usual translation, speaks of "Nature" as the healer of our diseases has been discussed by Professor Gairdner in one of his essays, and subjected to his fruitful criticism. The meaning of the phrase *νοῦσον φύσις ἰητροί* (*Epidem.*, vi, 5) is shown by him to be somewhat different from the general dictum about the "vis medicatrix nature." He shows that what Hippocrates alleges is that "our natures are the physicians (or healers) of our diseases," and he paraphrases it thus: "that normal function is in every instance to be evoked and supported, and protected, as what is usually the only way open to us for effectually overcoming abnormal function."\* This Hippocratic view of our natures being themselves the physicians of our diseases is at present receiving fresh illustrations in the remarkable studies now being pursued regarding the processes which secure "immunity."

*Are any Diseases Sacred or Divine?*—The view taken by Hippocrates of "the sacred disease," as epilepsy was called, is most philosophical. The mysterious outbursts of this remarkable disease by which a person, often in perfect health, is suddenly struck down and given over to the most violent convulsions, which may quickly pass off, so that he can resume his usual course in a short time, have suggested in various ages and countries the idea of some special supernatural agency, whether divine or demoniacal. He begins thus:

"It is thus with regard to the disease called sacred; it appears to me to be nowise more divine nor more sacred than other diseases, but has a natural cause from which it originates like other affections. Men regard its nature and cause as divine from ignorance and wonder, because it is not at all like to other diseases. And this notion of its divinity is kept up by their inability to comprehend it, and the simplicity of the mode by which it is cured, for men are freed from it by purifications and incantations. But if it is reckoned divine because it is wonderful, instead of one there are many diseases which would be sacred; for, as I will show, there are others no less wonderful and prodigious, which nobody imagines to be sacred."

\* W. T. Gairdner, *The Physician as Naturalist* (Glasgow, 1889, p. 260); see also Dr. Warburton Begbie, *Selections from the Works of* (London, 1882, p. 386).

In a similar strain, he writes in the treatise On Airs, Waters, and Places (22), with regard to some disorder prevailing among the Scythians:

"It appears to me that such affections are just as much divine as all others are, and that no one disease is either more divine or more human than another, but that all are alike divine, for that each has its own nature, and that no one arises without a natural cause."

It has been a great puzzle that, with such a clear statement of his views on the subject, Hippocrates should himself, in his *Book of Prognostics* (Lib. i), say that we are to ascertain

"Whether there be anything divine in the diseases."

It has been supposed that he may here use the word "divine" in the sense of atmospheric or pestilential, or that he may be adapting himself, for the time, to the popular language.

*Hippocratic Auscultatory Signs*.—In modern times we are so saturated with physical methods of diagnosis, especially in chest disease, that we can scarcely think of diagnosis without them. Although nearly all these methods have been introduced within this century, there is one, at least, which goes back to ancient times, and is even now termed "Hippocratic succussion." I have marked the passages in Littré's edition so that you may see where this is referred to. In some of the passages it is merely named or alluded to in passing, as a thing well known, but I will render from Littré's translation one passage where the process is described:

"You will place the patient on a seat which does not move, an assistant will take him by the shoulders, and you will shake him, applying the ear to the chest, so as to recognize on which side the sign occurs" (Littré, tome vii, p. 153).

A very similar passage occurs in tome vii, p. 71. Both of these are from the treatise *De morbis* (Lib. iii and Lib. ii respectively). The fact that this sign may be absent in cases requiring operation is recognized and ascribed to the quantity or density of the pus being too great. The bulging and the pain are then to be taken as guiding to the affected side. (Other passages referring to succussion may be found in Littré's edition, tome v, p. 681, and tome vi, pp. 151 and 309.)

The practical importance of succussion seems to have depended specially, in his view, in determining which side to operate on in cases of empyema.

Another passage has been pointed out as referring to auscultatory signs apart from succussion. I will translate for you Littré's rendering of this passage, the exact meaning of which is still involved in considerable obscurity:

"And if applying the ear against the chest, you listen for a long time, it boils within like vinegar" (*De morbis*, Lib. ii; Littré, tome vii, p. 95).

What auscultatory sound this was, which was to guide the operator to the side on which the incision should be made, is not clear. That it really was a *sound* which constituted the sign is clear from the context, and amid various readings M. Littré prefers the word meaning to boil.\*

A sound resembling that made by new leather is described in pleurisy (*De morbis*, ii, 59; Littré, tome vii, p. 93). These and other references to auscultation are given by Dr. Gee in his book on *Auscultation and Percussion* (third edition, London, 1883), p. 100.

*Cheyne-Stokes Breathing*.—It is not in physical signs, but in general symptoms, that the power of observation, undoubtedly pertaining to the Hippocratic school, comes out most strongly. The Prognostics are full of the keenest clinical observation. It is very interesting, and even startling, to read a description of Cheyne-Stokes respiration in those old times. This remarkable form of breathing is generally regarded as being a matter of observation only in recent times, noted by the two great clinical observers whose names it bears. But, according to Dr. Warburton Begbie (*Selections from the Works of*, p. 390), the case of Philiscus, in the *First Book of the Epidemics* (13), as described by Hippocrates, agrees with this type of breathing. It seems to me that Dr. Begbie makes out his case; but I will read the passage in full, from Dr. Adams's translation, so that you may judge for yourselves:

"Philiscus, who lived by the Wall, took to bed on the first day of acute fever; he sweated; toward night was uneasy. On the second day all the symptoms were exacerbated; late in the evening had a proper stool from a small clyster; the night quiet. On the third day, early in the morning and until noon, he appeared to be free from fever; toward evening, acute fever with sweating, thirst, tongue parched; passed black urine; night uncomfortable; no sleep; he was delirious on all subjects. On the fourth, all the symptoms exacerbated; urine black; night more comfortable; urine of a better color. On the fifth, about midday, had a slight trickling of pure blood from the nose; urine varied in character, having floating in it round bodies, resembling semen, and scattered, but which did not fall to the bottom; a suppository having been applied, some scanty flatulent matters were passed; night uncomfortable, little sleep, talking incoherently; extremities altogether cold, and could not be warmed; urine black; slept a little toward day; loss of speech; cold sweats; extremities livid; about the middle of the sixth day he died. The respiration throughout like that of a person recollecting himself, was rare and large, the spleen was swelled up in a round tumor, the sweats cold throughout, the paroxysms on the even days."

Dr. Adams says in a note: "The modern reader will be struck with the description of the respiration—namely, that the patient seemed like a person who forgot for a time the *besoin de respirer*, and then, as it were, suddenly recollected himself. Such is the meaning of the expression as explained by Galen in his Commentary, and in his work *On Difficulty in Breathing*. By 'rare' is always meant 'few in number.'"

[The remainder of the demonstration related to the various editions of the Hippocratic writings and to those of commentators.]

**The History of a Forgotten Compress**.—The *Lancet* for April 2d prints the following in a letter from its Paris correspondent:

At the Société de chirurgie on March 23d the following remarkable occurrence was reported by M. Pilate, of Orleans: On April 4, 1890, abdominal section was performed on a woman, aged forty-four, for a painful fibro-myoma of the uterus. The uterus was removed with considerable difficulty, the pedicle fixed to the abdominal wound, the edges of which were then brought together. In order to protect the neighboring viscera during the operation, a certain number of sponges and gauze compresses—all carefully aseptized—were introduced into the abdominal cavity, each compress and sponge being held with a forceps. The same evening vomiting and pain came on, lasted for six days, without any elevation of temperature. A month after the operation the woman was considered cured. In the month of August, however, pain attributed to the presence of gall-stones appeared in the right hypochondrium; this disappeared in a few days. In September there was a renewal of the pains, which now involved the whole of the abdomen, and were accompanied by vomiting and tympanites, without fever. Palpation revealed the presence, in the region formerly occupied by the uterus, of a series of hard, movable nodules, resembling cancerous masses. A re-examination under the microscope of the tumor removed showed that it was a pure fibro-myoma. The patient remained in much the same condition for two months, when one day she passed *per rectum* a gauze compress enveloped in a hard fecal mass. All the unpleasant symptoms very soon subsided, and the woman has remained well since that event. This curious occurrence demonstrates the importance of counting sponges and compresses used in such operations, and furnishes one more proof of the harmlessness of foreign bodies which have been rendered thoroughly aseptic. The course of events must have been as follows: The compress, after having lain encysted must have excited an attack of peritonitis, with perforation of the intestine. That the occurrence of such a *contretemps* is not altogether unknown in the practice of the most careful surgeons is well attested. One operator now uses in abdominal sections fifteen compresses, hemmed in red, the enumeration of which is carefully made on the completion of the operation. A well-known surgeon once left a forcipressure forceps in the abdominal cavity. The instrument remained in the cavity for eight months, and was then eliminated through an abscess which formed in the umbilical region. Another relates how he once left a sponge in the abdomen, the patient dying of peritonitis three days after the operation. He no longer employs sponges.

\* Ζέει: ὄζει: ὠζει: ὀζει.

**An Ancient Epigram and a Modern Instance.**—The *British Medical Journal* states that one of the physicians of the Glasgow Western Infirmary objects to his patients being handled on cold mornings by students having cold hands. In order to call attention to this evil, complained of anciently by Martial in his epigram to Symmachus, his physician, the Glasgow professor offered a small prize for the best translation of Martial's epigram:

Langneban; sed tu comitatus protinus ad me  
Venisti, centum, Symmache, discipulis.  
Centum me tetigere manus Aquilone gelatæ.  
Non habui febrem, Symmache; nunc habeo.

The committee has decided that two of the translations are equally good. One is by Mr. J. F. R. Gairdner, after the manner of Burns:

Smart cam' ye, sir, to me na weel,  
A hundred students at your heel;  
A hundred haums did ower me feel  
Wi' Boreas blue.  
I had nae fever then, but deil,  
I have it noo.

The other rendering, by Mr. J. F. Gemmill, reads:

I lay in number twenty-one, a case for rest and tonics,  
And good old G—— came round to me with all his train of chronics;  
A hundred meds., with fingers blue, palpated me like Lister,  
And now, no longer weak and cold, I'm frizzling like a blister.

In this connection, attention is called to Dr. Dupouy's rendering in his *Médecins et mœurs de l'ancienne Rome, d'après les poètes latins*:

J'étais dessus mon lit, couché nonchalamment;  
Le médecin Symmaque arrive incontinent.  
Les disciples nombreux, imitant son audace,  
Portent sur moi les mains plus froides que la glace,  
Et me tâtent le pouls alternativement.  
Je n'avais pas la fièvre, je l'ai maintenant.

**The Alkaloids of Aconitum Napellus.**—Two papers of unusual interest, says the *Lancet* for March 19th, were read at the last meeting of the Chemical Society, on the 3d inst., by Professor Dunstan. The first paper was a record of the research carried out jointly by Mr. Umney and Professor Dunstan on the properties of the roots of *Aconitum napellus*. For the purpose of experiment they dried the fresh roots at a low heat, and then, after powdering, exhausted them with fusel oil. The alkaloids were dissolved out of the fusel oil with weak sulphuric acid, and the acid mixture was treated with chloroform to remove resin. The liquid was next made alkaline with ammonia and shaken with ether and then with chloroform. The ethereal solution yielded a gummy residue, from which they extracted aconitine as a crystalline hydrobromide, all attempts to crystallize the residue having failed. Crystalline aconitine was successfully prepared from the hydrobromide, and it was found that the base dissolves only to the extent of 1 in 4,431 of water. The base does not appear to exist naturally in a combined state, as the juice squeezed out of the fresh root contained very little aconitine. All attempts to crystallize another alkaloid found in the ethereal liquid failed. It possesses a bitter taste, does not produce numbness, and Mr. Umney and Professor Dunstan have given it the name "napelline." The chloroform solution contained aconine,  $C_{26}H_{41}NO_{11}$ , the properties of which and its relation to aconitine formed the subject of the second paper, contributed by Professor Dunstan and Dr. F. W. Passmore. The authors showed that by heating aconitine with water in a sealed tube at  $150^{\circ}C$ , aconine and benzoic acid are formed, as originally stated by Wright and Luff. The properties of aconine have been studied; it is dextrorotatory, while its salts, like aconitine, are levorotatory. The authors made attempts to synthesize aconitine by heating aconine with ethyl benzoate, and the successful results which followed the experiments are calculated to be of the utmost importance to pharmacy and medicine. The action which takes place may be represented as follows:  $C_{26}H_{41}NO_{11}$  (aconine) +  $C_6H_5CO_2C_2H_5$  (ethyl benzoate) =  $C_{26}H_{40}(C_6H_5CO)NO_{11}$  (anhydroaconitine) +  $C_2H_5OH$  (ethyl alcohol). Anhydroaconitine so obtained forms aconitine with water. The experiment indicates that

aconitine is monobenzoyl aconine,  $C_{26}H_{40}(C_6H_5CO)NO_{11}$ . One or two derivatives were prepared—aconitine methyl iodide, for example—the physiological action of which, as well as the other new compounds, is being studied.

**The New York Academy of Medicine.**—The special order for the meeting of Thursday evening, the 21st inst., was a paper on Hydrotherapy, by Dr. W. H. Draper.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 27th inst., Dr. C. A. Powers will read a paper on Partial Laryngectomy, and Dr. J. E. Newcomb will read one on Syphilis of the Lingual Tonsil.

At the next meeting of the Section in Obstetrics and Gynecology, on Thursday evening, the 28th inst., Dr. H. J. Boldt will read a paper on Carcinoma Uteri, and Dr. C. A. von Ramdohr will read one on The Treatment of Puerperal Fever.

**Messrs. Reed & Carnrick's Preparations.**—In our last issue we copied an article from the *Lancet* to which we gave the heading An Appreciative Notice of American Pharmaceutical Preparations. By inadvertence we omitted the *Lancet's* heading showing that the article related to Messrs. Reed & Carnrick's preparations.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

Original Communications.

RESULTS IN CASES OF HIP-JOINT DISEASE

TREATED BY

THE PORTABLE TRACTION SPLINT

WITHOUT IMMOBILIZATION,

EXCEPT DURING THE INFLAMMATORY STAGE OF THE DISEASE.

By LEWIS A. SAYRE, M. D.,

PROFESSOR OF ORTHOPEDIC SURGERY  
IN THE BELLEVUE HOSPITAL MEDICAL COLLEGE.

In the last few years so many papers have been published on hip-joint disease, advocating absolute *immobilization* of the joint during the entire treatment of the case, and in many cases without traction, and some of them condemning the portable traction splint, which has yielded such excellent results in my hands, as well as in those of many others who have used it properly, that I have taken the trouble to look over my note-books and ascertain the results in the various cases of which I have record.

In some cases the recovery has been so perfect and complete, in reference to both form and motion, that the question has been raised whether the patients had ever been troubled with hip disease. It is on this account that I have selected only such cases to report as had been examined by other surgeons of the highest standing, and whose knowledge and ability to make a correct diagnosis would certainly be unquestioned in the professional world.

CASE I.—In August, 1877, while on a visit to London, I was requested to see J. C. O'C., an Irish boy of five years, in consultation with Mr. William Adams and Sir James Paget, who had been attending the lad, in connection with Dr. Quain, for disease of the right hip joint since April, 1877. The mother was an uncommonly healthy and vigorous woman of about thirty. The father, an unusually stout and robust man, had died of apoplexy.

The boy had fallen out of a brougham while driving on a hard road in Ireland in November, 1876, during his mother's absence, and the nurse had concealed this fact for some months. He gradually grew stiff in his gait, and then became quite lame. The lameness increased and the joint became very painful, especially at night, waking him out of a sound sleep with frequent paroxysms. The mother brought him to London to consult Dr. Quain, who called Sir James Paget and Mr. William Adams in consultation, and they all agreed in the diagnosis of *hip disease of the right side*, and confided him to Mr. Adams for treatment, Sir James Paget and Dr. Quain seeing him occasionally. Mr. Adams applied a stiff molded leather to the hip and a splint to the leg, with extension by weight and pulley, and forbade the child to walk—an imitation, or, as he said, “a modification of the American plan of treatment.”

The case not progressing favorably, Sir James Paget became dissatisfied with the American plan, and I was called in consultation in August, 1877. There was no difference of opinion as to the diagnosis. We all agreed that it was an unmistakable case of hip disease in the first stage, rapidly advancing to the second stage. There were flexion of the thigh, abduction of the limb, eversion of the toes, and perfect immobilization of the joint from muscular rigidity, and the very slightest pressure on the trochanter, or upward from the knee or heel, caused the most exquisite pain. The *slightest* attempt at movement with-

out traction was unbearable. But as soon as slight traction was made in the direction of the distorted limb, while the pelvis was held immovable, very slight motion could be made at the joint without pain.

We did not agree in the opinion as to the cause of the trouble. They were disposed to attribute it to the strumous condition of the boy, on account of the great disparity in the ages of his parents. But, as they were both in perfect health at the time of his birth, and the boy had always been in perfect health up to the time he was thrown from the brougham, I was disposed to attribute the disease to this accident, and not to any constitutional diathesis.

We also differed in our prognosis of the case. They considered recovery with ankylosis a very good result; and I contended that many patients recovered with good motion, and sometimes with little or no deformity. I was therefore requested by Mr. Adams to take charge of the case.

No change was made in the mode of extension of the leg by the weight and pulley; but I removed the leather splint from around the thigh and pelvis, and, passing a handkerchief around the upper part of the thigh, attached it to a cord, with a weight and pulley to make *lateral* traction\* from the side of the bed, and fixed the body and well limb to a long splint, thus keeping the body in a horizontal position and absolutely at rest until the acute symptoms subsided and the limb was in proper position to apply a splint.

Mr. Ernst, Mr. Adams's instrument-maker, manufactured under my supervision a very perfect long splint, which I applied to the boy in the last of August, 1877. In a very few days he was able to walk on this splint, with his sound leg elevated on a high shoe, without any pain, and could sit down with but very slight inconvenience. This splint was used by day, and the weight and pulley extension at night, the nurse having been very carefully instructed as to the proper application of the instrument as well as the night extension. He returned to his home in Ireland in September, and Dr. Hobart, of Cork, applied the Maw's moleskin adhesive strips about every three months, or as often as necessary.

This long splint was worn for eleven months, when he had so far improved that my short hip splint, with double perinea bands, was substituted for it. With this short splint he was able to get about very much more comfortably, particularly in sitting down, as it gave full power to flex his knees, the lack of which is one of the objections to the long splint. He wore this splint about a year, and when I removed it, in the fall of 1879, he was perfectly well of the disease, with no perceptible deformity and quite free motion of the joint. The limbs were of equal length, but the right one was much atrophied from want of use.

He had a very competent nurse, who gave the limb massage and manipulation daily, carefully increasing the range of motion without exciting fresh inflammation, and in a few months the motions were as perfect in one joint as in the other, and have continued so. He was under treatment a little over two years. He is now nineteen years old, in perfect health, can run, jump, and undergo severe military drill for many hours as well as the average. He is perfect in form, can flex the thigh to an acute angle, and cross the foot over the thigh of the opposite side, as

\* As there has been considerable discussion as to priority in the application of lateral traction in hip-joint disease, I may say that on looking over my notes I find that I applied it to L. A. McC. in 1868 in the presence of Dr. L. M. Yale, this being the case to which I first applied a platform joint with abducting screw with a short splint, the original drawing of which, by Dr. Yale, I found in my note-book.

seen by the photographs. This last motion is very difficult to accomplish if there is the least rigidity about the hip joint. Most patients having recovered from hip disease, even with quite good motion of the joint and with but a very slight limp, yet can not cross the foot to the opposite side to tie their shoes, but always put their foot to the side and behind them in order to get at their foot. I therefore look upon this test as the best proof of perfect motion in the joint.

CASE II.—J. McC., aged four years, daughter of A. McC., Troy, N. Y., was sent to me in July, 1864, by Dr. Brinsmaid and Dr. Thorn, who had been attending her for six months for a very painful trouble of her right hip, which was supposed to be rheumatic. As she made no improvement, Dr. Alden March, of Albany, was called in consultation and diagnosed hip disease in the second stage, rapidly progressing, and with very great constitutional disturbance. Dr. March thought the disease due to a fall the child had received the winter previous, and advised them to send her to me for treatment.

I saw her on the 9th of July, 1864, at the St. Nicholas Hotel in this city. She was rather small for her age, very pale and anæmic, exceedingly irritable, and almost all the time crying from pain when she was not under the influence of an anodyne, which had to be repeated frequently, especially at night. The limb was flexed forty-five degrees, abducted, and strongly rotated outward, with the toes everted. There was some fullness over the hip joint, which was exceedingly sensitive to the slightest touch, and the least pressure on it in any direction caused her to scream in agony, as did also the slightest attempt at motion when made without traction or extension. When, however, the pelvis was held still by an assistant and the limb was seized firmly, and slightly flexed, abducted, and rotated outward, then slight traction on the limb while held in this position gave her perfect relief from all pain, and she seemed happy. The instant the traction was removed she screamed in agony, and was only relieved by a repetition of the traction in the same line as at first applied while the pelvis was held still and free from movement.

*Diagnosis.*—Hip disease, second stage.

*Treatment.*—Extension in the line of the deformity, the line of traction to be daily changed until the limb was in normal position, then apply a short hip splint for daily exercise, and extension by weight and pulley at night. In the mean time to apply a blister 2 × 4 inches behind the trochanter, to be repeated if necessary. Messrs. Otto & Reynders measured her for my short hip splint, which they said was the smallest one they had ever made. I applied adhesive strips from the ankle to two inches above the knee, and secured them by a firmly applied flannel roller. To the lower ends buckles were attached for the purpose of making extension. The whole limb was raised on a pillow and slightly abducted; the body was also propped up by a chair behind the back to relax the psoas and iliacus muscles, the foot of the bed being elevated and a four-pound weight attached. In less than an hour the child was in a sound sleep, which the parents said had not occurred before for many months without an anodyne. The blister had a beautiful serous discharge in about seven hours, and dried up in about two days. It was repeated twice in the course of the next ten days. The line of traction was gradually changed, and in two weeks the leg was parallel with the other. I then applied my short hip splint with the single perineal band for counter-extension, and she was perfectly comfortable. The following day she was able to sit up in a chair, and after some little instruction was able to walk around the room on her crutches quite comfortably.

She returned to Troy that night by the steamboat, and as it

was difficult for them to apply the night extension by weight and pulley in the berth on the steamer, I advised them not to remove the splint for that night, but allow her to sleep in it, which was done, and "she arrived at home the following day without any pain or inconvenience," as stated in a letter to me from Dr. Brinsmaid a few days after.

I received letters from Dr. Brinsmaid every few weeks during the summer and fall, stating that she was entirely free from pain and growing very rapidly; that he "had no occasion to change the plasters, as the splint was retained in position as I had left it, and that he increased the extension as the limb grew longer by keying out the splint a notch or two every few weeks as the case required."

In February, 1865, while attending the meeting of the State Medical Society in Albany, Dr. Alden Marsh and myself were invited to dine with Mr. McC. in Troy, and to see the great improvement that had taken place in his daughter's hip. Dr. Brinsmaid, of Troy, was also present at the dinner. We found the little girl running around the room with her crutches, in perfect health, and in very good shape; but when we stripped her for examination I was very much surprised to find the splint and bandages exactly as I had applied them in July, 1864, nearly seven months before, the splint having never been removed during all that time, and the night extension by weight and pulley had never been applied. The extension had been kept up by keying out the splint occasionally, and as the adhesive plasters had remained *in situ*, as I had originally placed them, the traction was perfect.

Dr. Brinsmaid explained that the reason of his leaving on the splint at night was the fact that she had slept so comfortably with it on in the boat on her way home that he was afraid to remove it, fearing that he might not again be able to replace it in exactly the same position, and, as she had suffered so many months of intense pain before, and was so perfectly comfortable since it had been applied, he preferred to leave it, merely covering over the soiled bandages with a clean roller as occasion required, but never disturbing the original bandage or adhesive plaster.

This was to me an entirely new revelation, but, as she was so perfectly comfortable, I advised them to continue the same plan, but to send her to me as soon as I returned to the city, that I might make a new application of fresh plaster.

She was sent to the city on the 1st of March, 1865, and I removed the dressings, which, of course, were very much soiled; but the plasters were in exactly the position as originally applied in the preceding July, and, on carefully removing them, the scarf-skin came off with them, but left no abraded surface underneath. As the skin was not in a fit condition for the immediate application of the plaster again, I put her to bed with an extension from her foot for a few days until the skin, by the daily washing with alcohol, should be in proper condition for the reapplication of the Maw's adhesive plaster for the extension splint. On the 4th of March, 1865, the adhesive plasters, bandage, and splint were applied as in the first instance, and she returned to Troy. She wore this splint constantly, day and night, for two years and a half, and was then perfectly well. She had returned to the city four times during that period to have the plasters removed, and there was never any abrasion of the skin.

I saw her mother at the Mizzen Top Hotel, in Putnam County, in September, 1890, and she stated that her daughter was in perfect health, married, and had two children. Her form was perfect, the limbs were of equal length, and she had perfect motion of every joint.

CASE III.—D. E., son of one of New York's most distinguished physicians, both of whose parents were perfectly

healthy, fell in 1869, when he was six years old, from a trapeze in Wood's Gymnasium, striking on the wooden floor on his left hip and thigh, and driving a splinter of wood into the outside of the left thigh just below the trochanter major. This splinter of wood was cut out by Dr. George A. Peters the same afternoon, and the wound healed kindly in a short time.

Some two months after this accident he began to limp, and walked so stiffly and awkwardly that he was taken to Dr. Valentine Mott, who advised him to be put to bed, with a stimulating liniment applied to the joint. In a few weeks he seemed so much better that he got up and walked very comfortably, but, going down stairs, caught his left foot in the banister and fell down a flight of twelve steps, striking on the marble hall floor on the same left hip that had been previously hurt. Having disobeyed the orders of Dr. Mott as to perfect rest in bed, they did not inform him of this last accident, thinking that the trouble would soon subside by rest again in bed. But at the end of three weeks he had grown so much worse that Dr. Mott was called again to see him, and, finding him so much worse than at his last visit, some two months before, he called Dr. W. H. Van Buren in consultation, who at once diagnosticated it as a case of hip disease, and advised to have me see him. I saw him in consultation with Dr. Mott and Dr. Van Buren, and found him with the left thigh flexed, abducted, toes everted, and hip apparently ankylosed from muscular rigidity. The least attempt at movement without traction caused the most exquisite pain, as did pressure on the joint from any direction. Very slight traction, with flexion and eversion, relieved the pain, and permitted the slightest movement of the joint when the pelvis was held immovable.

*Diagnosis.*—Hip disease, second stage, with effusion in the joint, in which opinion we all agreed. Dr. Van Buren requested that I should take charge of the case, to which Dr. Mott cheerfully consented.

I placed him in bed with the foot elevated, applied a long splint to the right side of the body and leg, and applied adhesive plaster with weight-and-pulley extension to the left leg, and also applied traction from the upper and inner portion of the thigh by a weight and pulley at the side of the bed. A blister 4 × 4 inches behind the trochanter was applied. A pillow was placed under the thigh and leg to accommodate the flexion of the limb, and the thickness of this support was gradually reduced as the limb became straighter, and in a few days it was down in the bed and parallel with the other limb. The blister had a very decided influence on the effusion in the joint, and was repeated three times in the course of a few weeks.

From the moment that the double traction was applied to the limb his pain was entirely relieved. No sedatives of any kind were used from this time, although he had been compelled to resort to them every night for some time previous to the application of the traction. He was kept rigidly in this horizontal position, with the traction, for a little over three months, when he was so much improved that I then applied to him my short hip splint, with which and a pair of crutches he was able to walk about during the day, while the extension was continued at night by the weight and pulley. The splint was reapplied every few months as the plaster became loose, and was worn for nearly two years, when he was entirely cured, and had quite good motion of the joint, the limb was considerably atrophied, but apparently of equal length with the other.

The motions gradually increased with exercise and the limb developed until it became in time as large as the other, and he was the champion athlete of Columbia College, having won a mile-and-a-quarter run in 1879. He is now perfect, as seen in photograph.

CASE IV.—In December, 1864, I was requested to meet Dr.

Naudain, of Westchester, in consultation with Dr. Valentine Mott, to examine the youngest son of Mr. G. M., of Morrisania. He was a lad of four years and six months, rather delicate in appearance, and apparently suffering great pain on the least movement in any direction, but more especially if any movement was made of his right lower extremity, which was slightly drawn up and abducted, but rigidly fixed by muscular contraction. There seemed to be some fullness around the hip joint, but no distinct fluctuation could be detected. The least pressure or motion of the joint caused him to scream violently; but when the pelvis was held, and slight traction made on the limb in the line of flexion and abduction, he was almost immediately relieved.

The boy's father was very vigorous and robust, but suffered from rheumatism and gout. The mother was very delicate and suffering from phthisis, from which she eventually died.

The boy, although delicately built, had always been very active and venturesome. In the early spring of 1864 he had climbed upon the stone wall of the garden to pick some lilac flowers, and in breaking off the branch had lost his balance and fallen about four or five feet into a pile of stones. He cried very bitterly for some time, but the next day seemed as well as ever, and the accident was forgotten. After a few weeks the mother noticed that he was a little stiff in the morning and favored one leg when standing, but in a few hours he would run about as before without any complaint of pain, and she therefore attributed it to "growing pains" and gave no attention to it until later in the fall, when his lameness became so much worse that Dr. Naudain was again called to see him.

As the father was a martyr to rheumatism and gout, the doctor thought the boy had inherited the diathesis, and treated him accordingly. But after some weeks, as he did not improve, Dr. Mott was called in consultation and diagnosticated the case as one of hip disease, and advised them to place him under my treatment.

I saw him the following day in consultation with Dr. Mott and Dr. Naudain, with the symptoms already described in this paper, and of course confirmed the diagnosis of Dr. Mott. I applied traction to his limb in the line of the deformity by means of adhesive plaster and weight and pulley, and also lateral traction from the upper part of his thigh by a handkerchief around the limb attached to a weight by the side of the bed, and applied a blister 2 × 2 inches behind the trochanter.

As soon as the traction was properly adjusted he fell asleep without any opiate, which the mother said he had not done for some months. He was kept in his bed a little over two months, Dr. Naudain changing the line of traction as required, until his limb was perfectly straight at the pelvis and parallel with the other. I then applied my short hip splint, and in a few days he could walk with the aid of crutches very well. At night the splint was removed, and the extension applied by weight and pulley. The splint was reapplied every few months, as the adhesive plaster became loose, and was worn constantly, except at night, for a little over two years. At the end of two years and a half he was perfectly well, and had quite free motion of his joint. This gradually increased until it became perfect, and has remained so.

Some two years ago, when I first thought of preparing this paper for the meeting of the Orthopædic Society in Philadelphia, I wrote to him to send me his photograph in the different positions I have described, in order to illustrate the perfect motion of the joint. I received no reply, and was then taken very ill, and the paper was not completed. Some months after I received the following letter, and in a few days the accompanying photographs.

GLENWOOD SPRINGS, COLORADO, *September 9, 1890.*

MY DEAR DOCTOR: Your letter was delayed some time in reaching me by being misdirected, and consequently going to the Dead-letter Office.

I have had photographs taken as you wished, and they will be sent you by the photographer. I had to have each position taken right and left, for I do not know which leg was injured. I do not know just how old I was, nor what kind of splint or brace I wore. I am very well and athletic, riding on bucking horses, and using all my limbs and muscles with absolute ease and comfort.

Hoping the photographs will be satisfactory, and with much love, I am  
Your grateful friend,  
R. M.

I saw him in January, 1892, on his way to Europe, and he was perfect in form and motion.

CASE V.—L. H., aged thirteen, Buffalo, N. Y. Father and mother apparently healthy; an aunt died of phthisis, and grandmother had Pott's disease. She was brought to me on April 17, 1886, by Dr. Jewett, of Buffalo. Menstruation began at eleven, has always been rather profuse, and the patient is now quite anæmic.

In November, 1885, complained of great pain in right hip. Shortly before that her cousin had given her a severe twist by catching her around the neck and pulling her backward. For some time after this she complained of great pain in her back. For the past two months has had nocturnal startings. Six weeks ago was put to bed, and had blisters applied over and behind the trochanter, but no extension. Dr. Kirtland, of Utica, and Dr. F. B. Johnson, of Towanda, then saw her in consultation with Dr. Jewett, and they all diagnosed hip disease of the right side, with probably sacro-iliac disease of the same side.

She was brought to the city, and I saw her in consultation with Dr. Jewett on April 17, 1886. Very limited motion of right hip from muscular rigidity; great pain on compression, both longitudinally and laterally; also great pain over the right sacro-iliac junction, and pain on lateral pressure of the ilia, and the body strongly bearing to the *left*; thigh flexed, abducted, and fixed by muscular rigidity, and the toes everted.

*Diagnosis.*—Hip disease, right side, second stage, and sacro-iliac disease of right side.

*Treatment.*—Put to bed, with weight-and-pulley extension to reduce the limb to the normal position. From this time all night spasms ceased, and she slept quietly without any narcotic, although she had been compelled to resort to them once or twice every night for some weeks before.

*May 17, 1886.*—The limbs had become so nearly parallel that the long hip splint was applied, and, by the aid of crutches and a high shoe on the left side, she was able to walk quite comfortably, and went back to Buffalo.

*October 4th.*—Returned, very anæmic from profuse menorrhagia. Tenderness over the trochanter and just above; deep fluctuation posterior to the trochanter.

*10th.*—Put on new adhesive plaster, and applied the actual cautery over the tender spot on the trochanter, and also over the sacro-iliac junction on right side, which was tender.

*December 10th.*—Wounds from actual cautery entirely well. The abscess which seemed to be forming above and behind the trochanter has disappeared, and no fluctuation can be felt.

*January, 1887.*—The hip is much less tender; opened the knee joint in splint to allow the knee to be bent while sitting.

*November.*—Very greatly improved; is free from all pain; can flex, extend, adduct, abduct, and rotate the leg almost as perfectly as the other. Removed the plasters from the leg and applied the splint, with a box in the sole of the shoe and flexion at knee joint when sitting

This was worn until August, 1888, when she was found to be perfectly well, and all treatment was abandoned. The limb was very nearly of the same length as the other, but not so large in circumference. The motions in the joint were almost perfect and complete.

*June, 1890.*—Is in perfect health, and has no difficulty in performing any motion of the joint, as seen by photographs taken by Dr. Reginald H. Sayre, January, 1890.

CASE VI.—F. N., aged nineteen years, 18 West Twenty-eighth Street. On October 21, 1872, I was requested by Dr. Barker to see Mr. F. N., aged nineteen, who had been sent home from Harvard University by Dr. Bigelow, of Boston, on account of his suffering from hip disease, which prevented him from attending to his college duties. I fully confirmed the opinion of Dr. Bigelow, which greatly disturbed his mother, as she could not believe that he could have any such serious trouble, because he had always been so strong and healthy, and she did not like him to give up his college course, and she therefore wished Dr. Van Buren to be called in consultation, hoping that he might differ with Dr. Bigelow and myself.

Dr. Van Buren saw him with Dr. Barker and myself on the 22d of October, 1872, and, after a most careful examination, pronounced it hip disease, first stage, far advanced toward second stage. The limb was *apparently* longer, flexed, abducted, and rotated outward, and firmly fixed by muscular rigidity, apparently ankylosed. The slightest pressure on, or the least motion of, the joint caused intense pain and made him cry severely.

In the early spring of that year, while running across country at Lenox, he had slipped one foot into a deep ditch, while the other leg was stretched out sideways on the ground. He was considerably hurt, and kept his bed for two weeks, at the end of which time he thought himself well, yet there remained a slight pain, which, in fact, never entirely disappeared. In August he again hurt his hip in Newport, slipping on the grass, which confined him to his bed about ten days. He afterward went to Harvard, and in getting off a horse-car slipped, hurting his hip very badly.

Dr. Bigelow, of Boston, was then called to see him, and after attending him some weeks told him he had confirmed chronic hip disease and advised him to return home.

After Dr. Van Buren had confirmed the diagnosis of Dr. Bigelow and myself, he was placed by Dr. Barker under my treatment. I applied the extension by weight and pulley on October 29, 1872, with a blister 3 × 4 inches behind the trochanter. This was repeated three times during the next two months, during which time he remained constantly in bed.

*December 24, 1872.*—Applied my long hip splint and put a high shoe on his sound foot, and by the aid of crutches he could walk quite comfortably. The plasters were reapplied every few months as occasion required until the first of May, 1874, when the splint was removed and has not again been applied.

The motions of the joint were limited at the time, but by daily massage and manipulation they gradually increased, and in a few months were as perfect as in the other limb, and have remained so. His limbs are of equal length, and every motion of the joint is perfect, as seen in these various photographs taken by my son, Dr. Reginald H. Sayre, March 8, 1892.

CASE VII.—S. C. H., aged seven years; healthy parents and family. Child an unusually fine boy up to October, 1873, when he had a fall while jumping about on the floor; cried a good deal from the injury, saying his hip was hurt. In a few days after, a very severe attack of scarlet fever prostrated him, a large abscess under left jaw formed, and was opened. Convalescence was quite slow. After the abscess of the neck ceased to discharge

he complained of his left hip and knee. Was treated for rheumatism for some time, and then by weight and pulley *incorrectly* applied. I found him, December 1, 1873, confined to bed in a very feeble state, and applied weight and pulley *correctly* by *simply modifying the line of traction*, which gave instant relief. On January 10, 1874, he was brought before the class at Bellevue and my short hip splint applied.

January 22d.—Boy up, feeling much relieved. Not confined to bed a day since the splint was applied.

February 20th.—Splint readjusted to-day. Boy in most excellent condition. No pain or tenderness on manipulating the joint; walks readily with no crutch. Has not suffered a day since the splint was applied.

January 3, 1875.—Perfectly well, with no deformity, and all the motions of the joint quite free and normal.

January 22, 1886.—Mr. H. called on me to present his splint and crutches for some other ease. He is in perfect health, five feet six inches in height, weight one hundred and thirty pounds. Has every motion of the hip joint as perfect as the other. Can ride horseback and do full labor. The left limb is half an inch shorter than the right, and the thigh three fourths of an inch smaller than the other, but this defect can not be detected without careful measurement. Cure perfect.

February 19, 1890.—Mr. H. called to-day to ask whether it would be advisable to join a bicycle club. Has ridden at different times, but not steadily. More careful examination shows that motion was limited in outward rotation. Can cross the knees, but can not put the foot on the other knee and drop the knee to right angle. Abduction also limited. He was advised not to try the bicycle riding.

I am very glad this patient is here this evening, that I may show the difference between what I call a *perfect* cure, as in the case of Mr. E., and a *good* cure, as in the present instance.

I had recorded the case as a perfect cure, as he could flex and extend the hip joint, cross his knees, and walk without limping with an elevated sole, but, on later examination, find that he can not put the left foot in his lap, and I have therefore included him in the list of good instead of perfect cures.

In the cases which I have reported in full this evening the patients had undoubted morbus coxarius, as diagnosed by surgeons of marked ability, in addition to my own testimony, and yet they have all recovered with useful, movable hip joints, as seen this evening, in spite of the fact that several of them were of tubercular families, and prove the fact that absolute immobilization during the entire progress of the disease is not always essential to perfect recovery.

I have had my note-books looked over by Dr. H. W. Frauenthal and Dr. B. F. Parish, who have kindly prepared a synopsis of the cases therein recorded, and to whom I wish to return my thanks for their arduous labors.

I wish the time at my disposal had been sufficiently long to render the table more complete by recording the cases complicated by abscesses and those complicated by disease of other joints, but, as the chairman had requested the paper for this meeting, I have gathered together such facts as I could in the time at my disposal, and hope at some future time to present these statistics more fully elaborated.

Many of the cases on my books have been seen by me only once or twice in consultation with other physicians, and

these have not been included in the record; and in other cases it has not been possible to ascertain the ultimate result; but the cases as recorded in my books I have collected and here present to you. The cases in which excision of the hip joint was practiced have not been included, as they have already been published, and many of these were not in a condition to allow anything short of radical operations at the time when I first saw them.

*Statistics of 407 Cases of Morbus Coxarius treated between 1859 and 1889, exclusive of Excisions.*

Of these there were in the

First stage.....	118
Second stage.....	119
Third stage.....	82
Not mentioned....	88
<hr/>	
Total number of cases.....	407

*Results.*

Cured, motion perfect.....	71
“ “ good.....	142
“ “ limited.....	83
“ “ ankylosed.....	5
Unknown.....	78
Under treatment.....	14
Abandoned treatment.....	3
Discharged.....	2
Died of exhaustion.....	2
“ “ phthisis.....	1
“ “ pneumonia.....	1
“ “ tubercular meningitis.....	5
<hr/>	
Total deaths.....	9
<hr/>	
Total number of cases.....	407

*Cases in which I know the Result and the Kind of Splint worn between 1859 and 1889, excluding Cases under Treatment.*

Cures with perfect motion :

Long splint.....	19 = 21.59 per cent.
Short “.....	54 = 28.12 “ “
<hr/>	
	73

Cures with good motion :

Long splint.....	34 = 38.63 per cent.
Short “.....	86 = 44.79 “ “
<hr/>	
	120

Cures with limited motion :

Long splint.....	29 = 32.95 per cent.
Short “.....	49 = 25.52 “ “
<hr/>	
	78

Cures with ankylosis :

Long splint.....	3 = 3.40 per cent.
Short “.....	1 = 0.52 “ “
<hr/>	
	4

Deaths :

Long splint.....	3 = 1.56 per cent.
Short “.....	2 = 1.04 “ “
<hr/>	
	5

Treated with long splint . . . . .	88
“ “ short “ . . . . .	192
Total number of cases . . . . .	280

I have had no personal experience in the treatment of hip disease by perfect immobilization, but had to exsect in one case in which the joint had been *immobilized* by a plaster-of-Paris cast from axilla to foot for *two* years. The first cast being applied in the very early stage of the disease, the limb was retained perfectly straight by the plaster casting; but as *no traction* was used, the reflex muscular action caused constant pressure of the head of the femur against the acetabulum, causing absorption of the head of the femur and perforation of the acetabulum. An abscess forming inside of the pelvis peeled off the periosteum and opened above Poupert's ligament. As there was not the usual deformity of hip disease, and no pain on upward pressure of the limb, the surgeons in attendance did not recognize it as hip disease, and I was called in consultation. I gave as my opinion that the joint was already destroyed, and that *exsection* was the only chance for saving the child's life.

Dr. Kraekowizer was then called in consultation to decide the question, and, confirming my diagnosis, I exsected the joint in the presence of Dr. S. Sabine, Dr. Kraekowizer, Dr. Yale, Dr. Markoe, and others. The head and neck of the femur were absorbed and the acetabulum perforated.

The operation was a success, and, eight months after, I saw the boy riding on horseback in the mountains of Virginia.

He went back to Texas, and two years after was attacked with nephritis and died from suppuration of the kidney.

In 1859 I was requested to go to Frankfort, Ky., to see a young lad suffering from hip disease of three years' standing. As I could not leave the city at the time, I requested my friend Dr. Baur, then of Brooklyn, to go in my place. The doctor divided the contracted muscles, straightened the limb under chloroform, and placed the boy in the wire breeches, which made him perfectly comfortable. In fact, he was so comfortable that Dr. Rodman, his attending physician, was afraid to remove him from the wire breeches, fearing that he would not again be able to replace him as comfortably as he then was.

He was carried down on the Kentucky River every day for a row, and was perfectly free from pain from the time that Dr. Baur placed him in the cuirass. He was not removed from the wire breeches for nine months, and when he was taken out the disease was perfectly cured, but the joint completely ankylosed, as were also the hip of the opposite side, both knees, and both ankles, as well as the entire lower portion of the spine. In fact, he could only move his arms and neck. He remained in this solidified condition till his death some years later.

In 1872 a girl was brought to me from Hamilton Junction, New Jersey, with *double* hip disease of eighteen months' standing. The right, third stage; the left, probably the same. After gradually straightening the limbs, she was placed in the wire cuirass.

The limbs were removed from the cuirass occasionally,

and slight motion was given to all the joints, while the limb was kept extended by traction with the hand.

Her general health improved greatly, and in six months she returned home in the cuirass, the mother having been carefully instructed as to the manipulation and dressing of the limbs. I received a letter from the mother in the latter part of 1873, saying that "she had entirely recovered, with good motion of both legs and no deformity."

Four years later, in March, 1877, the father called on me and said that "Mary was entirely well and very stout, but that the joints were stiff," as he found it too much trouble to take her out of the splint so often, but that he was perfectly delighted and satisfied with the result. I was not. My impression is that, had the limbs been occasionally removed from the cuirass and the joints slightly moved short of the amount that caused pain, this ankylosis would not have taken place.

## MORVAN'S DISEASE.

By B. SACHS, M. D.,

PROFESSOR OF MENTAL AND NERVOUS DISEASES,

AND S. T. ARMSTRONG, M. D., PH. D.,

INSTRUCTOR IN MENTAL AND NERVOUS DISEASES, NEW YORK POLYCLINIC.

IN 1883 Dr. Morvan, residing in a little town in Brittany, published a paper on a disease that he had observed there to which he gave the name of analgesic paresis and panaritium of the superior extremities, or pareso-analgesia. In this paper he stated that at the commencement the disease was limited to one extremity, subsequently passing to the other, and always terminating in the production of one or more felons.

In the cases as first described by Morvan the symptoms are initiated by a weakness of the muscles, and sometimes by a pain in the forearm, that is succeeded by a swelling of the member, with the formation of deep palmar fissures and felons, usually painless, with phalangeal necrosis. It was for the latter condition that the physician was consulted, and at that period there was usually paresis of the muscles of the affected region that was afterward followed by atrophy of the thenar, hypothenar, and interosseous muscles. While faradization would produce energetic contractions in the muscles of the forearm, no reaction would be obtained in the atrophied muscles. There was analgesia of the forearm, sometimes of the arm, neck, and chest; and also thermal, but no other anesthesia. Exertion produced occasionally hyperidrosis of the analgesic region; and the existence of vaso-motor disturbance was further evidenced by the bluish or mottled discoloration of the affected part in cold weather, and the occasional formation of phlyctenulae. Of his reported cases, seven were in males and two in females, and the disease had lasted from a few to twenty-five years without involvement of other regions.

It seems to us that the report that Morvan made of what seemed to him to be a new disease should be considered in giving it a place in nosology. The existence of paresis, loss of pain sense and thermal sense, circumscribed atrophy of the forearm or hand muscles, and trophic disturbances evidenced by the formation of cutaneous fissures

and felons, would constitute what is known as Morvan's disease. In all reported cases of the disease made at a subsequent date these have been the essential symptoms, and the following case is added to the literature of the subject, the patient having been presented for examination to two medical societies of this city :

W. H., aged twenty-eight, a native of Germany, a laborer, was referred to Dr. Sachs's clinic at the New York Polyclinic by Dr. Gerster. The patient had a venereal ulcer and a bubo in the right groin ten years ago, but otherwise he has always been healthy until four years ago, when he was employed as a dish-washer, his hands lost their muscular power, there was slight twitching and enlargement of the fingers, and the skin of the fingers and hands became thickened and fissured. He was treated by a physician, and the enlargement in the fingers subsided, except in the index and third finger of the left hand, in which felons formed, that were incised without causing any pain. He thought that the condition of his hands resulted from the use of soda in the wash-water; but it is now four years since he stopped washing dishes, and his hands have not improved. At the time of examination the skin of each hand was of a purplish color, that was intensified by cold weather, the discoloration under such influence extending up the arm. The hands themselves presented the following appearance :

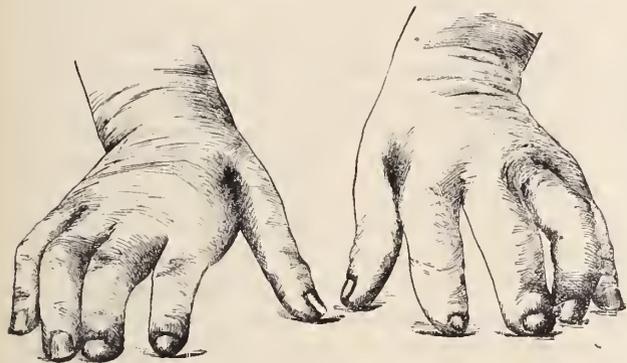


FIG. 1.

Right. The skin on the dorsum seems to be normal, but on the dorsum of the fingers it is thickened; there is a slight contracture at the second phalangeal joint in all of the fingers, but more pronounced in the middle and index fingers. There is a small eschar on the dorsum of the thumb, but this member is not contracted. There is a marked atrophy of the first dorsal interosseous muscle. On the palmar surface the skin is thickened, and there are numerous ragged excoriations, especially on the finger-tips and at the base of the middle and ring fingers; in these excoriations deep fissures, having indurated edges, have formed. On the anterior surface of the right forearm is an area of dermatitis resembling a mild degree of ichthyosis. At the bend of the elbow there is an area four inches long by an inch wide, in which there are numerous small depressed atrophic areas that might be described as a *dermatophthia circumscripta albida*; the patient thought that this had resulted from carrying a basket on his arm, the markings resembling somewhat those that would be produced by the pressure of the twisted willow in the handle thereof. There is a scar over the olecranon, caused by an incision (painful) for an abscess in 1890. Left hand: The skin on the dorsum and palmar surfaces of the hand and fingers presents a similar appearance to that of the right hand, but the nails of the index and middle fingers are thickened and deformed, and the end of the index finger is conical while that of the middle finger is clubbed. The nail of

the latter finger presents white opaque striæ, and a portion was examined microscopically to see if these striæ were caused by a mycelial growth; but no fungus was found. There is moderate atrophy of first dorsal interosseous. Dynamometer showed: *Manus dextra*, thirty kilogrammes; *manus sinistra*, sixty kilogrammes; but this disparity has been lessened during the course of the electrical treatment, and the muscular power is almost equal at the time of writing this report, though it is yet less than that of a healthy man. The muscular sense was normal, and, excepting in those muscles above mentioned, no atrophy was apparent. The forearms were well developed and were equal in circumference. The tactile and pressure senses were normal, the patient locating a straw drawn over the skin, and discriminating between different weights. The pain sense is abolished in an area on the dorsum of the right hand; also over the dorsum of the fingers, hand, and ulnar side of the left forearm; but there is no loss of pain sense in the palms or the anterior surface of either forearm. Fig. 2 shows the analgesic areas on the hands; the test was made by forcing a needle into the flesh. The temperature sense did not recognize a temperature of 212° F. on either forearm, excepting at the flexure of the elbow, where it felt hot; but at this point a temperature of 150° F. felt cold. Temperatures of 190° to 200° F. were recognized as warm on the upper portion of the arms and back, though lower temperatures were called cold. In the regions above mentioned a temperature of 32° F. was not recognized as very cold, even if it was placed on a spot on which a temperature of 212° F. had just been placed. These observations were made with test tubes containing boiling water and a freezing mixture. There is fibrillary twitching of the muscles of the forearm and hand. Fig. 1 shows the atrophy of the inter-

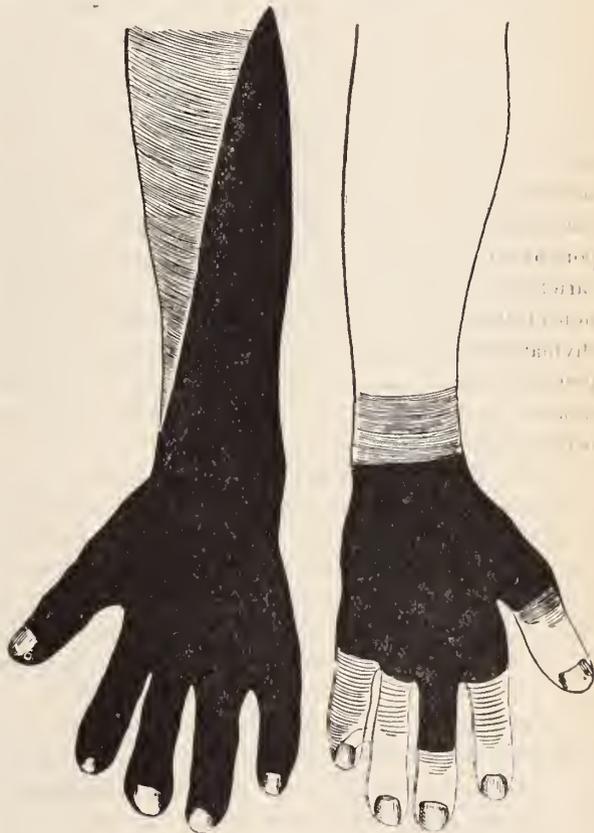


FIG. 2.

osse, the deformity of the fingers of the left hand, and the slight tendency to the *main en griffe*. An electrical examination showed an absence of the faradaic reactions in the extensor,

thenar, and interossei muscles, though the flexor group reacted well. Galvanic reactions, ACC > KCC in the extensor muscles of each forearm and the interossei. It might be here stated that since the treatment by electricity has been commenced, the faradaic reactions have returned in the extensor groups and the difference in the galvanic reactions is diminishing.

There is no history of pain in the forearms preceding the appearance of the other symptoms; his attention was first called to his hands by the fact that, when immersed in hot water, he had no sensation of its heat—a phenomenon associated with the swelling and inability to use his hands. When his entire skin is perspiring his forearms will be cold. He has had to give up positions as a waiter because he has been unable to firmly hold articles of glass or crockery in his hands.

In this case we have paresis of the muscles of the hand; analgesia of certain regions of the dorsum of the hands and of the posterior aspect of one forearm; thermal anaesthesia of both forearms, and felons on one hand—the congeries of symptoms constituting Morvan's disease.

The pathology of the disease, and, in fact, whether there was any such morbid entity as this disease, has been questioned. Osler (2) considers it a peripheral neuritis of toxic origin, and Gowers (3) considers it a peripheral neuritis with myelosyringosis.\* This theory that the disease is a peripheral neuritis seems to be verified by an examination of Morvan's first reported cases; his first case is one of traumatic neuritis following a fall, with persistent motor and sensory paresis for ten years; his second case presented symptoms of multiple neuritis, in which the affection of the nerves of the lower extremity disappeared in the course of years, certainly a result that would never have occurred in myelosyringosis; his third case seems to be one of chronic neuritis, as is evidenced by the occurrence of painful paroxysms during twenty-four years; his fifth case resembles traumatic neuritis; and his seventh case resembles one of multiple neuritis. Monod and Reboul, in their report of a case of the disease, took the position that it was a variety of peripheral neuritis, having found in an examination of the nerves of an amputated finger an acute parenchymatous and interstitial neuritis. Déjérine (13) thought that the frequent appearance of the disease in the population of a small province showed that it was a neuritis of toxic or infectious origin.

Surgical pathology teaches us that felons do not originate spontaneously, but in consequence of the introduction of the *Streptococcus pyogenes*; and the fact that the felons are usually painless seems to show that the micro-organism gains access to the tissues in consequence of the trophic disturbances, and that the felons are merely an incident that might be prevented in such cases by due attention to cleanliness.

The dissociation of sensory symptoms is the chief argument against the theory that Morvan's disease is due to peripheral neuritis, but there is evidence that all sensations are not equally affected in neuritis, as has been asserted by

Starr (5); and possibly the paucity of such records is due to failure to make special tests.

As it is a physiological fact that the conduction channels of the tactile, pain, and thermal senses lie in different parts of the spinal cord, it seems a justifiable assumption that their peripheral terminations are also different. And that recorded cases justify this assumption is evidenced by the cases of Weir Mitchell (6), in which there was a lessened sense of pain with no loss of touch; those of Gowers, in which he has seen loss of pain sense while the muscular sense is preserved; and those of Grainger Stewart (7), in one of which the thermal sense was diminished while the pain and muscular senses were normal, and in another the thermal and pain senses were diminished and the muscular sense was normal. The latter case is especially serviceable in supporting the possibility of the existence of such phenomena in neuritis, because the necropsy showed that in the median, ulnar, and tibial nerves certain "bundles of nerve fibers were totally, others partially destroyed, while some were comparatively healthy"; and in the cervical enlargement of the spinal cord there were tracts of secondary degeneration, affecting only the columns of Goll and the outermost part of the lateral columns.

These cord degenerations were in consequence of an ascending neuritis, and an explanation of the gliomatosis of the cord, in cases of Morvan's disease, is possible on the ground that there was an ascending neuritis of the sensory fibers, with later slow gliomatous degeneration in their tracts in the spinal cord. Gombault (8) found in a necropsy, in a patient who had Morvan's disease for forty-four years, intense changes in the peripheral nerves, with a mild degree of sclerosis of the posterior horns and columns. These facts justify the statement of Gowers regarding this disease, that "we must be cautious in inferring that the pathological state is the same in origin in all cases." But physiological, pathological, and clinical data support the idea that a peripheral neuritis may be the cause of the disease, though Morvan himself considers it is of spinal origin.

Myelosyringosis so closely resembles Morvan's disease in its early stages that several prominent neurologists—such as Bernhardt, Jolly, and Charcot—have considered them identical; and the latter proposed that the congeries of symptoms constituting the former disease should be denominated myelosyringosis of Morvan's type. Now, myelosyringosis is a purely pathological condition that may include, according to Cheron (10), first, dilatation of the central canal, or myelohydrocyst; second, the excavating myelitis of Joffroy and Charcot; third, the peri-ependymal sclerosis of Hallopeau; and, fourth, gliomatosis of the region of the central canal. And with these various pathological conditions Joffroy and Achard concluded (11), from a study of the disease in general, that often a sufficient number of the supposedly pathognomonic signs are not present to allow a diagnosis to be made; again, that where all of these signs are present they may suddenly disappear, and a spontaneous recovery is hardly to be expected in such a disease—in other words, a peripheral neuritis has been mistaken for myelosyringosis. In the following table we present a comparison of the essential features of both diseases:

\* Our attention has been called to the barbarism in the composition of syringomyelia, and we have adopted myelosyringosis as a term that avoids the etymological error in the more usual word.

<i>Myelosyringosis.</i>	<i>Morvan's Disease.</i>
Felons rarely present, and only as a symptom of a trophic disturbance.	Formation of painless felons.
Fissures rare.	Palmar cutaneous fissures.
Analgesia of areas supplied by the segment of the affected cord; usually arms and upper half of trunk; rarer in lower part of trunk and legs.	Analgesia of fingers, of hand, and forearm; later and rarely of arm and neck.
Thermal anæsthesia of analgesic and other regions; sometimes unequal for heat and cold, sometimes perverted.	Thermal anæsthesia extending moderately beyond the analgesic areas.
Muscular atrophy of region supplied by nerves emerging at or immediately below the level of the affected segment of the cord.	Muscular atrophy usually limited to thenar, hypothenar, and interosseous regions; more rarely the forearm.
Tactile sense sometimes lost.	Tactile sense normal.
Often neuralgic pains in joints of the affected region and in the spine.	Pain may precede the other symptoms, rarely persists.
Occasional Romberg symptom. Unsteadiness of movements. Paralysis of one vocal cord; of tongue or face. Dysphagia. Dyspnoea. Cardiac irregularity. Inequality of pupils. Occasional nystagnus and ptosis. Occasional spastic paralysis of lower limbs.	No Romberg symptom.
Bones may become thick and brittle and tabetiform joint changes may occur.	Rarely any affection of bones (excepting necrosis from felon) or joints.
Bilateral in eighty per cent.	Bilateral in forty-five per cent.
<i>Mains de prédicateur</i> in consequence of predominance of extensor paralysis [Morvan].	<i>Main en griffe</i> in consequence of predominance of flexor paralysis.
Symptoms usually develop slowly, increasing gradually in the course of years; death from exhaustion or impairment of function. Recovery rare.	Symptoms usually develop rapidly; most often confined to the forearm and hand. No extension of symptoms in from ten to forty years. Recovery, or at least marked improvement, not infrequent.
Joffroy and Achard (14) reported a necropsy made on a woman who had, forty-five years before her death, <i>painful</i> felons of both hands, leaving deformities of the fingers resembling Morvan's disease; sensibility both to pain and heat was, just before her death, greatly diminished in the	

palmar surface of her hands and fingers, and the tactile sensibility was diminished; but there was no muscular atrophy and the electrical reactions were normal. She also had kyphosis. At the necropsy not only was a cavity found in the spinal cord, but the nerves of the forearms had undergone extensive degenerations; these latter they regard as secondary to the lesion in the spinal cord, just as is the peripheral neuritis that has been observed in posterior spinal sclerosis. It might be questioned whether, excepting in physical appearance, this case presented any similarity to Morvan's disease. The felons were painful; the deformities that followed them did not interfere with the usefulness of the hands; the muscles were not atrophied; the electrical reactions were normal; and the sensory disturbances occurred at the age of seventy-five, when sensation would naturally be rather sluggish, and even then a temperature of 140° F. was recognized as something warm, and the pin prick was indistinctly felt in the thickened skin of the palm and fingers.

We do not desire to maintain that cases of myelosyringosis do not present symptoms in the earlier stages of the disease closely simulating all the phenomena of Morvan's disease; and it is furthermore probable, as Joffroy and Achard have stated, that lesions in the bulb may produce such symptoms, and that supposed cases of Morvan's disease have really been cases of myelosyringosis. But we would maintain that cases of the latter disease of sufficiently long standing will present later and more serious complications than those reported as characteristic of the former malady.

That it is not necessary to found the existence of the disease on a pathological condition in the spinal cord is, we think, demonstrated by the observations of Charcot, who has found sensory dissociation in hysteria just as it is observed in the disease under consideration, and myopathic phenomena also. These would leave the felons as the single absent symptom, and we know their presence is due to a definite cause. Minor, of Moscow, has observed sensory dissociation in traumatic myelæmatoma; and the presence of this dissociation is so frequent in anæsthetic leprosy that the possibility of the identity of that and Morvan's disease has been broached.

For instance, Dr. Zambaco (12) has held that both myelosyringosis and Morvan's disease are identical, and that the disease is only a form of anæsthetic leprosy that has been, so to speak, attenuated by the manners and climate of Europe; this has been warmly controverted by Thibierge (16), and one of us can personally state that there is no resemblance between the present case or those reported cases that have been consulted and the cases of anæsthetic leprosy he has observed in the southern American states and in Norwegian leper hospitals.

We believe that Raynaud's disease, erythromelalgia, and sclerodactylia are sufficiently typical not to be confused with Morvan's disease.

While, therefore, it is to be distinguished from myelosyringosis, hysteria, and, in leprous countries, from anæsthetic leprosy, we believe the presence of other phenomena in those cases will enable a diagnosis to be made.

From the preceding presentation of facts, and our own

experience with myelosyngosis and neuritis, we infer that the typical cases of Morvan's disease may be due to a peripheral neuritis. On the other hand, we have conceded that cases of myelosyngosis may so closely resemble Morvan's disease as to make a distinction impossible; but the strict limitation of the disease usually for many years and the early appearance of the painful felons, as well as the improvement, if not recovery, in given cases would weigh strongly in favor of the diagnosis of Morvan's disease rather than myelosyngosis. And, lastly, it must be conceded that it is possible for an ascending neuritis to lead to gliomatous degeneration in the central canal of the spinal cord, such cases presenting later the typical clinical features of myelosyngosis.

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## A NEW METHOD OF TREATING ACUTE URETHRITIS.\*

BY B. E. VAUGHAN, M. D.,

ATTENDING SURGEON, NEW YORK DISPENSARY;  
ASSISTANT ATTENDING SURGEON, NEW YORK CANCER HOSPITAL, ETC.

WHEN I began the work for this paper I intended to speak of my results in treating urethritis at the New York Dispensary, where I have had during the past two years about two thousand two hundred cases. But in the past three months I have been developing what I may call a new plan of treatment, which, although not new in all its details, is enough so, I think, to warrant such a designation.

I use the term *acute* urethritis to include all forms of acute inflammations of the anterior urethra, whether specific or non-specific—first, because I did not have the time to make microscopical examinations, and, second, because the same rules of treatment apply, I think, to all *acute* cases.

I can not expect that my method of treatment will be approved by all, but I hope it may call out full discussion and expression of opinion which may tend to throw more light on the treatment of a disease which by many is considered hardly worse than a cold, but the results and complications of which cause many deaths and so much suffering.

In a conversation with Dr. Bangs a few months ago, he said, in answer to my question, How he treated acute ure-

thritis, that he had no routine treatment, but followed surgical indications, rest, drainage, and soothing applications to the mucous membranes. It impressed me as being so rational that I made it my basis for work, and have tried to follow it out in my treatment of cases.

Dr. Powers asked me to try dermatol (subgallate of bismuth), an astringent, drying, non-irritating, and non-poisonous drug, which he describes in the *Medical Record* of October 17, 1891. I first tried it in suspension, as it is insoluble, but the results were negative. Subsequently I succeeded in finding a vehicle which has proved satisfactory.

I am indebted to Daggett & Ramsdell, of 328 Fifth Avenue, for a vehicle which seems to answer every requirement, known under the name of *plasment*. They have furnished me the following notes:

"Plasment consists of the mucilaginous principle extracted from *Chondrus crispus* and *Cetraria islandica* (Irish and Iceland moss) combined with Siam benzoin and glycerin. The steam heat used in the extraction, together with other details of the process, render the preparation aseptic and it keeps perfectly. It combines readily with all substances used in dermatology, in most instances producing preparations which are superior, from a pharmaceutical point of view, to ointments. We have used it extensively in the prescriptions of several of our leading dermatologists combined with such remedies as resorcin, salicylic acid, ichthyol, sulphur, oils of cade and tar, bismuth, zinc oxide, creasote, starch, carbolic acid, potassium iodide, iodine, subiodide of bismuth, dermatol, aristol, mercury, boric acid, etc., in all cases giving great satisfaction both to the patients and physician."

Plasment is about of the consistence of vaseline. It is a demulcent and soothing to all mucous membranes. It is soluble in water, while the oils are incompatible; it coats the mucous membranes and is readily absorbed in a canal, depositing the medicament on the membrane, and at the same time protecting and keeping apart the opposing surfaces.

With this as a vehicle I use three or five per cent. of dermatol. You will readily see how this, through mixture of the dermatol with the vehicle, increases its action, if I quote from the paper of Dr. Powers.

"Experiments were made regarding its antiseptic properties, and it was found that when the dermatol was added to a fluid nutrient gelatin, decomposition or bacterial growth was hardly hindered. The same occurs with iodoform, iodol, bismuth subnitrate, and aristol. The dermatol can take effect only when it comes in direct contact with the germs and when it is evenly mixed with the nutrient medicine. This they accomplish in the following manner: Gelatin was warmed in a reagent glass until it was just fluid (28° to 30° C.), and with it large amounts of dermatol were mixed. This was then mixed with a pure culture shaken and poured on cooled trays. As it stiffened in cooling, the dermatol was held in a uniform admixture. The anthrax bacillus, *Staphylococcus pyogenes aureus*, *Bacillus prodigiosus*, bacillus of typhus and pneumonia, were used. In all of these the growth was stopped."

Now comes the question how to best apply such a mixture to the mucous membrane that is diseased.

\* Read before the Hospital Graduates' Club.

I had a special soft-rubber catheter made by Tiemann, about five inches long, with several small openings near the end on all sides.

As a syringe I use in private cases the compressible tube such as paints come in, with a special hard-rubber tip



screwed on the end, furnished me by Daggett & Ramsdell. In this way the substance is kept absolutely clean.

In my dispensary cases, where I make a great many injections, I use a hard-rubber syringe, and fill it with a spatula after unscrewing and removing the piston. It requires very little for each injection, and a small quantity goes a long way. The catheters are made in two sizes—10 and 20 F. scale. I prefer the larger size, if the urethra is large enough, as it makes the application more thorough.

The method of treatment is as follows:

The patient is first requested to urinate, not only that he may wash out the urethra, but that it may be as long as possible before it is necessary for him to pass urine again. Then the catheter is attached to a fountain syringe (any other syringe could be used), about seven feet from the floor, filled with warm water of an agreeable temperature to the hand (best, one drachm of chloride of sodium to the pint). The catheter introduced, the water goes to the bottom of the anterior urethra and then flows back around the tube and out at the meatus. The catheter should be small enough to allow the backward flow. After douching for a minute or more, the tip of the syringe is withdrawn from the catheter, and the syringe, with dermatol in plasment, is applied, and about half a drachm injected as the syringe is gradually withdrawn. In this way the whole length of the anterior urethra is coated with the medicament.

As soon as the catheter is withdrawn, a small piece of absorbent cotton is applied over the meatus, and the patient is directed to change this frequently.

Thorough antiseptics of instruments and hands in making application.

This method of application to the urethra through a catheter was suggested by Dr. Fox, about twelve years ago, at the meeting of the State Medical Society, and I have a glass tube which Dr. Fox used at that time.

Dr. Vander Poel and Dr. Halsted used iodoform, one part, and cold cream, eight parts.

Dr. Bransford Lewis recommends vaseline and lanolin (*Med. Rec.*, Aug. 17, 1889) as a vehicle; boric acid and resorcin used as active agents with a catheter four to five inches long.

Dr. Rice (*Med. Rec.*, July 20, 1889), boric acid and glycerin, three drachms to the ounce.

Bartholow mentions subnitrate of bismuth and glycerin, and Finger lanolin, as a basis for urethral applications.

You will notice that all these vehicles are *emollients*, while plasment is a *demulcent*.

Brunton's definition for emollients is substances which soften and relax. Demulcents are substances which protect and soothe the parts to which they are applied.

You will appreciate the difficulty in dispensary practice to get patients to return daily for treatment, and also the difficulty in keeping them under observation until sure that their cures have been permanent.

I will give you the histories of a few of the average cases:

*December 4th.*—Mr. W. has had gonorrhœa several times; last time, two years ago; profuse discharge, with pain on urination and balanitis for a week. Dermatol, five per cent. in plasment. Mist. pot. bicarb., t. i. d. ℞ Potassii bicarb., gr. viij; tinct. hyoseyam., ℥iv; aquæ, ʒj.

*5th.*—Pain less; discharge improved.

*8th.*—Discharge very slight; no pain.

*10th.*—Discharge very slight; no pain.

*12th.*—Discharge very slight; no pain.

*13th.*—No discharge.

The patient was under observation for two weeks; ten days under treatment; five visits. Duration of disease, seventeen days.

*December 5th.*—Mr. B., gonorrhœa several times; last time, two years ago. Profuse discharge for a week, with pain on urination. Dermatol and plasment. Bicarbonate of potassium, as in No 1.

*10th.*—Discharge improved, but pain worse.

*12th.*—Discharge improved; pain less.

*16th.*—Only very slight watery discharge; no discomfort.

*17th.*—Slight moisture.

*18th.*—No discharge.

*19th.*—No discharge.

*21st.*—No discharge.

*23d.*—The patient considered cured.

From the beginning of treatment to the stopping of discharge, thirteen days; five visits. Duration of disease, twenty days.

*November 23d.*—Mr. M., no gonorrhœa before; discharge for two days profuse, with marked swelling of mucous membrane and severe balanitis. No injection given on first day, but bicarbonate of potassium given.

*24th.*—Increased discharge and marked pain on urination. Dermatol and plasment used. Passing catheter irritated slightly.

*25th.*—Condition about the same.

*30th.*—Patient not here for five days. Discharge still profuse.

*December 1st.*—Markedly improved. Pain on urination disappeared.

*2d.*—Continued improvement; no discomfort.

*5th.*—Continued improvement.

*8th.*—Continued improvement.

*10th.*—Continued improvement.

*11th.*—Continued improvement.

*16th.*—Continued improvement. Patient came regularly; discharge growing less. On the 30th it entirely ceased and did not return. Discharge lasting in all five weeks, but course and symptoms mild after first week.

I will also give the result of its use in two private cases, where I had acute exacerbation of chronic urethritis:

1. Young man under treatment by deep injections of nitrate of silver for chronic posterior urethritis.

After free indulgence in beer and connection with a prostitute, he came to my office with a profuse discharge. Pain and swelling of the whole penis. One application relieved all the acute symptoms and the discharge entirely stopped.

2. While patient's wife was abroad he contracted gonorrhœa. The discharge had stopped after six weeks' treatment by copaiba and injections of nitrate of silver. Two weeks after this, his wife having returned, there developed an acute urethritis following first intercourse. The discharge was profuse; the whole

mucous membrane of urethra was swollen, painful, and tender to the touch. After the first injection of the dermatol and plasment all acute symptoms subsided.

The following are histories of sixty-four cases:

No.	Name.	History.	Nature.	Treatment.	Remarks.	Length of treatment.
1	Mr. C.	Gonorrhœa twice; 1 week.	Profuse discharge, with painful micturition.	Dermatol, five per cent. twice daily; dermatol and plasment.	Improved in 3 days. All treatment stopped, but in 3 days slight return due to beer; cured by one injection.	20 days.
2	Mr. Con.	None before; 3 weeks.	Profuse and purulent discharge, with balanitis.	Dermatol and plasment.	Improved after first injection; stopped in 3 days.	3 days.
3	Mr. H.	None before; 10 weeks.	Moderate discharge.	Solution of dermatol, five per cent.	Improved in 2 days.	3 days.
4	Mr. L.	None before; 1 week.	" "	" " "	Patient did not return.	
5	Mr. R.	None before; 4 days.	" "	" " "	" " "	
6	Mr. G.	None before; 6 weeks.	Profuse discharge.	" " "	Discharged stopped in 7 days.	10 days.
7	Mr. D.	None before; 1 month.	" "	" " "	Improved in 2 days.	12 days.
8	Mr. B.	None before; 5 days.	Profuse discharge; pain on urination.	Solution of dermatol, five per cent., until 12 days, and then dermatol and plasment.	3 weeks no discharge; then 2 weeks no discharge; then slight return after drinking beer.	7 weeks.
9	Mr. S.	None before; 4 days.	Profuse discharge, and pain on urination.	Solution of dermatol, five per cent.	5 days discharge less, no pain; slight showing at meatus for 8 days, and then stopped.	13 days.
10	Mr. Z.	None before; 3 weeks.	Profuse discharge; some pain.	Solution of dermatol, five per cent.; irregular.	Less pain and discharge the following day. In 10 days only slight discharge; then no treatment for a week. Came back with epididymitis.	Discharge stopped in 3 weeks.
11	Mr. C.	Treated for nearly a month with copaiba.	Copious discharge.	Solution of dermatol, five per cent., for 2 weeks, improvement; dermatol and plasment.		3 weeks.
12	Mr. S.	None before; 1 week.	Profuse, with pain on urination.	Dermatol, five per cent. for 2 weeks; dermatol and plasment.	Improvement; stopped in 10 days.	10 days.
13	Mr. Gil.	Gonorrhœa several times; not entirely free; 5 days.	Profuse and purulent.	Dermatol and pot. bicarb. for 11 days; dermatol and plasment used.	Improved first 11 days; very slight discharge continued for 2 weeks longer, then stopped.	25 days.
14	Mr. Gar.	None before; 5 days ago.	Profuse, and pain on urination.	Solution of dermatol, five per cent.; after 3 weeks, pot. bicarb.; dermatol and plasment.	Discharge stopped in 5 days; 2 weeks later, nodule near meatus, which burst into urethra.	6 weeks.
15	J. H.	None before; 10 days.	Profuse discharge, pain, and frequent micturition.	Sol. of dermatol, five per cent.; pot. bicarb.; dermatol and plasment.	Discharge stopped in 5 days; returned in a week, cured by one injection.	12 days.
16	Mr. B.	None before; 3 weeks.	Profuse and purulent discharge; pain and chordee.	Solution of dermatol, 2 weeks; pot. bicarb.; dermatol and plasment.	Discharge stopped; returned 5 days later; stopped after 4 days.	3 weeks.
17	Mr. T.	Several times; 1 week.	Watery discharge; pain on urination.	Solution of dermatol, five per cent., 1 week; dermatol and plasment; pot. bicarb.	Improvement in 2 days; patient irregular; discharge stopped, and did not return.	24 days.
18	Mr. H.	Discharge; 4 weeks.	Quite profuse.	Solution of dermatol, pot. bicarb.	Discharge stopped in 3 days.	3 days.
19	Mr. Har.	3 days.	Moderate.	" " "	.....	11 days.
20	Mr. B.	Gonorrhœa 1 yr. ago; 1 week.	Profuse, and pain on urination.	" " "	5 days, improvement; dermatol and plasment given; cured in 4 days.	9 days.
21	Mr. J.	None before; 5 days.	Purulent and frequent micturition; balanitis; phimosis.	Solution of dermatol, pot. bicarb., 1 week; dermatol and plasment.	Improved; discharge stopped in 2 days; patient did not return.	
22	Mr. M.	Gonorrhœa 5 yrs. ago; 9 days.	Profuse; no pain.	Solution of dermatol, pot. bicarb.	Discharge stopped in 7 days.	Patient did not return.
23	Mr. R.	None before; 2 days.	Chaneroid for 1 week; discharged; pain.	Solution of dermatol, pot. bicarb.; then dermatol and plasment used.	Very little improvement, 8 days; 14 days, no discharge.	14 days.
24	Mr. Coh.	Gonorrhœa 1 yr. ago; 4 days.	Profuse, with pain on urination.	Solution of dermatol, pot. bicarb., 1 week; dermatol and plasment.	Stopped in 8 days; slight return at intervals for 3 weeks; cured.	3 weeks.
25	McG.	None before; 2 days.	Thick, white, with pain on urination.	Dermatol and plasment, pot. bicarb.	No discharge after 2 weeks; irregular treatment.	2 weeks.
26	McC.	No gonorrhœa; 2 days.	Profuse, with pain on urination.	" " "	No discharge on third visit; patient irregular; did not return for 8 days. Discharge again profuse; improvement in 4 days.	15 days.

No.	Name.	History.	Nature.	Treatment.	Remarks.	Length of treatment.
27	McD.	Gonorrhœa 1 yr. ago; 2 days.	Moderate, with pain on urination.	Sol. of dermatol, 1 week; dermatol and plasment, pot. bicarb.	Treated 1 month, although most of time no discharge.	1 month.
28	Mr. V.	No gonorrhœa; 2 days.	Profuse, with pain on urination.	" " "	" " "	1 month.
29	Mr. M.	No gonorrhœa; 2 days.	Profuse, and pain on urination.	Dermatol and plasment, pot. bicarb.	Improvement in 4 days.	
30	Mr. R.	No gonorrhœa; 3 days.	Ordinary.	Solution of dermatol, five per cent.; pot. bicarb.; dermatol and plasment.	Discharge stopped after a week; returned again in 4 days. Injection given of dermatol and plasment; 2 days better, but slight moisture in the mornings for 2 weeks.	1 month (no return).
31	Mr. Hein.	Discharge; 3 weeks.	Slight, and pain on urination.	Dermatol and plasment, pot. bicarb.	Discharge stopped in 24 hours, without perceptible return.	2 days.
32	McC.	Gonorrhœa and stricture before; 3 days.	Profuse discharge, and pain on urination.	" " "	In 2 days the discharge disappeared; but with very slight returns, without any pain or irritation, for 1 mo.	5 weeks.
33	Mr. St.	2 weeks.	Profuse discharge, and pain on urination.	For 2 weeks patient was treated by AgNO <sub>3</sub> (1 to 3,000), no improvement; dermatol and plasment, pot. bicarb.	Discharge improved after three visits; did not return for 10 days, and with another trouble; no discharge since visit.	3 days.
34	Mr. D.	Gonorrhœa 2 yrs. 2 days.	Profuse discharge; balanitis.	Dermatol and plasment, irregularly; pot. bicarb.; thirteen visits in a month.	Discharge stopped in 3 weeks, but returned and continued slightly for 1 week.	5 weeks.
35	Mr. M.	No gonorrhœa; 2 days.	Profuse; balanitis; small meatus.	Dermatol and plasment, pot. bicarb.	Stopped entirely in 5 weeks; meatus was irritated by catheter.	5 weeks.
36	Mr. S.	No gonorrhœa; 3 weeks.	Profuse.	" " "	Following day very much improved; second injection given.	Patient did not return.
37	Lewis.	No gonorrhœa; 3 weeks.	Considerable discharge, with pain.	" " "	No discharge on second and third visits; then very slight for 10 days.	12 days.
38	Mr. B.	Gonorrhœa 3 yrs. ago; 3 days.	Profuse, with pain.	" " "	No discharge at 3 weeks; patient returned 2 weeks later with discharge following use of beer.	5 weeks.
39	Mr. G.	Gonorrhœa 2 years; 1 day.	Quite profuse.	" " "	Patient very irregular; cured after 5 weeks, only 6 visits.	3 weeks (not satisfactory).
40	Mr. W.	Gonorrhœa several times; 1 wk.	Discharge; pain and balanitis.	" " "	No discharge in 11 days.	11 days.
41	McG.	Several times; 2 weeks.	Ordinary.	" " "	Discharge stopped in 1 week; returned twice later due to excessive indulgence.	1 week; under observation for 4 weeks.
42	Mr. B.	Several times; 1 week.	"	" " "	Discharge stopped temporarily in 13 days; in 16 days stopped and did not return.	16 days.
43	Gross.	2 months.	"	" " "	4 days, stopped; but returned in 1 week slightly after beer in excess; stopped by one injection.	12 days.
44	Mr. J.	1 week.	Small meatus; profuse discharge.	" " "	No discharge in 19 days.	19 days.
45	Mr. G.	No gonorrhœa; 1 week.	Profuse discharge; swelling of glands and œdema of prepuce.	" " "	Stopped in 12 days; slight return at intervals for 2 weeks longer.	1 month.
46	Mr. F.	No gonorrhœa; 1 week.	Profuse discharge; chancere and balanitis.	" " "	Discharge stopped in 6 days.	6 days.
47	Mr. H.	2 days.	Profuse.	" " "	" " "	Patient did not return.
48	Mr. C.	4 weeks.	Profuse; treated 4 wks. by copaiba.	" " "	Stopped in 3 days.	3 days.
49	Mr. S.	Gonorrhœa twice; 2 weeks.	Ordinary.	" " "	In 2 days discharge disappeared; in 10 days cured.	10 days.
50	Mr. K.	No gonorrhœa before; 2 weeks.	"	" " "	Stopped in 13 days; returned slight on 17th; cured in 20 days.	20 days.
51	Mr. S.	No gonorrhœa; 2 days.	Profuse, and pain on urination.	" " "	After 5 days only slight moisture at meatus; stopped entirely in 15 days.	15 days.
52	Mr. D.	Gonorrhœa 4 months; 1 wk.	Profuse; copaiba, 3 days.	" " "	Practically stopped after one injection; cured in 10 days.	10 days.
53	Mr. H.	Gonorrhœa 8 yrs. ago; 1 week.	Ordinary.	" " "	Second visit practically no discharge. Stopped in 6 days; no discharge for 10. Indulgence in beer brought back discharge for 3 days.	21 days.
54	Mr. C.	No gonorrhœa; 1 day.	Profuse, with pain.	" " "	Four injections; much improvement.	Patient did not return.
55	Mr. M.	Gonorrhœa three times; last time 2 years ago; 1 day.	" " "	" " "	3 days, no discharge; slight return in 3 days, then no discharge for 5 days. Slight return, frequent urination, and pain. Discharge stopped in 13 days; pain on urination disappeared after 5 days.	13 days.
56	Mr. W.	No gonorrhœa; 2 days.	" " "	" " "	Improvement for 21 days.	Patient did not return.
	Mr. L.	2 years ago; 2 days.	Profuse, with pain; balanitis.	" " "	Gradual improvement; no discharge after 13 days.	13 days.

No.	Name.	History.	Nature.	Treatment.	Remarks.	Length of treatment.
58	Mr. G.	No gonorrhœa; 3 days.	Profuse, with pain.	Dermatol and plasment, pot. biearb.	Patient on third visit had no discharge, and it has only been very slight with no discomfort since.	Still under treatment.
59	Mr. L.	No gonorrhœa; 4 days.	" "	" " "	Discharge stopped in 4 days, did not return; saw patient 10 days later.	8 days.
60	Mr. Lewis.	No gonorrhœa; 4 weeks.	Ordinary.	" " "	Discharge stopped by one injection.	2 days.
61	Mr. F.	Gonorrhœa once before; 1 week.	Quite profuse.	" " "	After 3 injections discharge stopped; patient returned 10 days later for another trouble.	1 week.
62	Mr. H.	Gonorrhœa 2 yrs. ago; 1 week.	" "	" " "	Improved; very slight watery discharge only; 16 days.	Under treatment.
63	Mr. R.	Gonorrhœa twice before; 3 weeks.	Ordinary.	" " "	No discharge in 3 days, but returned 8 days later; again stopped after two injections; four injections.	12 days.
64	Mr. A.	No gonorrhœa before; 4 days.	Profuse; purulent, with pain on urination and œdema about penis.	" " "	Improved after first injection; still under treatment, but discharge practically cured.	Still under treatment; 12 days.
65	Fifteen cases under treatment less than 10 days; all doing well.					
66	Twenty-five cases could not attend regularly; treatment not given.					

TREATMENT.		DURATION.		TREATMENT.		DURATION.	
Weeks.	Days.	Weeks.	Days.	Weeks.	Days.	Weeks.	Days.
2	6	3	6	5	Irreg., beer.	5	2
..	3	3	3				
1	..	7	..	1	5	4	5
..	2	4	..	5	Irreg.	5	3
1	5	5	5	5	"	5	1
7	Irreg.	7	5	1	4	3	4
1	6	2	3	2	2	3	2
1	3	4	3	1	..	3	..
3	..	7	..	1	5	9	5
1	3	4	1	2	5	3	5
6	..	6	5	3	..	6	..
1	5	3	1	2	3	3	3
4	..	5	..	..	3	4	3
..	6	1	6	1	4	2	..
..	6	1	1	1	2	2	2
..	3	4	3	..	5	1	..
1	3	3	3	1	..	2	2
2	6	4	6	2	..	2	2
2	1	2	3	3	..	3	4
1	3	2	3	2	..	2	2
1	..	4	..	2	1	2	3
1	6	2	..	4	..	4	2
1	6	2	1	4	..	4	2
1	1	1	5	1	..	2	..
..	2	4	2	1	5	4	5
4	..	4	3				
..	2	3	2				
5	Irreg.	5	2				
..	3	2	3				
5	Irreg.	5	2				

8 did not return.  
3 under treatment.

In all these cases there has developed only one case of epididymitis, and in that the patient had absented himself a week from treatment.

Other complications—such as cystitis and balanitis—have been absent, unless present at beginning of treatment.

*Conclusions.*—1. That in the treatment of acute urethritis soothing applications rather than irritants should be used.

2. That the passage of the soft-rubber catheter recommended does not, as a rule, irritate the urethra; that if it does it should not be used.

3. That plasment is an excellent vehicle for urethral medicaments.

4. That dermatol in plasment is the most efficacious drug I have used in urethritis, although I have used no other drug with plasment.

5. That treatment by the above-described method has produced a milder course and fewer complications than that with other remedies that I have used.

*Note.*—Since the foregoing was written, six of the patients reported as cured have returned with a discharge. In all these cases there was a history of previous attacks, and examination showed evidences of chronic urethritis.

209 WEST FIFTY-FIFTH STREET.

	Treatment.	Duration.
1 week or less.....	12	1
2 weeks, more than 1.....	20	7
3 " " 2.....	10	10
4 " " 3.....	4	10
5 " " 4.....	5	14
6 " ".....	1	8
7 " ".....	1	2
9 " ".....	..	1
Total.....	53	53

Although the results of treatment do not make a brilliant showing in these tables, yet I think you will all admit that it is far above the average results.

I do not allege that urethritis is aborted by this treatment, but that, when regularly applied, it allays the inflammatory symptoms and makes the patient much more comfortable, shortening the course and preventing complications.

### ANALYSES OF TWO HUNDRED CASES OF ERRORS OF REFRACTION.\*

By H. BERT ELLIS, B. A., M. D.,

LOS ANGELES, CAL.,  
PROFESSOR OF PHYSIOLOGY IN  
THE COLLEGE OF MEDICINE OF THE UNIVERSITY OF SOUTHERN CALIFORNIA.

THESE analyses are based upon cases met in private practice during the past two years, and I offer them to your consideration, with a few remarks in the shape of explanations and conclusions, not in the hope that there is anything new in them which you are not already all well aware of, but with the idea that by the constant repetition of well-known facts the foundation may be laid for the more

\* Read before the Southern California Medical Society at its eighth semi-annual meeting, held at Riverside, December 2 and 3, 1891.

general attention of the profession to eye-strain as a causative factor in human ailments.

I may state, as a prefatory note, that in the preparation of these tables I have followed closely in the path blazed by Dr. George M. Gould, of Philadelphia, in a paper read in the Section on Ophthalmology, at the forty-second annual meeting of the American Medical Association. I have trod in Dr. Gould's footsteps because my experience, although much more limited, has been quite similar; and further because, if my summaries are worth anything, they will be the more valuable modeled after a standard.

During the time covered by the cases here recorded in my ophthalmic practice I have had but eleven patients whose conditions I did not consider would be benefited by the wearing of glasses. Of these eleven, three I have noted as emmetropic; but it is only of one of them that I can speak with assurance. Eight had very slight hyperopic or myopic errors, but were without ocular or other reflex neuroses. That is to say, 94.5 per cent. of my eye cases have needed glasses, and only one half of one per cent. have been certainly emmetropic. Of the two hundred cases recorded, forty-three were presbyopic; that is, 21.5 per cent.; and of the remaining one hundred and fifty-seven, one hundred and one were examined under a mydriatic; the others should have been, but in private practice it is many times almost impossible for the business men or the women who depend upon their eyes for their daily bread to stop their work for even two to four days, the time necessary when homatropine is employed.

The proportion between males and females is favorable to the latter, the figures showing one hundred and fifty girls or women and only fifty boys and men. This disproportion may be accounted for by the difference in habits and out-of-door exercise, these rendering the women less physically perfect, giving them less resistance, and making them—with their highly wrought nervous systems—greater slaves to surrounding conditions.

TABLE I.

General Refraction of Three Hundred and Ninety-five Eyes.

	Eyes.	Per cent. of H.	Per cent. of all.
Simple hyperopia.....	116	36.2	29.3
Simple hyperopic astigmatism.....	61	19.1	15.5
Hyperopia with astigmatism.....	143	44.7	36.2
Total hyperopic.....	320	100	81
		Per cent. of M.	
Simple myopia.....	19	25.3	4.8
Simple myopic astigmatism.....	18	24	4.6
Myopia with astigmatism.....	38	50.7	9.6
Total myopic.....	75	100	19
Grand total.....	395	....	100

In Table I, I have given the general refraction, and in it you will perceive that eighty-one per cent. have been hyperopic; and of these about sixty-three per cent. were astigmatic. Among the myopes, seventy-five per cent. had more or less astigmatism. That Dr. Gould found eighty-three and ninety-one per cent., respectively, of hyperopic

and myopic astigmatism, where I found but sixty-three and seventy-five per cent., may be explained by the fact that all of his cases, excepting those far advanced in presbyopia, were examined under a mydriatic; while twenty-eight per cent. of my patients would not be subjected to such inconvenience.

The percentages in the subdivisions of the myopic and hyperopic table you will find very much closer than Dr. Gould's analysis shows. Thus simple H. and simple M. were thirty-six and twenty-five per cent. Ah. and Am. were nineteen and twenty-four, while the compound Ah. and compound Am. were 44.7 and 50.7 per cent., respectively.

TABLE II.

Refraction of Two Hundred and Fifty-nine Hyperopic Eyes, Astigmatism not included.

D.	H. eyes.	Hl. Ah. eyes.	H. and Hl. Ah. eyes.	GROUPS.		
				Eyes.	Per cent. of all H.	Per cent. of all eyes.
0.25.....	12	19	31	87	33.6	22
0.50.....	25	31	56			
0.75.....	9	15	24	78	30.1	19.8
1.....	24	30	54			
1.25.....	13	16	29	42	16.2	10.6
1.50.....	9	4	13			
1.75.....	5	1	6	11	4.3	2.8
2.....	2	3	5			
2.25.....	5	4	9	21	8.1	5.3
2.50.....	..	1	1			
2.75.....	2	3	5	6	2.3	1.5
3.....	2	4	6			
3.25.....	1	..	1	6	2.3	1.5
3.50.....	..	3	3			
4.....	1	1	2	6	2.3	1.5
4.50.....	2	2	4			
5.....	..	2	2	8	3.1	2
5.50.....	..	2	2			
6.....	2	2	4	..	..	..
6.50.....	2	..	2			
.....	116	143	259	259	100	65.5

Table II is a summary of the refraction of the hyperopic cases excluding the astigmatic errors. One third of the hyperopes and about a quarter of all the cases had an error of 0.50 D. or less. Sixty-four per cent. of the hyperopes and forty-two per cent. of all the patients had an error of 1 D. or less, and I corrected a great majority of these low errors. Only three per cent. of the hyperopic cases had errors over 5 D.

An examination of Table III—a summary of myopia without the astigmatism—reveals quite a different percentage relation. Only thirty per cent. of the myopes had an error of 0.50 D. or less; and only forty-two per cent., a little over a third, had 1 D. or less; while nineteen per cent. had between 5 D. and 17 D.

Among the hyperopes, sixteen per cent. had errors over 2 D., while forty-four per cent. of the myopes had corresponding errors, showing that errors of a high degree occurred three times more frequently among the myopes.

The hyperopic and myopic astigmatic errors are summarized in Table IV, and include both the simple and compound corrections. The same facts are to be noted in this table which I have already called your attention to in the two preceding tables—namely, the low degrees, 1 D. or

TABLE III.

Refraction of Fifty-seven Myopic Eyes, Astigmatism not included.

D.	M. eyes.	Ml. Ab. eyes.	M. and Ml. Am. eyes.	GROUPS.		
				Eyes.	Per cent. of all M.	Per cent. of all eyes.
0.25....	6	2	8	17	29.8	4.1
0.50....	1	8	9			
0.75....	2	1	3	7	12.3	1.8
1.....	2	2	4			
1.25....	..	2	2	3	5.2	0.8
1.50....	..	1	1			
1.75....	..	3	3	5	8.8	1.3
2.....	..	2	2			
2.50....	..	3	3	7	12.3	1.8
2.75....	..	2	2			
3.....	..	2	2	5	8.8	1.3
3.50....	2	2	4			
4.....	1	..	1	2	3.5	0.5
4.50....	1	1	2			
5.50....	..	1	1	11	19.3	2.8
6.....	..	2	2			
6.50....	..	2	2	11	19.3	2.8
7.50....	1	..	1			
8.....	..	1	1	11	19.3	2.8
9.....	..	1	1			
10.....	1	..	1	11	19.3	2.8
13.....	1	..	1			
16.....	1	..	1	11	19.3	2.8
.....	19	38	57			

below, are both relatively and absolutely more numerous in hyperopia, constituting ninety per cent., while seventy per cent. of the myopic cases had errors of 1 D. or below. In but two patients did I find astigmatism to the extent of 5 D., and both of these were myopes.

TABLE IV.

Refraction of Two Hundred and Sixty Astigmatic Eyes.

D.	H. As. eyes.	M. As. eyes.	H. As. and M. As. eyes.	H. As. Per cent. of all H. As.	Ml. As. Per cent. of all M. As.	Total As. Per cent. of all eyes.
0.25..	77	13	90	71.6	34	63.5
0.50..	69	6	75			
0.75..	22	9	31	18.6	35.7	22.3
1....	16	11	27			
1.25..	7	5	12	3.4	10.7	5
1.50..	..	1	1			
1.75..	5	1	6	3.4	8.9	4.6
2.....	2	4	6			
2.25..	1	..	1	2	1.8	1.9
2.50..	2	1	3			
3.....	1	..	1	1	3.6	1.5
3.25..	2	..	2			
3.50..	..	2	1	1	5.3	1.2
4.....	..	1	1			
4.5....	..	1	1	1	5.3	1.2
5.....	..	2	2			
.....	204	56	260	100	100	100
		260				

In astigmatism the question of axes is one of considerable interest to the oculist therefore I have carefully tabulated two hundred and sixty eyes in Tables V and VI. In the hyperopic astigmatic eyes I found fifty per cent. according to rule—that is, with axes at 90°. Among the unsymmetrical are classed fifteen cases, in which one axis was 90°. This would make fifty-seven per cent. of astigmatic hyperopic eyes, according to rule. Sixteen per cent. had their axes at 180°, thirty-one per cent. were unsymmetrical.

TABLE V.

Axes of Two Hundred and Sixty Astigmatic Eyes.

	Eyes.	Per cent. of H.	Per cent. of all As.
HYPEROPIC.			
Axis, 90°.....	102	50	39.2
Axis, 180°.....	..	..	..
Symmetrical—not 90° or 180°.....	32	15.7	12.3
Asymmetrical.....	6	2.9	2.4
Total.....	204	100	78.5
MYOPIC.			
Axis, 90°.....	13	23.2	5
Axis, 180°.....	20	35.7	7.7
Symmetrical.....	8	14.3	3.1
Asymmetrical.....	15	26.8	5.7
Total.....	56	100	21.5
Grand total.....	260	....	100

TABLE VI.

Asymmetrical Axes, Forty-four Cases.

	Cases.	Per cent. of asymmet. H. axes cases.	Per cent. of asymmet. axes cases.
HYPEROPIC.			
One axis, 90°.....	15	42.8	34
One axis, 180°.....	5	14.3	11.4
Both axes the same—not 90° or 180°.....	1	2.9	2.3
Sundry not in the above.....	14	40	31.8
Total.....	35	100	79.5
MYOPIC.			
One axis at 90°.....	2	22.2	4.6
One axis at 180°.....	4	44.5	9.1
Both axes the same—not 90° or 180°.....	..	..	..
Sundry not in the above.....	3	33.3	6.8
Total.....	9	100	20.5
Grand total.....	44	....	100

Among those with myopic astigmatism I found thirty-six per cent. according to rule—that is, with axes at 180°; to these we may add those unsymmetrical cases in which the astigmatic angle of one eye was 180°, which makes forty-three per cent. of my astigmatic myopic eyes which had their axes according to rule. Twenty-one per cent. of the myopic astigmatic eyes had axes at 90°, while twenty-seven per cent. were unsymmetrical.

Of all astigmatic eyes, fifty-one per cent. had their axes at 90°, and seventy-four per cent. had their axes at either 90° or 180°. From this you see that, in any given case, we are more than twice as likely to find the angle of astigmatism at 90° than at 180°, and three times as likely to find the angle at 90° or 180° as at all other angles.

Besides those with axes at 90° or 180°, I had but six symmetrical axes, or four per cent.

About thirty per cent. of both my astigmatic hyperopes and myopes had unsymmetrical axes; the total number of cases was forty-four. Fifty-nine per cent. of these had one of their axes at 90° or 180°, but the axes of the other eyes were exceedingly variable, following no rule. In four the axes were  $\frac{90^\circ}{75^\circ}$ ; in three cases  $\frac{90^\circ}{60^\circ}$ ; in two cases  $\frac{90^\circ}{70^\circ}$ ; in

two other cases  $\frac{90^\circ}{105^\circ}$ ; and in two patients  $\frac{180^\circ}{45^\circ}$ ; no other two cases were alike.

Of the other eighteen asymmetrical cases, there was but one in which the axes of both eyes were the same; and there were no two cases with the same astigmatic angles.

In the application of glasses to several of my astigmatic patients I have had no little trouble, because of the absolute non-acceptance of a glass at a certain angle on the return of accommodation which had been unmistakably indicated under a mydriatic. At first I was greatly puzzled, and I still am, by these cases; for as yet I am certainly "at sea," in so far as a *satisfactory* explanation is concerned. "Spasm of the accommodation" is but a cloak to hide our ignorance. The explanation which to me seems to be the most reasonable is "irregular astigmatism"—that is, the curvature near the periphery of the cornea differs from that of its center, through which the individual usually looks.

Without entering further into the details of these tables, which I can not expect you as a body to be deeply interested in, let me call your attention for a few minutes to the manifestations of eye-strain which, as general practitioners, we are constantly brought in contact with.

The eye-strain reflexes which I have been able to trace with reasonable certainty in my practice I have classified in Tables VII and VIII.

TABLE VII.

*Eye-strain with Ocular Reflexes.*

SYMPTOMS.	Cases.	Per cent. of all refraction.
Pain in eyeballs.....	13	6.5
Partial ptosis.....	4	2
Blepharospasm.....	5	2.5
Blepharitis, sties, etc.....	5	2.5
Conjunctivitis excluded except in.....	8	4
Lacrymation.....	7	3.5
Photophobia and distress from light } Direct....	20	10
Photophobia and distress from light } Reflected....	18	9
Total.....	80	40

TABLE VIII.

*Reflex Neuroses of possible Ocular Origin.*

SYMPTOMS.	Cases.	Per cent. of all reflex neuroses.	Per cent. of all refractive cases.
Headaches.....	93	87.7	46.5
Digestive and assimilative disorders...	6	5.7	3
Mental symptoms, loss of memory, etc.	2	1.9	1
Blind spells.....	4	3.8	2
Insomnia.....	1	0.9	0.5
Total.....	106	100	53

Table VII contains all those cases in which the eye-strain has manifested itself by *ocular* reflexes. Forty per cent. of all my patients with refraction have had some ocular manifestation. Many others had conjunctivitis, blepharitis, or some other symptom; but whenever these cases were specific, or could be traced to some definite cause, they have been excluded from this summary.

The most common ocular reflex was some degree of

photophobia or distress from light. In southern California, where we have such perpetual sunshine, this is a symptom of no little moment. In the table I have grouped these cases under two heads for convenience, because of my belief of the different causes producing the symptoms, and the different methods employed in relieving the same.

These subdivisions are photophobia from the *direct rays* which, outside of the ocular defect, are irritating from intensity; and photophobia from *reflected rays*, from our artificial stone sidewalks, asphalt streets, and nearly white country roads. The irritation in these cases I believe to be chiefly due to the red or heat rays. If correction of the defects fails to relieve these symptoms, I prescribe for those who suffer most from the direct rays varying shades of "London smoke" glasses; but for those whose great distress arises from the reflected rays I order blue.

Pain in the eyeballs was another common symptom, as was also lacrymation. Although forty per cent. of all the patients had some ocular symptom, in the great majority of these cases the ocular reflex was slight and not to be compared with other reflex neuroses. Some patients had many ocular and reflex neuroses, so that there was considerable duplication and no little indefiniteness as to origin, although in the majority of cases I was inclined to the belief that they should be ascribed to eye-strain.

The reflex neuroses I have placed in Table VIII; of these, headaches formed eighty-eight per cent. and 46.5 per cent. of all refractive cases. The character of the headaches has been variable, and justifies an additional descriptive summary, which is to be found in Table IX.

TABLE IX.

*Headaches.*

VARIETY.	Cases.	Per cent. of all headaches.	Per cent. of all refraction.
Frontal, brows, temples.....	27	29	13.5
Sick headaches.....	11	11.8	5.5
Neuralgic headaches.....	12	13	6
First frontal, then extending to vertex.	2	2.1	1
First frontal, then extending to occiput.	3	3.2	1.5
First frontal, then general.....	2	2.1	1
Vertex.....	6	6.5	3
Occiput.....	7	7.6	3.5
General.....	20	21.5	10
Dizziness.....	3	3.2	1.5
Total.....	93	100	46.5

Twenty-nine per cent. had frontal, brow, or temporal headaches; twenty-one per cent. had general headaches; thirteen per cent. were of a neuralgic character; while twelve per cent. had sick headaches.

In many the headaches would at first be frontal, but before they ceased would become vertical, occipital, or general. If we leave off the forty-three patients who were presbyopic, then in sixty per cent. of the patients headache was a marked symptom, and in probably fifteen per cent. more it was an occasional, but not a prominent, symptom.

The importance of headaches can hardly be overestimated. It is certainly a conservative estimate which places sixty per cent. of all headaches as due to ocular defects and continued headache works ruin slowly, but none the

less certainly. Some maintain that at least seventy-five per cent., and others that ninety per cent., of all headaches are caused by some error of the seeing apparatus; and at least two thirds of the patients who have their refraction corrected before twenty-five to thirty years of age are cured or greatly alleviated; but those who are older may be benefited, or even completely relieved; but, as a rule, the length of time for the accomplishment of this result is considerable.

I have said nothing about several of the reflex neuroses, and I have given no summary of muscular insufficiency, because I desired to keep this paper within reasonable limits as to length, and make it of general as well as special interest.

107 N. SPRING STREET.

**Tannin in Tea.**—"Some examples which have been forwarded to us," says the *British Medical Journal*, "of the results of analyses for tannin and theine in tea indicate considerable variation in the amount of tannin, according to the quality of the tea and the state of growth at which it is picked. In some blends of China teas the percentage of tannin extracted by infusion for thirty minutes was 7.44; theine, 3.11; and a similar result was given in the examination of the finest Moning; while, on the other hand, with fine Assam tea a percentage of 17.73 of tannin by weight was extracted after infusion for fifteen minutes, and two blends of Assam and Ceylon tea gave, respectively, 8.91 and 10.26 of tannin. On the whole, it is probable that the Indian teas are much more heavily loaded with tannin than the China or Japan teas. Moreover, the common method of prolonged infusion in boiling water is well calculated to extract all the tannin, while it dissipates the flavor of the tea. To be drunk reasonably, tea should not be infused for more than a minute, and with water of which the temperature does not exceed 170° F. It should be taken without sugar or milk, which would drown the flavor of the delicate and aromatic infusion thus obtained. This at least is how tea is drunk both in China and Japan, whence we have borrowed the use of it. With our European method of prolonged infusion in boiling water we destroy all the best flavor of the tea, and we extract such heavy proportions of tannin as to cultivate indigestion as the result of tea-drinking. Indigestion is unknown among tea-drinkers in the East, and it is in all probability only the result of our defective use of the leaf."

**Filariasis.**—"Among twenty-six officers and colonial officers admitted to the Val-de-Grâce Hospital between May 1, 1890, and February 1, 1891," says the *Lancet*, "Professor Moty observed four cases of the above disease, and two other cases in the parents or friends of the patients. Four, however, of those admitted to the hospital had been abroad for so short a time that they may be left out of the calculation, leaving six cases among twenty-two persons who had spent a considerable time in the colonies. In spite of its frequency, this disease does not appear to be generally recognized abroad, as in none of the above cases had it been diagnosticated. It was only upon undertaking an operation for the radical cure of a supposed hernia that the tumor was found to consist of dilated lymphatics. Professor Moty came to the following conclusions: That filariasis is an aseptic parasitic disease due to the presence of the *filaria sanguinis hominis*; that it is of frequent occurrence in the French colonies, and has been recently met with in New Caledonia. It most often appears as an enlargement of the glands and lymphatics of the groin and spermatic cord, due to the irritation of the *filaria* and its embryos. It can be recognized by such symptoms as ehyuria, hamaturia, etc.; but the diagnosis in each case should be confirmed by the detection of the embryos in the blood. Neither internal nor palliative treatment is of the slightest use. Excision or amputation is necessary in severe cases, and is attended with the happiest results, the removal of the hypertrophied tissue causing the adult *filaria* to disappear."

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PHYSICIANS' BUSINESS METHODS.

In a recent address to medical graduates the Rev. Dr. Alexander very pertinently remarked that the physician's first duty to society was to make a living and keep out of the poor-house. That this will be a question of most vital interest in the near future with a majority of the young men to whom the remark was addressed no medical man of ten years' experience will doubt. It is true that the primary object of medicine as a profession is not the accumulation of wealth. A physician who has amassed a fortune by the practice of his profession is an extreme rarity. Many acquire a competence, and it is the duty of every man, professional or non-professional, to do so if it is within his power. The philanthropic idea is stronger in medicine than in any other calling, except perhaps that of the clergyman. But the doctor must pay his taxes or rent; he must eat, drink, and be clothed; he must be supplied with instruments and books; he must support his family and educate his children. The effusive thanks of grateful patients do not, unfortunately, pay the bills. Fees alone will do that.

We thoroughly believe that medicine is a calling, not a trade; that the tradesman and business man may with entire propriety adopt methods that would degrade the physician. He can not practice his profession on strict commercial principles without losing his self-respect and forfeiting the esteem of the community. There is, however, a business side to medical practice which the doctor is proverbially lax in managing. The amount of work he does is by no means the key to the amount of his income. Laxity in business matters will explain the apparent lack of success of many a physician. Some men are wholly lacking in practical business capacity; others, from indolence or overwork, neglect to give proper attention to their collecting; while others, from failure to appreciate the value of their own services, obtain less remuneration than is their due. People are very apt to estimate a man according to the estimate he places upon himself. If his price is habitually below the customary fees of the locality in which he lives, and he is diffident in enforcing his claims, he need not be surprised if his patients put a low estimate upon his worth and are slow in paying his bills. Just regard for the poor and the unfortunate is a duty which very few physicians are inclined to evade. The laborer is worthy of his hire, and there is no more worthy laborer than the conscientious physician. He is under no moral obligation whatever to deprive himself and his family of remuneration justly due him from the well-to-do. By cutting rates he gains nothing in the long run. He injures not only himself but his fellow-practitioners by degrading the value of medical service.

There is perhaps no more fruitful source of loss to the physician than laxity in rendering bills. There is great truth in the old saying that short accounts make long friends. It is frequently said that doctors' bills are hard to collect. If this is true, the doctor is in many instances to blame—not because of lack of professional skill, but because the bill is so long delayed that the patient has forgotten the matter and his gratitude has evaporated. The age of long credits in commercial life is gone. This is largely true also of professional work in the great centers of population. In some country localities and among certain city physicians it is not true. They allow accounts to run for months or years without rendering a bill. The doctor's bill thus becomes a formidable thing and is hard to pay, and must usually be discounted. If rendered at short intervals, before it has attained to great size, it is grouped with the current expenses and is quickly paid with comparatively little effort. The doctor's care, and labor, and sleepless nights are then all remembered, and the patient feels that he is paying money for value received, and does not ask for a discount. Frequent bills, while they need not show a mercenary or grasping spirit, do show that the doctor lives by his practice and expects remuneration for his labor. It is not wise to place anything on a bill that will seem to be an apology for rendering it, such as the statement "bills rendered quarterly." A bill should be rendered as a matter of course at stated intervals, which will vary somewhat in different communities.

The struggle to make a living is for most medical men a hard one. They enter on their career without having had the slightest instruction in professional ethics or business methods, and the mistakes of the first years are by no means confined to diagnosis and treatment. Success as a practitioner depends almost, perhaps quite, as much upon social and business capacity as upon professional training. There is no person deserving of more pity than the scholarly and brilliant physician hampered by his inability to read and deal with human nature, and cramped through life by bad business methods and lack of financial ability.

### MINOR PARAGRAPHS.

#### THE ALUMNI ASSOCIATION OF CHARITY HOSPITAL.

THE well-attended and enjoyable annual dinner of this association, on Saturday evening, the 23d inst., calls to mind anew the good influence that such organizations are exerting. There is no danger that the brotherly feeling they promote will degenerate into cliquism, for each of them generously invites representatives of the others to take part in its festivities and in much of its other proceedings. It is a good thing for any hospital to have the ex-officers of its house staff thus banded together.

#### RETROSTERNAL AUSCULTATION.

IN the March number of the *Revue de médecine* Dr. Boy-Teissier, of Marseilles, presents the advantages of what he calls retrosternal auscultation in many cases of cardiac, and especially of aortic disease. With the patient lying on his back, the head being but slightly raised, a stethoscope having an aperture only

12 millimetres in diameter is applied just above the interclavicular notch and pressed moderately backward and downward, so as to bring the tube into approximate parallelism with the long axis of the body. It is said that one readily learns the art of doing this without discomfort to the patient in cases where the anatomical conditions are favorable, and that no artificial bruits are produced by the pressure of the instrument. The sounds heard in this method of auscultation are all such as can be elicited also by presternal auscultation, but they are heard with much greater distinctness.

#### A MEDICAL DRAMATIST.

AT one of the New York theatres, on Wednesday of this week, a matinée performance was given of a play entitled *An American M. D.*, written by Dr. J. Mount Bleyer, a New York physician of literary proclivities. We have often spoken encouragingly of medical men's ventures in verse, fiction, and other branches of general literature, and we think it speaks well for our profession that such attempts are growing commoner.

#### AN ADDITION TO OUR NOMENCLATURE.

THE *New York Times* has an excellent department of Answers to Correspondents, but one day last week it excited our regret by adding to the already endless catalogue of names of diseases that of "locomotor agitans," which it makes a synonym of locomotor ataxia.

#### ITEMS, ETC.

**The Keeley "Cure" for Inebriety.**—At the annual meeting of the Hampden District Medical Society, of Massachusetts, held on the 20th inst., the following preambles and resolution were adopted:

*Whereas*, According to common and newspaper report and upon information and belief, it is known that a member of this society and fellow of the Massachusetts Medical Society in regular standing has, by associating himself with one of the most notorious impostors of this century, in the application and use of a remedy for the cure of inebriety, called "bichloride of gold," and whose exact composition it is pretended is known only by, and is the sole property of, a certain individual; and

*Whereas*, No such stable chemical combination is possible, and the substance actually used with so much secrecy and profit to the proprietor is and has been employed in suitable cases for years by regular physicians, who well know its limitious and dangers; and

*Whereas*, By associating himself with a regular physician this pretender hopes to gain prestige and the quasi-indorsement of the regular profession, thus enabling him longer to delude the public; and

*Whereas*, The association of a regular physician in such a capacity is calculated to injure the public and is degrading to those who are in fellowship with such physician, and recognizing that "naught but evil can finally result from trifling with moral or physical facts, and that it is better to cure rightly and really than wrongly and delusively," and that by the "humbuggery of secrecy, delusion, and hypnotic suggestion," a far less number will, in the end, receive benefit; and

*Whereas*, It is the opinion of the members of this society that the use of the drugs, in the manner employed, for the cure of inebriety by the aforesaid impostor, produces a cerebral stimulation with intellectual disorders which are sometimes quite serious, together with other grave nervous troubles, themselves constituting a form of inebriety frequently leading to insanity and suicide, and a lowering of vitality, rendering the patient less able to resist and recover from ordinary diseases; and

*Whereas*, In those cases of inebriety claimed to have been cured by means of this pretended secret method of treatment, it is our opinion that such cures resulted not because of said treatment, but in spite of it, and there seems little doubt that hypnotic suggestion played an important part in effecting said cures, and it is our opinion that in all

of the so-called "cures" the result attained could have been better secured by improving the moral condition of the patient, by the use of tonics or hydrotherapeutics, regulating nervous action, and by attention to the digestive tract, without subjecting the patient to the dangers of another form of inebriety, and without the element of secrecy. It is, therefore,

*Resolved*, That this society hereby directs its president to refer this subject to a proper committee, who shall, before the next regular meeting, ascertain if any member of this society has identified himself with the manufacture, sale, distribution, or use of any secret remedy, contrary to the code of ethics under which this society is organized, and, if so, that such member or members be recommended for expulsion from membership in this society at said next regular meeting.

**Changes of Address.**—Dr. Henry T. Byford, to Nos. 34 and 36 Washington Street, Chicago (May 1st); Dr. C. E. Lockwood, to No. 59 West Thirty-fifth Street (May 1st); Dr. William Oliver Moore, to No. 85 Madison Avenue; Dr. J. Rendell, to No. 635 Bedford Avenue, Brooklyn (May 1st).

**The Middleton Goldsmith Lecture**, to be given before the New York Pathological Society by Dr. Francis P. Kinnicut, at the Academy of Medicine, on Wednesday evening, May 11th, at 8.30 o'clock, will be on the subject of New Outlooks in the Prophylaxis and Treatment of Tuberculosis.

**Marine-Hospital Service.**—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the three weeks ending April 16, 1892:*

- BAILLIACHE, P. H., Surgeon. Granted leave of absence for seven days. March 29, 1892.
- PURVIANCE, GEORGE, Surgeon. Detailed as chairman of Board for Physical Examination of Officer, Revenue-Marine Service. March 30, 1892.
- HAMILTON, J. B., Surgeon. Detailed as chairman of Board for Physical Examination of Surfmen, Life-Saving Service. March 31, 1892.
- GODFREY, JOHN, Surgeon. Detailed as inspector of immigrants, Port of New York. April 14, 1892.
- MEAD, F. W., Surgeon. Detailed as chairman of Board for Physical Examination of Officers of Revenue-Marine Service. April 16, 1892.
- BANKS, C. E., Passed Assistant Surgeon. Ordered to examination for promotion. April 14, 1892.
- CARNICHAEL, D. A., Passed Assistant Surgeon. When relieved at Port Townsend, Washington, to proceed to San Francisco Quarantine for duty. April 8, 1892.
- MCINTOSH, W. P., Passed Assistant Surgeon. When relieved at San Francisco Quarantine, to proceed to New Orleans, La., for duty. April 8, 1892.
- PETTUS, W. J., Passed Assistant Surgeon. Granted leave of absence for thirty days. April 12, 1892.
- MAGRUDER, G. M., Passed Assistant Surgeon. When relieved at Portland, Oregon, to proceed to Port Townsend, Washington, for duty. April 8, 1892.
- KINYOUN, J. J., Passed Assistant Surgeon. Detailed as chairman of Board for Physical Examinations of Candidates and Officers, Revenue-Marine Service. March 30, 1892. Detailed as recorder of Board for Physical Examination of Officers, Revenue-Marine Service. April 16, 1892.
- VAUGHAN, G. T., Passed Assistant Surgeon. Detailed as recorder of Board for Physical Examination of Candidates and Officers, Revenue-Marine Service. March 30, 1892.
- GEDDINGS, H. D., Assistant Surgeon. Ordered to examination for promotion. March 29, 1892.
- WEITENBAKER, C. P., Assistant Surgeon. Detailed as recorder of Board for Physical Examination of Surfmen, Life-Saving Service. March 31, 1892. Ordered to examination for promotion. April 5, 1892.
- PERRY, J. C., Assistant Surgeon. To proceed to Gulf Quarantine for temporary duty. April 9, 1892.
- YOUNG, G. B., Assistant Surgeon. When relieved at St. Louis, Mo., to proceed to Portland, Oregon, for duty. April 8, 1892.
- STIMPSON, W. G., Assistant Surgeon. Detailed as recorder of Board for

Physical Examination of Officer, Revenue Marine Service. March 30, 1892.

BROWN, B. W., Assistant Surgeon. Detailed as chairman of Board for Physical Examination of Officer, Revenue Marine Service. April 1, 1892. To proceed to Port Townsend, Washington, for temporary duty. April 8, 1892.

ROSENAU, M. J., Assistant Surgeon. When relieved at New Orleans, La., to proceed to St. Louis, Mo., for duty. April 8, 1892.

COPER, L. E., Assistant Surgeon. To proceed to Buffalo, N. Y., for temporary duty. April 8, 1892.

EAGER, J. M., Assistant Surgeon. To proceed to Gallipolis, Ohio, for temporary duty. April 8, 1892.

GARDNER, C. H., Assistant Surgeon. To proceed to San Francisco, Cal., for temporary duty. April 8, 1892.

#### Society Meetings for the Coming Week:

MONDAY, *May 2d*: New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society, New York (private); Brooklyn Anatomical and Surgical Society (private); Utica, N. Y., Medical Library Association; Corning, N. Y., Academy of Medicine; Boston Medical Association (annual); Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, *May 3d*: New York Obstetrical Society (private); New York Neurological Society; Elmira, N. Y., Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburg, N. Y., Medical Association; Hudson, N. J. (Jersey City—annual), and Mercer, N. J. (annual), County Medical Societies; Connecticut River Valley Medical Association (Bellows Falls, Vt.); Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine.

WEDNESDAY, *May 4th*: Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond, N. Y. (Stapleton); Bridgeport, Conn., Medical Association; Penobscot, Me., County Medical Society (Bangor); Essex North (annual—Haverhill) and Plymouth (annual), Mass., District Medical Societies.

THURSDAY, *May 5th*: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Medical Society of the County of Orleans (semi-annual—Albion), N. Y.; United States Naval Medical Society (Washington); Boston Medico-psychological Association; Obstetrical Society of Philadelphia; Ocean, N. J., County Medical Society (Tom's River).

FRIDAY, *May 6th*: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *May 7th*: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

#### Answers to Correspondents:

*No. 381.*—For bacteriological investigations and for examinations of blood, a Zeiss's twelfth immersion; for the other work mentioned, the same maker's objectives A and E. In each case, of course, a suitable eye-piece should be used.

### Letters to the Editor.

#### NOTE ON THE DISAPPEARANCE OF SUGAR IN THE URINE OF DIABETICS JUST BEFORE DEATH.

103 EAST SIXTEENTH STREET.

To the Editor of the *New York Medical Journal*:

SIR: Having recently occasion to review the works of Ebdstein and Cantani, I noticed that in neither was any explanation offered of this well-known clinical fact. While I was an interne

in the London Hospital Dr. Stephen Mackenzie was making special observations upon diabetes in the wards of Dr. J. Hnghlings Jackson, having twelve cases under treatment. In some part of the study of the case a "fasting trial" was imposed of twenty-four hours to note the effect upon the production and increase and decrease of the sugar. At 10 p. m. the last meal was given. With the exception of plain boiled water, nothing whatsoever was allowed for twenty-four hours. These "fastings" having been conducted in over a hundred cases, the results were always uniform. The urine during the trial was tested every hour, the patient being called upon to pass his urine "on time." Singular to say, in all my experience I never failed to obtain "some" when the time came around. For the first few testings the percentage of sugar appears as usual, after six hours for two, three, even four trials it is augmented, then begins to decrease. With the decrease there is a fall in the specific gravity; and when this fall occurs it is always followed by the appearance of albumin at the next trial, and from this on the albumin remains. At some point after the tenth hour of fasting the sugar disappears, and very often with the disappearance of the sugar blood appears, and often I have been obliged to break the trial on this account. These trials have been so frequent that some positive relation exists between the disappearance of the sugar and the want of food. As most diabetics die a lingering death, from coma, acetonæmia, etc., they seldom receive any food or nourishment for hours before death.

Recalling the result of my observations, it would seem (aside from other theories) that the result at the end of several hours' fasting was akin to the state of the dying diabetic, and if in the living sugar can be made to disappear, why not in the dying? If this fact has been noticed before, pardon me; but I have never come across it, and it just recurred to me while reading Cantani's masterly paper.

ROBERT SAFFORD NEWTON, M. D. (N. Y.)

## Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN ORTHOPÆDIO SURGERY.

*Meeting of March 18, 1892.*

Dr. HENRY LING TAYLOR in the Chair.

**Asymmetry of the Extremities.**—Dr. L. W. HUBBARD presented two sisters exhibiting this condition. One child had an inch and a half shortening of the left lower extremity, and about two inches and a half shortening in the left upper extremity, which was about evenly divided by the arm, forearm, and hand. There was also a slight shortening of the left ramus of the jaw. Her younger sister also exhibited about the same amount of shortening of the left upper and lower extremities. The muscles were well developed in both. Their parents were healthy Germans, and there was no history of a similar deformity in other members of the family. An attempt had been made to explain this asymmetry on the theory that there was an unequal development of the cerebrum on the two sides.

Dr. A. B. JUDSON had seen a counterpart of these cases in a girl of eleven years, in whom the right ear and eye, as well as the right upper and lower limbs, were congenitally smaller than the left. He suggested wearing an ischiadic crutch on the larger side and a high sole on the smaller side during the period of rapid growth. He thought that hip cases treated in this way owed the disparity in length of the limbs, which was found in

the tibia as well as in the femur, partly to the disease of one and the overuse of the other. Advantage should be taken of this fact in the treatment of these cases of congenital asymmetry.

Dr. R. H. SAYRE said that many writers had denied that want of symmetry in the lower extremities was a cause of true lateral curvature, and had said that the occasional association of the two conditions was a mere coincidence. Personally, however, he believed that, if the children just presented were allowed to go on to puberty without the employment of measures to equalize the limbs, they would certainly develop true lateral curvature. In one of the cases the lack of development did not seem to him to be entirely confined to one half of the body, as the left side of the face appeared larger than the right, although the extremities were smaller on the left side than on the right. On this account he did not think the theory that this asymmetry was due to unequal development of the two halves of the cerebrum could be correct. He agreed with the previous speaker that much of the atrophy following hip disease was due to lack of use, and he therefore heartily indorsed his suggestions as to treatment.

Dr. A. M. PHELPS said that his experience had led him to believe that the shortening of the limb in hip disease was never due to anything but bone destruction, and that the employment of the treatment suggested would effect no change in the length of the limbs, although it might increase their circumference.

Dr. SAYRE said that after patients with club-foot had improved sufficiently to enable them to use their feet, it was noticed that there was not only an increase in the bulk of the feet, but also in the length of the bones. It had also been observed in colleges, where careful records were kept of the physical condition of the students, that those who exercised regularly in the gymnasium not only had larger muscles, but were taller than those who did not avail themselves of this opportunity for physical training.

**Results in Cases of Hip Disease treated by the Portable Traction Splint without Complete Immobilization except during the Inflammatory Stage; with Illustrative Cases and Photographs of Cases.**—Dr. LEWIS A. SAYRE read a paper bearing this title. (See page 477.)

Dr. JUDSON agreed with the writer of the paper that traction did not secure complete immobilization, but rather fixation or a fractional and sufficient degree of immobilization. Fixation thus produced relieved pain and hastened recovery, but did not prevent the correction of deformity, which was brought about conveniently and surely as soon as the patient, wearing the hip splint or the ischiadic crutch, was taught to observe habitually the natural rhythm of walking. Adduction and flexion were thus reduced because the limb reached outward and downward, and abduction and extension, in order to do their share of the work of progression, were equalized. He had been pleased to find that not only was deformity reduced, but also the range of motion increased in the joint when the limb was summoned in this way to do as far as it could its half of the work of locomotion.

Dr. PHELPS said that while listening to the paper he had been impressed with the striking difference between the statistics presented by the author and those published a few years ago by Shaffer and Lovett, notwithstanding all these gentlemen used the same plan of treatment. In thirty-nine cases reported by the two last-named gentlemen, nineteen patients had ankylosis and seven were in a condition almost equivalent to ankylosis. The author of the paper which had just been presented deserved to be congratulated on the large number of magnificent cures that he had obtained. The speaker admitted that he had become somewhat prejudiced against the long traction splint, partly as

a result of experience and partly because of the publication of the statistics which he had just quoted. Where ankylosis had occurred, he believed it was due to trauma which had been produced by allowing the patient to walk upon the apparatus, or to a joint in the splint which allowed of free motion, or to traction not having been made in the axis of the neck. He considered that the introduction of the long traction splint had marked a distinct advance in orthopaedic surgery, but he thought still a further advance would follow attention to the points just mentioned, and it was on this account that he had adopted the plan of complete immobilization. The long traction splint was born of a fear of ankylosis and a desire that the patient should have exercise, yet in his own experience, which embraced a large number of dispensary cases of the worst class, ankylosis had not occurred in a single one of the cases that he had treated during the past four years. The members would doubtless recall the patients that he had previously presented, who, although completely immobilized for periods of about a year, still had complete motion of the joint. He did not believe that fixation of a joint, either diseased or healthy, resulted in ankylosis. The fact that ankylosis was not a constant result of fixation proved this theory to be erroneous. The "ossified man," during the early stages of his disease, had been subjected to all sorts of manipulations, yet every joint had become ankylosed. He believed the case of ankylosis reported in the paper was due to some affection of the nervous system, and was not the result of the immobilization. Ankylosis was determined by the character of the inflammation, its severity and duration, the parts involved, and the subsequent cicatricial contraction of the capsule of the joint, and he could not see how passive motion could prevent such destructive changes. The long traction splint, no matter how applied, would allow the foot to be elevated  $35^{\circ}$  by tilting of the band at the pelvis. He preferred this instrument, however, to the short traction splint. Although he had employed lateral traction at first without knowing that it had been used before, he had since found several references to it in literature, showing that it had been used many years ago by Busch.

While on the subject of the use of the long traction splint, he wished to call to mind the fact that cases of hip-joint disease presented great differences, and that some which ran a favorable course were accompanied by much pain, while in others which were associated with extensive destruction of bone there was very little pain. He hoped that every one using the long traction splint would have as fortunate an experience as the author had had, but for the present he felt that he must continue to use the lateral traction splint.

Dr. JOHN RIDLON said that in a paper that he had written a few years before on the subject of fixation and traction he had stated that, as he had never met with a patient who had worn the short splint, he thought this splint could not be used much in this vicinity. He wished to take this opportunity to say that since writing that paper he had seen three patients who had previously worn this splint. He had been especially interested in Dr. Sayre's statement that he had secured better results with this instrument than with the long traction splint. Some years ago he had come to the conclusion that the long traction splint was positively harmful as a walking apparatus, as it seemed to increase the "pumping action" at the joint. That it should do so seemed reasonable when one recalled the fact that with a traction of from five to ten pounds and a splint weighing from six to eight pounds the patient at each step stood upon the splint, lifting the sound leg and relaxing all traction. The effect of this upon the joint could easily be imagined when it was remembered that a child running about took two or three thousand steps an hour. That this splint did exert a harmful influence in this way seemed to be still further confirmed by the bet-

ter results that the author had obtained from the short traction splint. As many of the cases had been treated at different times by both the long and the short splint, it was difficult to say how much of the good result was to be attributed to the one or the other. It seemed to him that some patients with hip-joint disease seemed to recover, no matter what the method of treatment adopted, or even when they were entirely untreated. We had not yet found out what the essential vital principle was in the treatment of each individual case. As an instance of this he cited the case of a child whom he had treated most carefully for six years, and yet the result was not so good as in the case of a sister of this child, who had gone through the entire period of hip disease without any surgical treatment. It was true that some of his patients who should be on crutches were walking around on the limb, because he was unable to control them, yet he was free to admit that it did not seem to have hurt them.

Dr. T. HALSTED MYERS said that in the majority of cases of tubercular osteitis of the hip the primary local focus was in the neck of the femur at the junction of the epiphysis and the shaft. We could recognize this condition by appropriate tests, and, as at this stage there was no involvement of the cartilages of the joint, it was obviously unnecessary to immobilize the joint; yet it was most important that concussion and pressure should be taken from the inflamed and softened bone, and that there should be no possibility of the weight of the body being thrown on that limb. He believed that in a number of cases the disease never extended beyond this location, and was cured *in situ*. He had no pathological specimens to prove this point, and it had not been investigated as yet; he spoke from a clinical standpoint. In cases where there was erosion of the joint surfaces bearing against each other he thought motion was injurious, as well as pressure, as was plainly indicated by the presence of reflex muscular spasm, which was a reliable guide. We always found reflex muscular spasm at the point where motion was injurious. On the other hand, immobilization of a disorganized joint, provided pressure was also relieved, he had never seen cause any permanent injury to the joint. To show the importance of the relief of pressure in this connection, he stated that, in order to relieve pain, he had had to apply traction to a patient with hip disease who was wearing a Thomas splint correctly shaped and applied. Recognizing the importance of this evidence, he had made repeated careful observations, but always with the same result—that traction was in this case necessary for the relief of pain.

Dr. H. W. BERG wished to protest against the feeling of nihilism that might be engendered by Dr. Ridlon's remarks. If we were able to make a purely pathological diagnosis instead of a generic one—"hip disease"—we might be able to point out in advance those cases which would do well and those which would do ill.

Dr. W. R. TOWNSEND said that, while not wishing to detract in the least from the credit due the author for securing such excellent results, he desired to point out the fact that one factor contributing to this end had undoubtedly been the very favorable surroundings of his patients. Again, the author could hardly have selected better cases had he desired to illustrate the traumatic origin of hip disease, and the fact of many of the cases reported having had such an origin afforded still another reason for the excellence of his results. Bone tuberculosis and osteitis due to traumatism might give the same clinical symptoms, but they should give different ultimate results.

Dr. JUDSON said that for a number of years he had kept a description of all the hip splints he had applied, and their weight had ranged from a pound and a half in the case of a child to a little over five pounds for a large adult. He thought that some

of us were dissatisfied with the hip splint because we expected more than the nature of these cases allowed of. We could not cut short hip disease as we could break up chills with quinine. We must put the part and the system in the most favorable position attainable, and then wait for the natural processes of repair. This was best done by making traction so long as it is needed, and protecting the limb throughout the treatment from the traumatism of walking, while locomotion was freely practiced. Traction and protection were the features of the American method by which it was distinguished from the Liverpool method of portable leverage and the London method of recumbent traction. The results obtained by Dr. Sayre had been good, but not exceptional. They were within the reach of all who adhered to the plan of treatment that had been outlined.

Dr. R. H. SAYRE said that the fact that one man regarded a case as tubercular, and another as non-tubercular, did not change the character of the lesion, or influence the progress of the disease. Regarding the question of the occurrence of ankylosis, he believed that some cases would end in ankylosis whether motion was allowed or entirely prevented, and, as an illustration of this, he recalled a case of double hip-joint disease in which the disease on one side was very severe and was accompanied by extensive suppuration, while on the other side it ran a much milder course. During the progress of the disease in the latter joint the patient had been kept in bed or in a wire cuirass; yet, notwithstanding this treatment and the apparently mild course of the disease, absolute ankylosis had been the result, while in the other joint good motion had been secured. Again, after the disease had apparently been arrested in both joints, and both seemed to be equally stiff, passive motion had given a good joint on the side that had supplicated, but had resulted in no benefit to the other side. He had seen a number of cases of disease of both hips and knees in which the joints had seemed to be perfectly fixed until passive motion was instituted. He did not approve of leaving these stiffened joints to be loosened by the ordinary motions which the patient would make.

Dr. PHELPS agreed with the other speakers as to the value of forcible breaking up of adhesions under anæsthesia, but he could not understand how motion of a joint during inflammation could prevent ankylosis. As the inflammatory material which limited the motion during inflammation was absorbed, there would be an increased motion of the joint, and, in his opinion, active motion on the part of the patient was better than passive motion. He had frequently produced by passive motion a return of the pain and stiffness in the joint.

Dr. TOWNSEND could not see how any one could believe that an osteitis due to traumatism represented the same pathological process as one due to tuberculous, although the clinical symptoms might be identical.

The CHAIRMAN said that, while everybody must admit that the statistics presented in the paper were not only brilliant, but exceedingly valuable, in comparing them with the statistics of those who did not resort to excision of joints, allowance must be made for those joints which had gone on to excision. This would also affect the mortality. One point which had been very strongly brought out in the paper was the positive, decided, and immediate relief from pain obtained in the majority of cases by traction properly applied. In hip-joint disease it was fair to infer, as was also evident from the results obtained, that, if the pain was relieved, the treatment was beneficial to the joint. He believed in immobilization in the acute stage, so far as it could be produced by traction, but he did not believe it was necessary to go up to the axilla and immobilize the spinal column. Sometimes traction must be supplemented by recumbency and sometimes by the use of

crutches; these were all the necessary elements for the proper management of those cases which could be successfully treated by mechanical means. His own experience had led him to think that by far the most efficient method of applying traction was by means of the long traction splint.

Dr. L. A. SAYRE said that the statistics presented were only those which had been fully completed, and they represented forty years of work. He thought Dr. Phelps had misunderstood him about the question of motion at the joint. He had always advocated, repeatedly and persistently, rest of an inflamed joint, but he permitted such motion as the patient would himself make. He did not consider that any motion which would not cause pain was injurious. He applied sufficient traction to prevent pressure on the joint, and it was all-important that this traction should be made in the proper direction. He did not approve of an unyielding strap, which, in the splint used by Dr. Taylor and Dr. Shaffer, was attached to the pelvic band and to the shaft of the splint; in his opinion, it should be made of elastic webbing. As regarded the ætiology of his cases, he did not pretend to say whether or not the processes had been tubercular or non-tubercular. At the time he began his investigations everything was called "serofula," and medical men believed that tubercle was always found in the lungs before it was deposited in other parts of the body. Having learned from autopsies in some cases of hip-joint disease that there were no tubercles in the lungs, he had begun to doubt the tubercular nature of this disease, and he had been led to look upon it as a chronic inflammation resulting from a greater or lesser degree of traumatism. Now that the presence of the tubercle bacilli furnished a definite basis for a diagnosis, he was trying to learn something about the occurrence of tubercle in these cases. Clinical experience had taught him, however, that, whether they were tubercular or not, fresh air, good food, and freedom from pain were the essentials for a cure. Referring to the occurrence of ankylosis, he said that one single case of absolute, firm ankylosis of all the joints in the body was worth more to him than any number of experiments on dogs. In the case which he had reported in his paper there had been no fever, no evidence of any nervous derangement—in fact, no constitutional disturbance. To apply a splint without traction was wrong; nothing made better immobilization than plaster of Paris, and it was much more comfortable than the Thomas brace; yet it was insufficient without traction to overcome the reflex muscular contraction and to relieve pain. The treatment that he advocated was the best possible one, no matter what the ætiology of the disease.

Dr. JOHN RIDLOX exhibited a convenient pocket knife with blades especially designed to facilitate the removal of plaster-of-Paris bandages.

## Book Notices.

*The Principles and Practice of Medicine.* Designed for the Use of Practitioners and Students of Medicine. By WILLIAM OSLER, M. D., Fellow of the Royal College of Physicians, London, etc. New York: D. Appleton & Company, 1892.

WITH a dedication to certain of his teachers, a brief note acknowledging obligations to some of his associates, a sentence from the first aphorism of Hippocrates, and a less familiar quotation from Plato, the author starts *in medias res* with his first section, on the specific infectious diseases. And this brevity of expression, this absence of padding of introduction, of padding of text, is a characteristic of the work. With the many well-

known and popular text-books on the theory and practice of medicine demanding the consideration and patronage of the profession, the author must have felt that the discoveries in pathology and the improvements in methods of treating disease, as well as the addition to our nosology of new diseases that are not described in the familiar text-books, offered a sphere of usefulness for a work that would present the latest knowledge on these topics. The medical profession will, we believe, look upon this expectation as well founded, and give the volume a cordial and deserved welcome.

A feature of the work that impresses one is the credit given to discoverers and original workers. In the first article, that on typhoid fever, one notes with pleasure the tribute to the work of Gerhard, the Jacksons, Bartlett, and Shattuck for their quick recognition of Louis's distinction between typhus and typhoid fever, and their labors in formulating the essential clinical and pathological features of these diseases; while on a following page Eberth's, Koch's, and Goffky's work in experimenting with the specific micro-organisms is concisely considered, and reference is made to Brieger's typhotoxine and toxalbumin. So, in treatment, no effort is made to insist upon the adoption of recent innovations because they are new; for example, in typhoid fever the advantages of the so-called Brand method are referred to, and the author says that "a majority of our patients complain of it bitterly, and in private practice it is scarcely feasible."

Sufficient weight is given to the utility of Laveran's discovery of the hæmatozoon of malarial fever; and it is true that the entire group of diseases included under the terms remittent, bilious remittent, typho-malarial, and pernicious malarial fever, as well as malarial hæmaturia, should be studied anew in the light of these observations. To many might be commended the axiom that an "intermittent fever which resists quinine is not malarial."

The chapter on tuberculosis is very thorough in its survey of the light that has recently been thrown on the varied manifestations of this disease. Under the question of prognosis, rather than prophylaxis, the question of marriage of persons who have had tuberculosis is briefly considered. It is stated that subjects with healed lymphatic or bone tuberculosis marry occasionally with personal impunity, and may beget healthy children, and conceding that in such families scrofula, caries, arthritis, and cerebral and pulmonary tuberculosis are more common, and it is considered that the risks are such as may properly be taken. In regard to arrested or cured pulmonary tuberculosis the author speaks more decidedly on the subject.

The second section is devoted to the constitutional diseases, the various forms of rheumatism, gout, diabetes, rickets, scurvy, purpura, and hæmophilia. In the third section, on the diseases of the digestive system, in the chapter on typhlitis, we note that the onus is thrown on the physician to say whether the case is suitable for an operation, and when the operation should be performed.

The fourth section treats of diseases of the respiratory system and of the mediastinum; the fifth, of diseases of the circulatory system; the sixth, of diseases of the blood and ductless glands; the seventh, of diseases of the kidney; the eighth, of diseases of the nervous system; the ninth, of diseases of the muscles; the tenth, of the intoxications, sun-stroke, and obesity; and the eleventh, of diseases due to animal parasites. It would be impracticable to refer to the various chapters in these sections, but we have not been impressed that any needful matter has been omitted; and we have been struck with the care with which many of the rarer varieties of disease have been considered. At first reading this might impress one as a rather sketchy manner of disposing of a subject, and yet on

second thought it will be noticed that no established fact in ætiology, pathology, or symptomatology is lacking; and were not this conciseness exhibited the work would be swelled to double its present dimensions.

The author is not a therapeutic optimist, and his remarks on treatment assume a modicum of intelligence on the part of his reader. In regard to some diseases—such as Weil's disease, mountain fever, myxædema, myotonia congenita, and paramyoclonus multiplex—no suggestions of treatment are made; and it seems to be true that no satisfactory treatment is known for such cases.

A word of commendation for the excellence of the indexing is deserved; nothing seems to have escaped the indexer.

It is an excellent text-book, and is sure to be accorded a generous welcome.

*Traitement des maladies de la peau.* Avec un abrégé de la symptomatologie, du diagnostic et de l'étiologie des dermatoses. Par le Dr. L. Brocq, médecin des hôpitaux de Paris. Deuxième édition, corrigée et augmentée. Paris: Octave Doin, 1892.

In the first edition of this work the author stated that his desire was to popularize the treatment of diseases of the skin, and so satisfactorily has he accomplished this object that his first edition of his work has been exhausted in eighteen months. In that short period the progress of dermatology has not been characterized by any particularly novel discoveries; still our author has incorporated into his text whatever there is new that is of value. For instance, certain diseases of the mucous membrane that have been by tacit consent transferred to the domain of the dermatologist are included in this edition; such, for example, as leucoplasia, leucokeratosis, black tongue, marginal exfoliative glossitis, aphthous and contagious inflammation of the vulva, etc.

Additions have been made in the articles on actinomycosis, glanders, pyocyanic disease, the parakeratoses, the ætiology of eczema, seborrhœic eczema, and lichenoid eruptions. The pharmacological portion of the volume has been revised by M. Portes, of the St.-Louis Hospital.

The alphabetical arrangement of diseases and the very complete index—a rare feature in many foreign medical works—make this a very convenient volume of reference, both for the specialist and for the general practitioner.

*A Manual of Autopsies.* Designed for the use of Hospitals for the Insane and other Public Institutions. By I. W. BLACKBURN, M. D., Pathologist to the Government Hospital for the Insane, Washington, D. C. Illustrated. Philadelphia: P. Blakiston, Son, & Co., 1892.

This little work will be found of great value by those physicians in general as well as hospital practice who have to make their own necropsies.

The matter is compactly arranged, and the portion of the work devoted to the examination of the brain is comprehensive and illustrated by numerous plates.

The volume was prepared at the request of the Association of Superintendents of American Institutions for the Insane, and is published with their indorsement.

*The Age of the Domestic Animals,* being a Complete Treatise on the Dentition of the Horse, Ox, Sheep, Hog, and Dog, and on the Various other Means of determining the Age of these Animals. By RUSH SUIPPEN HUIDEKOPER, M. D., Veterinarian (Alfort, France), Professor of Sanitary Medicine and Veterinary Jurisprudence, American Veterinary

College, New York, etc. Illustrated with Two Hundred Engravings. Philadelphia and London: F. A. Davis, 1891. 8vo. Pp. viii-217.

This book is a well-written and well-arranged treatise upon an important subject. It is a valuable work for all who have to do with the animals considered. It is illustrated fairly well, and is fully indexed.

*Human Monstrosities.* By BARTON COOKE HIRST, M. D., Professor of Obstetrics in the University of Pennsylvania, and GEORGE A. PIERSOL, M. D., Professor of Histology and Embryology in the University of Pennsylvania. Part II. Illustrated with Thirteen Photographic Reproductions and Twenty-five Woodcuts. Philadelphia: Lea Brothers & Co., 1892.

In the second part of this work, the first part of which was reviewed in the *Journal* for January 23d, the authors consider the classes of Celosoma, Exencephalus, Pseudencephalus, and Anencephalus. The six varieties of eventration described by Isidore Geoffroy Saint-Hilaire, aspalasoma, agenosoma, cyllsoma, schistosoma, pleurosoma, and celosoma, are described and illustrated. The subdivisions of exencephalus into notencephalus, proencephalus, podencephalus, hyperencephalus, iniencephalus, and exencephalus are well described, and each variety is illustrated.

The thirteen plates of photo-electrotypes and the twenty-five woodcuts are as excellent as in the former volume, and the general high character of the work is maintained.

*Atlas of Clinical Medicine.* By BYROM BRAMWELL, M. D., F. R. C. P. Edin., F. R. S. Edin., Assistant Physician to the Edinburgh Royal Infirmary. Vol. I. Part III. Edinburgh: T. & A. Constable, 1891.

THE third Fasciculus of this admirable work maintains the high standard of excellence attained by the first two parts. It contains ten plates and articles on progressive unilateral atrophy of the face, chronic progressive bulbar paralysis, ophthalmoplegia, molluscum fibrosum, and xeroderma pigmentosum. Though the plates are the most marked feature of the work, the text is worthy of the highest praise, presenting as it does substantially all that is known of each disease. Every article is virtually a clinical lecture of the most practical kind, designed not only for the student, but for the general practitioner of medicine.

#### BOOKS, ETC., RECEIVED.

Technique d'électrophysiologie. Par le Dr. G. Weiss, Ingénieur des ponts et chaussées, Professeur agrégé à la Faculté de Médecine de Paris. Avant-propos de M. le Professeur Gariel. Paris: Gauthier-Villars & fils; G. Masson. Pp. 214.

Maladies des organes respiratoires; méthodes d'exploration; signes physiques. Par Léon Faisans, médecin de la Pitié. Paris: Gauthier-Villars & fils; G. Masson. Pp. 192.

Gynécologie. Séméiologie génitale. Par A. Anvard, Accoucheur des hôpitaux. Paris: Gauthier-Villars & fils; G. Masson. Pp. 175.

Le délire chronique à évolution systématique. Par le Dr. Magnan, Médecin en chef à l'asile Sainte-Anne; et le Dr. P. Sérieux, Médecin-adjoint des asiles de la Seine. Paris: Gauthier-Villars & fils; G. Masson. Pp. 184.

The Uses of Water in Modern Medicine. By Simon Baruch, M. D., Physician to the Manhattan General Hospital and New York Juvenile Asylum, etc. Vol. I. Detroit: George S. Davis, 1892. Pp. xvi-115. [Price, paper, 25 cents; cloth, 50 cents.]

Dr. G. Zander's medico-mechanische Gymnastik, ihre Methode, Bedeutung und Anwendung, nebst Auszügen aus der einschlägigen Literatur. Von Dr. Alfred Levertin. Stockholm: P. A. Norstedt & Soner, 1892. Pp. 201.

A Baby's Requirements. By Elisabeth Robinson Scovil, Superintendent of the Newport Hospital, Newport, R. I. Philadelphia: Curtis Publishing Company, 1892. 12mo, pp. 55.

## New Inventions, etc.

### SCISSORS FOR THE REMOVAL OF SUTURES.

By JOHN A. PRINCE, M. D.,  
SPRINGFIELD, ILL.

SCISSORS exclusively for the removal of sutures may seem a superfluous article in a surgeon's armamentarium, already necessarily large, but I trust upon trial the verdict may be different.

There exists no instrument whereby the removal of ordinary and especially of fine coaptation sutures may be done easily and without pain and annoyance to the patient, who usually dreads the removal of the sutures almost as much as the original operation, and with reason. In the removal of a suture it is of course necessary to cut the loop, and, to facilitate the entrance of the point of the scissors for this pur-



pose, more or less tension is put upon it, thus causing pain. Some time ago I began to use Stevens's tenotomy scissors for this purpose, and was surprised to find how easily and painlessly a suture could be removed.

Deriving my idea from his instrument, I have had Messrs. Tiemann & Company construct for me the scissors shown in the accompanying cut. The cutting edge is limited to the tapering extremity of three eighths of an inch.

These scissors are made very strong and are capable of cutting heavy silk or silver wire, yet they possess a cutting point as fine as the most delicate eye scissors. Hence, in the removal of a suture by them, the slightest degree of tension is necessary, and the minimum of pain is felt.

## Miscellany.

**Ocean Holidays.**—The following appeared as an editorial article in the *British Medical Journal* for April 9th:

The advantages of ocean travel as a means of repose and restoration to those overwrought by the wear and tear of political, commercial, and literary life have been illustrated in the columns of the *British Medical Journal* for many years. They are every year more fully admitted and more widely taken advantage of. The sense of motion beguiles what might otherwise be the tedium of ship-board life—the quiet routine, the absence of daily responsibilities, the new subjects of consideration; the salt air, the constantly renewed draughts of oxygen, the conditions of healthy exercise without fatigue, and the irresistible charms of contact with the most sublime aspects of Nature are all influences which act as a mental and bodily tonic. They are re-enforced by change of scene, transplantation to new countries and genial climates, and the observation of races, countries, and cities, which never fail to arouse new feelings of interest in those who behold them for the first time. The facilities for such ocean trips are now greatly multiplied. The Peninsular and Oriental Company's steamers, which girdle the world, are specially laid out now for the comfortable, and even luxurious, accommodation of travelers in search of health and recreation—and the human interests and physical and mental needs of such travelers are carefully con-

sidered in every way. Circular tours and holiday trips are to be had to most parts of the world, and at the seasons best suited to enable the traveler to benefit by the most healthy seasons in each country. Other lines follow the example. Ocean yachts facilitate shorter and well-planned holidays, so that it is becoming as common now to take a winter holiday in Egypt or India, in Madeira or the Canaries, as formerly to any part of the continent of Europe. Moreover, as the fatigue of traveling by sea is far less than that of traveling by land, as the movement of an ocean steamer generally soon ceases to cause discomfort, even to the qualmish, and as the cost is far less, while the comfort and luxury are greater, "holidays at sea" prove attractive to a vastly increased and increasing proportion of our population.

But there is a risk, and, indeed, more than a risk, of the enormous advantages of such a relief from the wear and tear of modern life being lessened for the invalid and the convalescent by an abuse of the very facilities which the new development of sea travel offers. The traveler for health, the invalid with weakened nerve power, is tempted, perhaps too often, to follow in the rapid footsteps of the ardent "globe trotter." It is so easy nowadays to do a great deal without fatigue that the temptation to do too much is not avoided. When formerly the patient with delicate lungs would find his way to Cairo or Luxor, or slowly ascend the Nile in a dahabeah, he now pushes on to India, traverses the whole continent, and returns in three or four months. If he stays in Egypt he steams up the Nile, and having "done" Philæ and the Cataracts, returns to balls and parties and the theatres of the now gay and Europeanized capital in Cairo; he gets neither the rest nor the healthy, quiet Oriental life which formerly soothed his nerves, interested his mind, and invigorated his health. The rush of travelers through Egypt is a thing to be admired and approved in itself, for the contact with our dependencies and the personal observation of social conditions in the East add largely to our intelligence and sympathy as a governing nation. But the invalid will do wisely to differentiate himself from the globe trotter. A winter in India or in Egypt or the Atlantic islands offers a vista of escape from fogs and cutting winds, a substitution of sunlight and landscape, cloudless sky, warm airs, of brilliant color, and fantastic life which may well and wisely tempt the weary and the overworked to follow the sun in search of health and of the sense of a larger life than can be lived in the routine of daily work in the centers of industry here or in the restricted formal circles of the winter health resorts of Europe, delightful as they are. But the holiday in the East, like the holiday in the Riviera, or Madeira, or Teneriffe, must be one of long periods of rest and not of continuous movement. The longer the sea voyage and the less the land travel the more restorative such a holiday is likely to be where broken health is the cause of the journey.

A medical correspondent, Mr. Hope Lewis, medical officer at Auckland, recently wrote to us saying that he had met with a number of patients on their way through New Zealand, where they were half-way round the world. Among them all sorts of cases presented themselves—phthisical, rheumatoid, gouty, nervous, spinal—and in all stages. They were not by any means all benefited. "Rush," he complains, "is the axiom now."

The old-fashioned sailing vessel is now almost a thing of the past for this route. It has more than once occurred to him that a patient suffering from nervous breakdown has inquired as to a course at the thermal district of Rotorua, but the answer to the question how long a stay was proposed in the colony has been that the Orient steamer was due at Lyttelton in three weeks, and must be "caught." Such a patient had left England two months before, spent a few days in Sydney and Melbourne, and come straight on to New Zealand, where he had just arrived. This is good traveling for a hale and hearty man, but is not the sort of thing an invalid should take in hand, although there is reason to know that many undertake it, keeping up diaries and diligent note-taking all the time, and going wherever materials may be accumulated for the inevitable "book of travels." Easy and fascinating as is life on board a great ocean steamer, invalids should be cautioned not to enter too freely on the amusements which are provided for the young, strong, and active. "Round the world in eighty days" is a possible achievement nowadays, but it is the opposite of what the rest-seeker should hold in view.

The whole world is now open to the doctor who prescribes and to

the invalid who seeks ocean holidays, the best climates, the most glorious natural scenery, the most perfect mountain solitudes, or the most picturesque populations among which to repose and recruit. But it is well to choose one or two items in the large bill of fare. The Rocky Mountains of Canada are now rendered so accessible by the Canadian Pacific Railway, with its palace cars and traveling *table d'hôte*, that without fatigue and without effort the marvelous glaciers—one of which would swallow up all the glaciers of Switzerland—its rivers, packed with salmon, and its primeval forests, may be reached in a few days. Even Japan in the Far East, the most attractive play-ground of the world, is little more than a month away from our doors. The spice gardens of Ceylon, the fairy palaces of India, the temples and deserts of Egypt, may all be reached with less fatigue than was formerly involved in a tour in many parts of Europe; while it is as easy to get to Madeira or Teneriffe as to go by sea to Glasgow, and much more comfortable; and the few weeks which we were all used to spend at a dull seaside place may now, thanks to the facilities of ocean travel, be spent far more delightfully, and as a short winter holiday, say, in Malta, Gibraltar, or Tangier, without any fatigue, and with singular refreshment of mind and body. The hints which we have from more than one correspondent as to the tendency to hurry away from one town to another, and from continent to continent, prompt us to caution both doctors and patients that it is easy to spoil the value of holidays at sea, and health tours generally, by extending them to meet time requirements for much sight-seeing, and by confounding health and rest trips with "globe trotting," which is the privilege of the healthy and the curious. The most perfect of all holidays are to the Far East, but enough time must be given, and as much steamer put in and as little railway travel as possible.

**The "Ginger-beer Plant."**—In the *Proceedings of the Royal Society* we find the following abstract of a communication by H. Marshall Ward, M. A., F. R. S., etc.: The author has been engaged for some time in the investigation of a remarkable compound organism found in home-made ginger-beer fermentations.

It occurs as jelly-like, semi-transparent, yellowish-white masses, aggregated into brain-like clumps, or forming deposits at the bottom of the fermentations, and presents resemblances to the so-called *Kephir* grains of the Caucasus, with which, however, it is by no means identical.

He finds that it consists essentially of a symbiotic association of a specific *saccharomycete* and a *schizomycete*, morphologically comparable to a lichen, but, as met with naturally, invariably has other species of yeasts, bacteria, and mold-fungi casually associated with these. He has successfully undertaken the separation of the various forms, and groups them as follows:

1. The essential organisms are a yeast, which turns out to be a new species allied to *Saccharomyces ellipsoideus* (Reess and Hansen), and which he proposes to call *S. pyriformis*; and a bacterium, also new and of a new type, and named by him *Bacterium vermiforme*.

2. Two other forms were met with in all the other specimens (from various parts of the country and from America) examined—*Mycoderma cerevisie* (Desm.) and *Bacterium acti* (Kützing and Zopf).

3. As foreign intruders, more or less commonly occurring in the various specimens examined, were the following:

*a.* A pink or rosy yeast-like form—*Cryptococcus glutinis* (Fresenius)?

*β.* A small white aerobic top-yeast, with peculiar characters, and not identified with any known form.

*γ.* The ordinary beer-yeast—*Saccharomyces cerevisie* (Mayen and Hansen).

*δ.* Three, or probably four, unknown yeasts of rare occurrence.

*ε.* A bacillus which forms spores and liquefies gelatin with a greenish tinge.

*ζ.* A large spore-forming bacillus, which also liquefies gelatin.

*η* and *θ.* Two—perhaps three—other *schizomycetes* not identified.

*ι.* A large yeast-like form which grows into a mycelium, and turns out to be *Oidium lactis* (Fresenius).

*κ.* A common blue mold—*Penicillium glaucum* (Link).

*λ.* A brown "torula"-like form, which turns out to be *Dematium p. ulmans* (De Bary).

$\mu$ . One, or perhaps several, species of "*Torula*" of unknown origin and fates.

Of these forms, the author has succeeded in cultivating and examining very thoroughly all but those under  $\theta$  and  $\mu$  in the foregoing list.

*Saccharomyces pyriformis* (n. sp.) is a remarkably anaerobic bottom-yeast, forming spores, and developing large quantities of carbon dioxide, but forming little alcohol. It has also an aerobic form—veil form of Hansen—in which the rounded cells grow out into club-shaped or pyriform cells, whence the proposed specific name. It inverts cane sugar and ferments the products; but it is unable to ferment milk sugar. It forms rounded, morula-like, white colonies in gelatin, and the author has separated pure cultures from these. He has also studied the development and germination of the spores which are formed in twenty-four to forty-eight hours at suitable temperatures on porous earthenware blocks. They also develop on gelatin. The technological characters have been kindly determined and confirmed for the author by Mr. Horace Brown, F. R. S., and Dr. Morris, of Burton-on-Trent.

The specific *schizomyete* (*Bacterium vermiforme*, n. sp.) has been very fully studied by the author. It occurs in the fermentations as rodlets or filaments, curved or straight, incased in a remarkably thick, firm, gelatinous sheath, and is pronouncedly anaerobic, so much so that the best results are got by cultivating it in carbon dioxide under pressure.

The sheathed filaments are so like worms that the name proposed for the species is appropriately derived from this character.

It will not grow on gelatin, and separation cultures had to be made in saccharine liquids by the dilution methods.

It grows best on solutions of beet root or of cane sugar, with relatively large quantities of nitrogenous organic matter—*e. g.*, bouillon, asparagin, and tartaric acid. Good results were obtained with mixtures of Pasteur's solution and bouillon.

The author has found that the bacterium into which the filaments subsequently break up can escape from its sheath and become free, in which state it divides rapidly, like ordinary bacteria. Eventually all the forms—filaments, long rods, short rodlets—break up into cocci. No spores have been observed. These changes are dependent especially on the nutritive medium, but are also affected by the gaseous environment and the temperature. The jelly-like clumps of the so-called "ginger-beer plant" are essentially composed of these sheathed and coiled *schizomyetes*, entangling the cells of *Saccharomyces pyriformis*. But the action of the *schizomyete* alone on the saccharine medium differs from that exerted by the latter alone. This was proved by cultivating each separately, and also by cultivations in which, while each organism was submerged in the same fermentable medium, they were separated by permeable porcelain (Chamberland filters), through which neither could pass.

The author has also constructed the "ginger-beer plant" by mixing pure cultures of the above two organisms; the *schizomyete* entangled the yeast cells in its gelatinous coils, and the synthesized compound organism behaved as the specimens not analyzed into their constituents.

Some very curious phenomena in connection with the formation of the gelatinous sheaths and the escape of the bacteria from them were observed in hanging-drop cultures, and are figured and described by the author. The conditions for the development of the gelatinous sheaths, and therefore of the coherent brain-like masses of the *schizomyete*, are a saccharine acid medium and absence of oxygen. The process occurs best in carbon dioxide; it is suppressed in bouillon and in neutral solutions in hydrogen, though the organism grows in the free, non-sheathed, motile form under these conditions.

The behavior of the pure cultures of the bacteria, in as complete a vacuum as could be produced by a good mercury-pump, worked daily and even several times a day for several weeks, is also noteworthy. The author records his thanks to his friend and colleague, Professor McLeod, for much assistance in regard to this apparatus. The development of the sheaths is apparently indefinitely postponed *in vacuo*, but the organism increased, and each time the pump was set going an appreciable quantity of carbon dioxide was obtained. In vacuum tubes the same gas was evolved, and eventually obtained a pressure sufficient to burst some of the tubes. The quantity of carbon dioxide evolved

daily by the action of the bacterium alone, however, is small compared with that disengaged when the organism is working in concert with the symbiotic yeast; in the latter case the pressure of the gas became so dangerous that the author had to abandon the use of sealed tubes.

The products of the fermentation due to the *schizomyete* have not yet been fully determined in detail; lactic acid or some allied compound seems to be the chief result, but there are probably other bodies as well.

The author owes acknowledgment to Dr. Matthews, of Cooper's Hill, for advice and assistance in examining the products of these fermentations.

The pink yeast-like form proved to be very interesting. It has nothing to do with the "ginger-beer plant" proper, though it was invariably met with as a foreign intruder in the specimens. The author identifies it with a form described by Hansen in 1879;\* unfortunately, the original is in Danish, but the figures are so good that little doubt is entertained as to its identity. It is also probably the same as Fresenius's *Cryptococcus glutinis* in one of its forms. It is not a *saccharomyete*, and does not ferment like a yeast; it is aerobic.

The chief discovery of interest was that in hanging drops the author traced the evolution of this "rose-yeast" into a large, complex mycelium, bearing conidia, and so like some of the *basidiomyetes* that it may almost certainly be regarded as a degraded or "torula" stage of one of those higher fungi. Full descriptions and figures are given by the author.

The form *Mycoderma cerevisiæ* was thoroughly examined. The author's results confirm what is known as to its aerobic characters. Statements as to its identity with *Oidium lactis* were not only not confirmed, but the author grew these two forms side by side, and maintains their distinctness. Nor could he obtain spores in this fungus, thus failing to confirm earlier statements to the contrary. He regards it as probable that oil drops have been mistaken for spores; he also finds that in later stages of fermentation by this organism a strong oily smelling body is produced.

With regard to *Bacterium acti*, the author has little new to add. A point of some interest was the repeated production of acetic ether, which scented the laboratory when this *schizomyete* was growing in company with the small white aerobic top-yeast referred to under ( $\beta$ ). As this phenomenon was found to have nothing to do with the question being investigated, the author did not pursue it further. It seemed probable, however, that the yeast produced alcohol, which the *schizomyete*, in presence of oxygen, partially oxidized, and that the fragrant ether was produced by interaction of the products.

With regard to the other forms found, the author was chiefly concerned with testing their relations to the important and essential organisms. It need only be remarked here that the hanging-drop cultures of *Dematium pullulans* were very successful, and that some of the molds and at least one *bacillus* (of which the spore formation, etc., were traced also) were traced to ginger used in the manufacture of the well-known beverage.

The author hopes very shortly to have the honor to lay before the society a full account of his research, of which the above is only a brief notice. The fuller account will contain detailed descriptions, as well as figures, of the apparatus, mode of culture, etc.

**The Association of Medical Superintendents of American Institutions for the Insane.**—The forty-sixth annual meeting will be held in Washington, at the Arlington Hotel, on the 3d, 4th, 5th, and 6th of May, under the presidency of Dr. Daniel Clark, of Toronto, Ontario.

**The American Electro-therapeutic Association** will hold its second annual meeting in New York, at the Academy of Medicine, on October 4th, 5th, and 6th, under the presidency of Dr. W. J. Morton.

**The late Dr. Henry I. Bowditch, of Boston.**—The *Edinburgh Medical Journal*, in its April number, prints the following obituary notice of Dr. Bowditch, written by Dr. W. T. Gairdner:

Although the number of those who made the acquaintance of this distinguished physician on his visit to this country in 1861 must now be sadly diminished, it may be permitted to us in this journal to offer

\* *Organismer i Æl og Ælurt*. Copenhagen, 1879.

a brief tribute to his memory, from one who is perhaps the only hospital physician now in a position to do so among those who gave a hearty greeting to Dr. Bowditch in the Edinburgh Royal Infirmary more than thirty years ago. The writer was thoroughly attracted at that time, not only by what appeared to him an eminently noble personality, but also by the narrative of successful results in the treatment of pleuritic effusions by the method of what was then called *suction*,\* although under the more pretentious name of *aspiration* it came, many years later, to be made a *boom* in Paris without the slightest reference to the first employment of the method in America. Dr. Bowditch was even then, although in the prime of life and vigor, by no means a young man, and the steady, persistent, and indeed brilliant work he had done in connection with this subject deserved a better fate than to be lost sight of amid the struggles for *éclat* of a young French hospital physician not at all careful as to what had been done before him. Dr. Bowditch made converts in Edinburgh in those days, and at least two of the hospital staff began to use thoracentesis by suction from that time onward. One of the two is the writer of these lines, and Dr. Bowditch has been known to say that Dr. Budd, of King's College, London, and the present writer were the first in this country to adopt the improved procedure. But Dr. Bowditch, though a most eminent thoracentesist, was far more than this. He was a most admirable and cultured physician in all respects, and not only showed in diagnosis and in treatment a wide and well-ordered knowledge and a cultivated judgment, but he appreciated also, as comparatively few then did, the importance of the preventive service of humanity in its relations to the curative. The researches which he first brought before the public in 1862 † into the connection of moisture in subsoils, and the effect of drainage, or the want of it, on the local distribution of phthisis in Massachusetts, became stimulus to further fruitful researches, which in England were undertaken at the instance of the medical officer of the Privy Council, by Dr. George Buchanan, of London, now the chief of the medical service under the Local Government Board. ‡ Had Dr. Bowditch done nothing else but these two things, his merit would still have been great; but in fact his was a most busy and valuable life, from many different points of view. He was greatly trusted as a physician in Boston, and was a personal friend of all of the many celebrities of the New England city; he was a successful teacher and hospital physician, and for some time Medical Officer of Health to the State Board of Massachusetts; he was, moreover, a cultured and most appreciative member of society in the most literary and scientific atmosphere on the American continent; and, lastly, he was an enthusiast for freedom and justice, and as such, an abolitionist as regards slavery, at a time when to be an abolitionist out and out required courage and convictions of a very high order. Add to this that he was one of those men whose character is transparent, and who could not if he would have done and said anything but what was the outcome of an honest and fearless nature, and it will be easily under-

\* Dr. Bowditch always attributed the invention of this method and the appropriate instrument to Dr. Morill Wyman, of Cambridge, Mass., who performed his first thoracentesis by suction in 1850. But neither Dr. Wyman nor Dr. Bowditch seem to have cared to put in a claim of priority, although, at the date of a most interesting and lucid letter to the author of this notice, bearing date May 22, 1862, no fewer than 160 operations had been performed upon 85 persons, and with remarkably favorable results. See *Clinical Medicine: Observations recorded at the Bedside, with Commentaries*. Edinburgh: Edmonston & Douglas, 1862, Appendix, p. 717. Dieulafoy's first publication on the method of aspiration appears to have been in 1870.

† In an address delivered at the annual meeting of the Massachusetts Medical Society, founded on the written statements of physicians in 183 townships, republished in 1868 under the title *Consumption in New England and Elsewhere; or, Soil Moisture One of the Chief Causes*.

‡ In this instance it is satisfactory to be able to state that Dr. Bowditch's priority and merits received full acknowledgment. See the *Tenth Report (1867) of the Medical Officer of the Privy Council* (Mr., now Sir John, Simon), pp. 16, 17; Dr. Buchanan's report being in the appendix to the same volume, published in 1868.

stood that Dr. Bowditch, in his long life of over eighty years, must have left one of those memories of which Boston and America are justly proud. The author of these lines experienced only one cause of deep regret in a recent visit to the United States: that it was not permitted to him again to grasp the hand of one with whom an unbroken friendship, maintained mostly by correspondence, had deepened into love and reverence as the years advanced. The attachment and the expectation were equal on each side, but the frail tenement of clay and the failing mental powers of the veteran seemed to his nearest and dearest friends to be unequal to a satisfactory interview; and a letter, most pathetic alike in its simplicity and its kindness, announced to the visitor the anxious though forbidden desire, and the hope that "somewhere and somehow" it might be possible to resume an intercourse which was likely to be broken off only too soon on this side the grave. Dr. Bowditch died, full of years and honors, at Boston, on the 14th of January last, in the eighty-fourth year of his age. His English wife had predeceased him. One son, Dr. Vincent Y. Bowditch, is in the practice of his father's profession in Boston. The civil war cost him another son, killed while leading a squadron of cavalry. A brother's son, Dr. Henry I. Bowditch, is well known as the professor of physiology in the Harvard Medical School.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

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*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

Original Communications.

THE INFLICTION OF THE DEATH PENALTY BY MEANS OF ELECTRICITY.

BEING A REPORT OF SEVEN CASES.

*With Remarks on the Methods of Application and the Gross and Microscopical Effects of Electrical Currents of Lethal Energy on the Human Subject.\**

By CARLOS F. MACDONALD, M. D.,

PRESIDENT OF THE NEW YORK STATE COMMISSION IN LUNACY;  
PROFESSOR OF MENTAL DISEASES IN THE BELLEVUE HOSPITAL MEDICAL COLLEGE,  
LECTURER ON INSANITY IN THE ALBANY MEDICAL COLLEGE.

THE widespread interest manifested by the general public in the new method of inflicting the death penalty by means of electricity, and the interest which medical science would naturally be expected to feel in the humane and scientific aspects of the subject, especially with reference to the absence of conscious suffering, and the changes, if any, in the tissues and organs of the human body resulting from the passage through it of electrical currents of lethal energy, together with the fact that this method of executing criminals may now be said to have practically passed beyond the experimental stage, would seem to justify, if not indeed to demand, the presentation of an authentic summary of the practical results thus far obtained by some one whose data and conclusions would be derived from actual observation and experience in the application of the statute. The fact that the writer happens to be the only physician who has participated in all of the official preliminary experimental tests of apparatus, and witnessed all of the executions thus far had under the new law—not, however, from any zealous interest in the subject, nor even inclination to be present, but in obedience to the expressed desire of the chief executive of the State and other official superiors—furnishes the only excuse he would offer for undertaking what otherwise might well be regarded as an undesirable task.

In view of the wide publication of distorted and sensational accounts of the Kemmler execution, and the amount of adverse criticism and even condemnation based thereon of those who were called to act in an advisory capacity in the administration of the law, the writer, at the request of the Governor, prepared an official report of that event, some portions of which are necessarily here reproduced.

The execution of William Kemmler, alias John Hart, at Auburn Prison, on August 6, 1890, pursuant to the statute in such case made and provided, marked the first case in the world's history of the infliction of the death penalty by electricity. Since then six other condemned murderers have been legally killed by this method at Sing Sing Prison—namely, James J. Slocum, Harris A. Smiler, Joseph Wood, and Schichiok Jugigo, on July 7, 1891; Martin D. Lippy, on December 7, 1891; and Charles McElvaine, on February 8, 1892; making in all seven cases of successful infliction of the death penalty by electricity in the State of New York.

\* Read before the Section in Public Health of the New York Academy of Medicine, March 16, 1892; also read by title before the Medical Society of the State of New York, February, 1892.

The execution of Kemmler was under the immediate direction and control of the prison warden, the Hon. C. F. Durston, and took place in a room set apart for the purpose, in the basement of the administration building of the Auburn Prison, to which the electric current was conducted by means of an ordinary electric-light wire. The apparatus consisted of a stationary engine, an alternating-current dynamo and exciter, a Cardew volt meter, with extra resistance coil, calibrated for a range of from 30 to 2,000 volts; an ammeter for alternating currents from 0.10 to 3 ampères, a Wheatstone bridge, rheostat, bell signals, and necessary switches; a "death chair," with adjustable head-rest, binding straps, and two adjustable electrodes. The dynamo was an alternating-current dynamo intended to supply 750 incandescent lamps of sixteen-candle power each, and capable of generating, as shown by careful tests made several months prior to the execution, a maximum electro-motive pressure of 2,376 volts, the commercial and mean voltage being 1,680 and 1,512, respectively, the speed of the dynamo being 1,900 revolutions, and of the exciter 2,700. The chair, a square-framed heavy oaken one, with a high, slightly sloping back and broad arms, was fastened to the floor, the feet of the chair being properly insulated. Attached to the back of the chair, above the head-rest, was a sliding arrangement shaped like a figure four (4), the base or horizontal arm of which projected forward, and from which was suspended the head electrode, so as to rest on the vertex, or top of the head, against which it was firmly held by means of a spiral spring. The spinal or body electrode was attached to the lower part of the back of the chair and projected forward horizontally on a level with the hollow of the sacrum. The electrodes each consisted of a bell-shaped rubber cup about four inches in diameter, the part corresponding to the handle of the bell being of wood, through the long axis of which the wire passed into the bell, terminating in a metallic disc about three inches in diameter, and faced with a layer of sponge. The lower electrode was also provided with a sliding arrangement and spiral spring to hold it in place, while a broad strap fastened to the back of the chair and passed around the lower part of the prisoner's abdomen rendered the contact secure. The head was firmly secured by means of conjoined broad leather bands, which encircled the forehead and chin, encasing the eyes and upper portion of the face, and were fastened to the back of the almost perpendicular head rest, while the chest, arms, and legs were secured by broad straps attached to corresponding portions of the chair. The wire attached to the head electrode descended from the ceiling, and that of the lower one passed along the floor to the chair, being protected by a strip of wood.

The dynamo and engine were located in one of the prison shops several hundred feet distant from the execution room; the voltmeter, ammeter, switch-board, etc., were located in a room adjoining the execution room, which contained the death chair, electrodes, and connecting wires. Communication between the meter room and dynamo room was by means of electric signals.

The apparatus used in the subsequent executions at

Sing Sing was substantially a duplicate of that above described, except as regards the location of the measuring instruments, switch-board, etc., and the form and points of application of the electrodes to be hereafter referred to.

Of the twenty-five official witnesses present, fourteen were physicians; two of whom—Dr. E. C. Spitzka and the writer—were officially designated as physicians by the warden, in pursuance of the statute.

Before Kemmler was brought into the room the warden asked the physicians how long the contact should be maintained; the writer replied, Twenty seconds, but subsequently assented to ten seconds, in deference to the opinion of another that a considerably less period of time would suffice—an opinion which doubtless would have been sustained had the electro-motive pressure been sufficiently great.

Unfortunately, in this instance, the voltmeter, ammeter, switch-board, etc., were not located in the execution room; hence none of the official witnesses could know precisely how much the electro-motive pressure and current strength were at the time of making and during the continuance of the first contact. Nor has the voltage or ampèreage in this instance, to the writer's knowledge, ever been officially determined. But reasoning from the known lethal effect of an electro-motive pressure of 1,600 volts and upward, as shown by subsequent executions and by deaths which have occurred from accidental contact with live electric wires, as well as by numerous experiments on animals whose weight exceeded that of man, affords solid ground for the conclusion that no human being could survive the passage through his body of an alternating current of more than 1,500 volts for a period of even twenty seconds, the contact being perfect.

The preliminary arrangements having been completed, Kemmler was brought into the execution room by the warden and introduced to the witnesses, who were seated in a semicircle facing the death chair. On entering the room, the prisoner appeared strikingly calm and collected. In fact, his manner and appearance indicated a state of subdued elation, as if gratified at being the central figure of the occasion, his somewhat limited intellect evidently rendering him unable to fully appreciate the gravity of his situation. He was given a chair near the death chair, and, on being seated, in response to the warden's introduction, said: "Well, I wish every one good luck in this world, and I think I am going to a good place, and the papers has been saying a lot of stuff about me that wasn't true. That's all I have to say." At the warden's bidding, he then arose, removed his coat, and, without the least display of emotion or nervousness, took his seat in the execution chair, calmly submitting to the adjustment of the electrodes and binding straps, himself aiding the proceedings by suggestions and fixing his body and limbs in proper position. Observing the nervousness of the prison officers who were adjusting the straps, he admonished them not to hurry, and to "be sure that everything is all right." He pressed his bared back firmly against the spinal electrode and requested that the head electrode be pressed down more firmly on the top of his head, from which the hair had been imperfectly clipped before he entered the room, remarking, at the same

time, that he desired to perform his part to the best of his ability. The preparations terminated with a final moistening of the electrodes, the whole occupying, at most, between three and four minutes. Everything being seemingly ready, the warden signaled to his assistants in charge of the switches in the adjoining room to turn the lever which closed the circuit and instantly sent the deadly current through the prisoner's body. The instant the contact was made the body was thrown into a state of extreme rigidity, every fiber of the entire muscular system being apparently in a marked condition of tonic spasm. Synchronously with the onset of rigidity, bodily sensation, motion, and consciousness were apparently absolutely suspended, and remained so while electrical contact was maintained. At the end of seventeen seconds Kemmler was pronounced dead, none of the witnesses dissenting, and the warden signaled to have the contact broken, which was immediately done.

For obvious reasons, the only means of determining the question of death while the body was in circuit was by ocular demonstration; so that it can not be positively asserted that the heart's action entirely ceased with the onset of unconsciousness, though most of the medical witnesses present thought that it did.

When the electrical contact was broken the condition of rigidity noted above was instantly succeeded by one of complete muscular relaxation. At the same time superficial discolorations resembling commencing capillary post-mortem changes were observed on the exposed portions of the face. The body remained limp and motionless for approximately half a minute, when there occurred a series of slight spasmodic movements of the chest, accompanied by the expulsion of a small amount of mucus from the mouth. There were no evidences of a return of consciousness or of sensory function; but, in view of the possibility that life was not wholly extinct, beyond resuscitation, and in order to take no risk of such a contingency, the current was ordered to be reapplied, which was done within about two minutes from the time the first contact was broken. The sudden muscular rigidity noted on the first closure of the circuit was again observed and continued until the contact was again broken, when the opposite state of complete muscular relaxation re-occurred. The second closure of the circuit was inadvertently maintained for about seventy seconds, when a small volume of vapor, and subsequently of smoke, was seen to issue from the point of application of the spinal electrode, due, as was subsequently found, to scorching of the edge of the sponge with which the electrode was faced, and from which the moisture had been evaporated by prolonged electrical contact. The odor of the burning sponge was faintly perceptible in the room. There was also some desiccation of the already dead body, immediately underneath the electrodes, especially under the lower one, which will be described in connection with the autopsy.

A careful examination of the body was now made, in which the medical witnesses participated to a greater or less extent. The radial pulse and heart's action had ceased, the pupils were dilated, and the cornea were depressed and flaccid on pressure. In other words, William Kemmler was dead, and the intent and purpose of the law to effect sud-

den and painless death in the execution of criminals had been successfully carried out.

In the excitement and confusion of the moment, occasioned by the belief on the part of some that death was not complete, the second application of the current in Kemmler's case was maintained too long—nearly a minute and a half. If there was a spark of unconscious vitality remaining in the prisoner's body after the first contact was broken—there certainly was no conscious life—it was absolutely extinguished the instant the second and last contact was made. That the man was dead, however, comparatively long before the burning of the sponge and desiccation of tissue occurred, there is no reason to doubt.

The movements referred to were regarded by most of the medical witnesses present, including the writer, as similar in character to those which have occasionally been observed for a short time in animals experimentally killed by electricity, when the contact was too brief or the current strength insufficient, the animal dying, however, in a short time without regaining consciousness—movements which may properly be regarded as involuntary or reflex in character, following the too early interruption of the current, and in no sense a resumption of respiratory function, however much they may appear to be so to superficial observers or to those not familiar with the phenomena referred to, as observed in experiments on lower animals. These movements are very slight in comparison with those usually exhibited by animals suddenly decapitated, and which usually continue a considerable period of time.

Dalton, in his work on Human Physiology,\* refers to observations made by Robin on the reflex action of the spinal cord in the case of a criminal who was executed by decapitation, the head having been severed near the fourth cervical vertebra. Muscular contractions were produced about an hour after execution by scratching with a pointed instrument the skin of the chest at the areola of the nipple while the right arm was lying extended by the side. On irritating the skin at the point and in the manner mentioned there immediately occurred a series of contractions of the pectoralis major, the biceps, probably the brachialis anticus, and lastly the muscles covering the internal condyle, causing the whole arm to approach the trunk, with inward rotation and half flexion of the forearm upon the arm, and bringing the hand toward the chest as far as the epigastrium. On replacing the arm and repeating the irritation as before, a similar defensive movement occurred. This experiment was repeated four times with similar results, except that each time the movement was less extensive; and finally scratching the skin over the chest "produced only contractions in the great pectoral muscles which hardly stirred the limb."

Observations made at executions subsequent to Kemmler's tend to show that reflex excitability of the voluntary muscles disappears much more rapidly after death by electricity than by any other method of sudden dissolution. In the case of McElvaine, executed at Sing Sing on February 8, 1892, Dr. Van Gieson found that reflex action of

the voluntary muscles was absolutely unresponsive—to ordinary mechanical stimuli (see report of autopsy in case of McElvaine)—within two or three minutes after the last contact was broken.

That there were certain defects of a minor character in the arrangement and operation of the apparatus at the first execution by this method will be questioned by no one who witnessed it; but when it is recalled that, notwithstanding these defects, unconsciousness was instantly effected and death was painless—also that less than four minutes elapsed between the making of the first contact and the breaking of the last one, when Kemmler was absolutely dead—it will be conceded by unprejudiced minds that the object to be attained in the infliction of the death penalty, at least so far as relates to the individual—namely, sudden and painless death—was fully realized in Kemmler's case; and had the first contact been maintained for a sufficient length of time, in all probability there would have been no involuntary movement of the body after it was broken, and no unfavorable criticism of the result could then have truthfully been made.

Among other criticisms which appeared in the public press anent the execution of Kemmler was a reported declaration of the most illustrious electrical expert of the age, in which he was made to say that a serious mistake had been committed in not making contact through the hands instead of the head, the skull and hairy scalp being poor conducting media.

However logical this criticism may be from the standpoint of an electrician, it is not sustained by our knowledge of electro-therapeutics and of the physical properties of live bone. In what was intended to be an impersonal reply to this criticism, the writer, in his report to the Governor, took occasion to call attention to certain facts which are well known to physiologists and medical electricians—namely, that the arrest of the heart's action can be as readily effected by destroying or paralyzing the brain center which controls such action as by attacking the heart itself; hence, by including the brain directly in the circuit, the action of the heart would probably be quickly arrested, while at the same time all the vital centers, including that of consciousness, would be paralyzed; also that the brain itself is very susceptible to the influence of electricity, and can be readily affected, sometimes to an alarming extent, by the passage into it through the skull of mild currents, such as are obtained from medical batteries; that the nerve tissues contain an excess of saline moisture, and hence are among the best of conductors, while the amount of organic matter contained in *live* bone is sufficient to render that substance a fairly good conductor. Further, it is not difficult to penetrate the hairy scalp by electricity if the hair be properly moistened, the conductivity of all the tissues of the body being largely dependent on the amount of moisture and salinity contained in them.

In each of the five cases following the Kemmler case \*

\* The head electrode originally suggested in Kemmler's case, but which, for some reason unknown to the writer, was not used, was designed to include the forehead, down to the eyebrows, in the zone of contact.

\* *A Treatise on Human Physiology*, seventh edition, p. 404.

—namely, Slocum, Smiler, Wood, and Jugigo, executed at Sing Sing Prison, July 7, 1891, and Lippy at the same place, December 7, 1891—one electrode was so applied as to cover the forehead and temples, and the other, a larger one, the calf of the right leg, except in the case of Joseph Wood, in which it was applied to the left leg in consequence of the existence of an ulcer on the right one. The calf of the leg was selected because it furnished a broad area of thin skin. The point of contact of the body electrode is not of material importance. It may be applied to the hand, the foot, the calf of the leg, or to any other indifferent part of the body.

The electrodes were thoroughly wet with a solution of salt water before the current was turned on, and were moistened at intervals, when the current was interrupted, with the same solution thrown on them from a syringe.

The following summary of these executions, except as relates to Kemmler, is taken from the official reports made to the warden of the prison, the Hon. W. R. Brown, by Dr. S. B. Ward, of Albany, N. Y., and the writer, who appeared as medical advisers for the State:

The electromotive pressure, as shown by the readings of the voltmeter, taken by Professor L. A. Laudy, of Columbia College, varied from 1,458 to 1,716 volts, while the ammeter showed a variation in current of from 2 to 7 amperes.

The preliminary preparations—that is, from the time the prisoner entered the execution room to the closure of the circuit which rendered him unconscious—occupied, in Kemmler's case, approximately, four minutes; in Slocum's case, three minutes and forty seconds; in Smiler's case, two minutes; in Wood's case, two minutes and forty seconds; in Jugigo's case, two minutes and fifteen seconds; in Lippy's case, two minutes and thirteen seconds; and in McElvaine's case, one minute and forty-nine seconds.

In each instance the prisoner walked deliberately to the chair and quietly submitted to the application of the restraining straps and electrodes without the slightest opposition or show of resistance, and also, save in the cases of Kemmler and McElvaine, without uttering a word in relation to the proceedings. With the single exception referred to (Kemmler's case), there was no exhibition of confusion or excitement on the part of witnesses, nor was there anything unduly repulsive in the executions themselves; on the contrary, everything was done in a quiet, orderly, and dignified manner, in keeping with the solemnity of the occasion. The most striking and constant objective phenomena observed were instantaneous and complete tonic rigidity of the muscular system on closure of the circuit and marked muscular relaxation immediately the contact was broken.

In Kemmler's case there were two contacts, through vertex and lower end of spine, lasting seventeen and seventy seconds, respectively, the last one being unnecessarily prolonged; in Slocum's case, two contacts—twenty-seven and twenty-six seconds; in Smiler's case, four contacts, three of ten seconds each and the fourth nineteen seconds; in Wood's, three contacts of twenty seconds each; in Jugigo's, three contacts of fifteen seconds each; in Lippy's case, four contacts of fifteen, eleven, fifteen and a half, and ten and a

half seconds, respectively. (In all of these five cases contact was through the head and leg.) And in McElvaine's case, two contacts, the first one through the hands\* (immersed to the wrists in liquid electrodes), lasting fifty seconds, and the last one through the head and leg, lasting thirty-six seconds.

In Kemmler's case there were chest movements, and possibly heart-beat, after the first contact (seventeen seconds); in Slocum's, chest movements and radial pulsation after first contact (twenty-seven seconds); in Smiler's, no movement of chest, but radial pulsation after three contacts (ten seconds each); in Wood's, no movement or pulse-beat whatever; in Jugigo's, a slight fluttering of radial pulse when final contact was broken, which rapidly ceased.

In all the cases except Kemmler's and McElvaine's contact was broken for the purpose of wetting the electrodes.

From the foregoing it appears that the time consumed in the preliminary preparations—strapping, adjusting electrodes, etc.—varied from four minutes in the first to less than a minute and a half in the last instance; that the number of contacts varied from two to four, and that the aggregate length of the contacts in each case varied from forty-five to eighty-seven seconds, at the end of which, if not before, in most instances, both conscious and organic life were absolutely extinct.

In other words, the length of time which elapsed from the moment the prisoner entered the execution room until he was absolutely dead was, in Kemmler's case, eight minutes; in Slocum's, six minutes; in Smiler's, four minutes; in Wood's, four minutes and ten seconds; in Jugigo's, three minutes and thirty seconds; in Lippy's, three minutes fifty-three seconds and a half; and in McElvaine's, three minutes and fifty-eight seconds.

It appears, therefore, that the time actually consumed in each of these seven executions, from the moment the prisoner entered the room until he was absolutely dead, varied from eight minutes in the longest to three and a half in the shortest, whereas executions by hanging usually require from fifteen to thirty minutes. In fact, in hanging, it not infrequently happens that the heart continues to beat for that length of time after the fall of the fatal drop. Then, too, far more time is consumed in placing the prisoner on the gallows, pinioning his limbs, putting on the black cap, placing the noose about his neck, and carefully adjusting the knot under his left ear (from whence it sometimes slips at the critical moment, resulting in strangulation instead of a broken neck), than would be required for arranging the preliminary details of an electrical execution. During the preparation of this report the Associated Press dispatches contained an account of a hanging in which the criminal's head was almost completely torn from the body.

\* In view of the opinions expressed by electrical experts of the highest standing, it had been previously agreed that contact should first be made by immersing the hands in two cells, containing tepid salt water, connected respectively with the opposite poles of the dynamo, and, in the event of this not causing cessation of the heart-beat, that recourse should be had to the mode of application through the head and leg employed in the previous executions at Sing Sing Prison. The apparatus was so arranged that either mode of application could be instantly employed at will.

There are abundant reasons for believing that conscious life is destroyed so rapidly by electricity that the application of the current could be repeated several times within the interval that is known to elapse between the receipt of an injury or a peripheral sensory impression, and its conscious perception by the brain through the medium of the sensory nerves. In other words, the electrical current would travel from the point of contact to the brain many times faster than sensory impressions or nerve currents would, the rate of velocity of the latter being, roughly speaking, only about one hundred and fifty-five feet per second—a rate which is quite slow in comparison with the lightning-like velocity of electricity, which travels at the rate of millions of feet per second.

Thus it will readily be seen that an electrical current of lethal energy coming in contact with the body so as to include the brain in the circuit would reach the latter and produce unconsciousness long, comparatively, before any sensory impression, at the point of contact or elsewhere, could be conveyed to and appreciated by that organ, through the process of nerve-conduction, which, as has been shown, requires a distinctly appreciable period of time, the rate of transmission of painful sensations being even slower than that of ordinary tactile impressions.

A striking illustration of the relative slowness of nerve conduction as compared with electricity was shown in a series of experiments in instantaneous photography recently conducted by Professor Muybridge, in the following manner:

The lantern was used to make a series of instantaneous photographs, and in order to make the intervals between the exposures, as well as the periods of exposure, exceedingly short, the plates were exposed and stopped by means of an electric current. One very interesting series of pictures made was intended to illustrate the slowness of the brain in receiving impressions. Two women were employed; one stood in a bathtub and the other sat on a raised chair and poured a bucket of water over the standing woman's head and shoulders. In order to make the shock more intense, Professor Muybridge had filled the bucket with ice-water, unknown to the victim, who would not have awaited the douche so patiently had she known what its temperature was going to be. One view showed the water tipped over and falling, yet not quite touching the girl's head. The next view showed the water splashing from her head and shoulders, and yet there were no signs of sensation. In the third picture she was just beginning to respond to the shock, and the subsequent pictures illustrated the further phases of the response. The point of special interest, however, is in connection with the second view. The electric current had in that case first exposed the plate, and then after a very short interval had shut it off again; that is to say, had acted twice with an interval of time between the two sufficiently long for the sensitive plate to take an impression of the view, and this after the ice-water had touched the woman's shoulders, and before she was conscious of it.

Respecting the resistance offered to the current by the human body, Mr. A. E. Kennelly, of the Edison Laboratory, at Orange, N. J., and who witnessed the execution of Melvaine, in a contribution to the *Electrical Engineer* for February 17, 1892, says:

The electrical pressure at the electrodes was determined from a Cardew voltmeter in circuit with a non-inductive re-

sistance. The current passing through the electrodes was observed from a direct-reading dead-beat ammeter, and the indications of these carefully calibrated instruments afford reliable inferences as to the resistance of a human body, under definite conditions of surface contact, to an alternating current making some 150 periods per second.

From the official records as already published it would appear that in the first application the pressure at electrodes was maintained at approximately 1,600 volts, and the current, which commenced at 2.0 ampères, steadily increased during the fifty seconds of contact up to 3.1, indicating a resistance between electrodes diminishing from the initial value of 800 ohms to a final value of 516, a reduction during the interval of more than thirty-five per cent. The electrodes were metal plates in large wooden receptacles nearly filled with tepid salt water, and in which the hands of the criminal were immersed. Judging from the fact that, although the skin of the hands was blistered over the areas above the water level that had been wetted by first immersion and then withdrawn, yet the skin that remained immersed was entirely uninjured, it seems reasonable to suppose that no very large proportion of the whole resistance of the body would reside in the integuments at the electrodes.

In the second application, forty-three seconds later, the pressure was observed to be maintained at approximately 1,500 volts, and the current which passed between the forehead and the calf of the right leg continued at 7.0 ampères during the thirty-six seconds of contact, indicating a resistance practically steady at 214 ohms during that time. The electrodes were of sponge, kept thoroughly wetted with cool salt water and backed by metallic plates, the area covered by each being about 100 square centimetres. Since no blistering took place immediately below the head electrode, although some blistering occurred at the other, it would appear that no large proportion of the total resistance existed in the contact areas.

The mean activity developed in heat during the first application was thus 4,080 watts, and in the second 10,500 watts, or about 14 E. H. P., this large expenditure of energy accounting for the considerable post-mortem temperatures that are stated to have been observed.

The average resistance of the human body between the hands, immersed to the wrists in dilute solutions of salt or soda, is often overstated in measurement, owing to the vitiating influence of polarization on observations taken with feeble currents in the Wheatstone bridge. Correct readings can, however, be obtained either by bridge measurement to "immediate false zero," or by the use of large resistances inserted directly in the electrode circuit through a galvanometer, so as to employ a higher pressure without pain to the subject, and so reduce the influence of the possible 2.5 volts of polarization counter E. M. F. In either case the mean resistance under these conditions is about 1,000 ohms.

The inference appears to be drawn that the resistance of the body between hands to an alternating pressure of 1,500 volts is only about one half what it is to continuous pressures of 5 volts, or to alternating pressures of 2 or 3 volts, and, from the observations above mentioned, it would seem that the resistance between forehead and calf is very much lower than between immersed hands. While, in conclusion, the general belief is further substantiated that the quantity of current which may pass through the body from a contact with high pressures will entirely depend upon the area and moisture of the contact surfaces, being large with extended and wet surfaces, but, perhaps, comparatively small for brief contacts on dry and limited surfaces of touch.

(To be concluded.)

## ANEURYSM OF THE ASCENDING AORTA

TREATED BY MACEWEN'S NEEDLING METHOD  
FOR INDUCING A WHITE THROMBUS.\*BY ROBERT F. WEIR, M. D., AND  
EMMETT D. PAGE, M. D.

THE good results obtained by Macewen, of Glasgow, in the treatment of internal aneurysms by the induction of what is termed a white thrombus or the deposition in thickened masses of leucocytes on the internal surface of an aneurysmally dilated blood-vessel, led me recently to the trial of this method in a case of aneurysm diagnosticated to be of the ascending aorta. Macewen reported in the *Lancet*, November 22, 1890, three cases of aneurysm—two of the aorta, and one probably of the subclavian artery—wherein a consolidation and cure of the aneurysmal tumor were effected in two instances, and in the third, affecting the ascending aorta, where an autopsy held after the scratching of the inner surface of the aneurysm—for this is the principle of the treatment—had been resorted to some seven times, with several days of rest intervening between the sittings. Macewen not only scratched or irritated in each case with the needle point the interior of the aneurysm, but left the needle impinging on the opposing wall for periods varying from twenty-four to forty-eight hours; this not with the intent of obtaining coagulation on the needle, as in the older methods of treatment, but that the wall of the aneurysm might be more thoroughly roughened. The autopsy of two cases, the second one being a femoral aneurysm similarly treated, showed that the deposition of the white laminated fibrin was greatest where the sac irritation had been most thoroughly applied. Feeling the inutility of any other surgical means, and after submitting the question, in its complete bearings of novelty and want of corroborative experience, to the physician in charge, Dr. C. L. Dana, and to the patient's family, the procedure of Macewen was begun by me June 4, 1891, in a case of thoracic aneurysm, at St. Luke's Hospital, where the patient took a private room, to be more constantly under supervision during the treatment.

The patient was a man of forty-seven years of age, in good physique, of a somewhat excitable temperament, whose symptoms of circulatory disturbance, viz., pain in right arm and side of chest, and pulsations of heart, dated back some six or eight months. Ten weeks previously an attack of influenza occurred during which glycosuria appeared. Four weeks ago the patient noticed a swelling just below the right clavicle with augmentation of the cough and the shoulder pains. When seen first by me, there was a pulsating area over the second and third ribs near the sternum, rising up beyond the skin level fully an inch, with a thick wall. The dullness on percussion extended over a diameter of three inches and a half, stretching upward to the suprasternal notch. No tumor felt behind clavicle in the neck. Heart's action regular. Radial pulsations equal. Urine normal. Considerable pain. Complained sufficiently to require moderate doses of morphine or codeine at night. Slight irregular temperature elevations, supposed to be malarial, and checked by quinine, delayed the first insertion of the needles several days.

The skin over the thoracic pulsating mass having been duly

rendered aseptic, and the proper precautions as to surgical cleanliness of instruments, hands, etc., being resorted to, a slender needle, six inches long and half a millimetre in diameter, was (June 11th) thrust into the most projecting portion of the mass through the chest wall into the aneurysm. It struck the eroded rib at a distance of an inch and a quarter. Its direction then being changed, it was passed into the aneurysm a distance of three inches, and gradually increased to four inches before the resistance showed itself; this opposition was followed by smart coughing with raising of one or two mouthfuls of blood. The lung had been punctured, probably through a thin sac wall, though no resistance had been recognized. The needle was partially withdrawn and endeavored to be carried over another portion of the wall without re-entering through the skin, but it was too slender to permit much change in direction of its point through the firm tegumentary tissues. A second heavier needle, one millimetre in diameter—the first one being left *in situ*—was introduced and the posterior wall decidedly recognized at a depth of four inches and a half, whereupon it was scraped decidedly over a circular area of two inches and a half. The position of this and the first needle was then changed by withdrawing them nearly to the skin level, and then pushing them in in a different direction, so that the posterior wall of the aneurysm was to a fairly satisfactory extent scratched over a space the size of the palm. This surface of the aneurysm was irregular in depth, varying from three inches and a half to five inches and a half from the surface. Left to themselves when touching the posterior wall, only a moderate movement was communicated to the needles by the aneurysmal wall. After the first or the slenderer pin had been in the sac eighty minutes, either scratching the wall or resting against it, it was withdrawn. No more than a drop or two of blood followed. The second pin, the thicker one, was removed after a similar sojourn in the sac for fifty minutes, with the same encouraging result as to the oozing. An antiseptic dressing was applied. The patient had experienced but little pain, and the only untoward symptom was the previously mentioned expectoration of blood, which was not repeated. So far the procedure was tentative to a considerable extent. The size of the needles had not been mentioned by Macewen, and naturally the use of the larger needle suggested the possibility of some hæmorrhage, external or subcutaneous. None such occurred. The thin wall of the sac enforced caution, and it was also recognized that difficulty would be experienced in attacking the lateral aspects of the aneurysm, and it was felt that unless the various punctures made should cause the desired deposit of white fibrin in the bulging anterior, where the most danger to the patient apparently existed, the treatment elsewhere might be of little avail, no matter how satisfactorily it might progress. I did not feel willing, moreover, to leave the needles in place for twenty-four hours or more, as Macewen has done and recommends, since the thinness of the posterior wall had been demonstrated to me.

No reaction followed this first trial.

One week later the needling was repeated, four needles being introduced through the anterior wall—two being used, of a diameter of one millimetre and a fifth, at depths of four inches and a half to five inches, to scrape the posterior wall of the aneurysm, the area reached being at the best a limited one. Two others were carried through the hour-glass opening made up mainly by the eroded ribs in such oblique manner as to reach the lateral aspects of the aneurysm. This, however, could only be accomplished on the median side, and only to a very moderate degree. I was tempted to use a curved needle for this purpose, but the difficulty of managing the point in such a case deterred me from its employment. The extrathoracic portion of the aneurysm was also scratched by the horizontal insertion of a needle, though but little was accomplished by this effort. After the

\* Read before the Section in General Surgery of the New York Academy of Medicine, December 14, 1891.

needling had been continued about an hour, coughing, with expectoration of blood, to the amount of one ounce, with sharp pain, stopped further procedure. The removal of the needles longest *in situ* was followed by spurts of blood, which finger-pressure readily checked. Antiseptic dressings renewed.

Half an hour later the patient complained of severe pain in top of aneurysm and in right arm. This subsided in the course of an hour. No further reaction followed. Temperature and pulse continued normal. Though naturally a very nervous man, his behavior was calm, and he carried out the injunctions of quietness, etc., to the letter.

One week later, but little change was visible in the pulsating mass in the anterior chest wall. If anything, it was more prominent. Thickened, too, from the repeated punctures made in it. Since the last needling he has had, he says, less discomfort and pain than he had previously experienced.

June 18th.—The insertion of the needles was resorted to for the third time. The time occupied in this sitting was an hour and three quarters; four needles used—longest, five inches and a half. The summary of the result was that the posterior aspect of the aneurysm was scratched very satisfactorily over an area of two inches in diameter, at a depth of four inches and a half. Median side of aneurysm also scratched, but only with difficulty, owing to the rib erosion limiting its sweep. Downward—*i. e.*, toward heart—a needle five inches and a half long touched nothing. No pain was felt after the needles had been withdrawn. The patient could feel the scratching readily, and frequently informed me, when in doubt as to whether I had reached the aneurysmal wall, that “he knew I had got there.” Complaint was made more of the needle punctures and of the traction at this point in the various movements of circumduction made, than of the contact of the point of the needle.

He left the hospital three days later, to go to his home in Brooklyn, with the understanding that if no improvement followed in ten to fifteen days the operation should be repeated by one of my colleagues, as I would then be absent on my summer vacation.

The case, I learn subsequently, came under the care of Dr. Atkinson and Dr. Page, of Brooklyn, and from the latter the concluding notes of the history of the case have been sent me.

The patient's subsequent condition did not at all improve. The tumor of the chest-wall enlarged steadily, and increasing pain was experienced, requiring the free use of anodynes.

The surgical treatment was not resumed at the determination of the family.

August 21st.—Rupture of the aneurysm took place internally, causing death in about fifteen minutes afterward.

The autopsy was made by Dr. E. D. Page, assisted by Dr. Hunt and Dr. Belcher, of Brooklyn. Their notes, with the specimen, have been kindly furnished to accompany this report.

They are as follows :

Rigor mortis well marked. Body weight about 155 pounds, usual weight 180.

Tumor ecchymotic somewhat, but smooth externally. It extends from the right axilla, two inches to the left of the median line, and from the clavicle to below the nipple. Circumference at base, externally, twenty inches. Height above chest-wall, three inches. Final remnants of a disorganized blood clot where a thimble-sized tumor existed. This was at the upper and inner place of introduction of the needle. A clot

had disseminated itself outside the ribs over a space of three inches and a half to four inches from pressure of aneurysm beneath it. At this point, too, the wall of the aneurysm was exceedingly thin and ruptured in dissecting the integument from it. Blood had evidently escaped from the aneurysm at the time of the operation into this place, or a vessel of sufficient size to cause the hæmorrhage had been wounded by the needle. No adipose tissue was found between tumor and integument.

The apex of the heart was an inch and a half to the left, and three inches below the left nipple.

The liver, upper margin, was crowded down below the border of the ribs. It was also pushed forward and across the abdominal cavity to left of median line—*i. e.*, the left border of liver. It was also very firm in consistence and very anæmic. Microscopical examination not made.

Diaphragm on right side crowded down to lower rib.

Left lung normal.

Right lung: lobes adherent to each other. Tumor adherent to large portion of anterior part of lung, and so firmly that lung tissue was torn in separating them. This lung was severely encroached upon by the invading aneurysm and caused the increased number of respirations gradually as it increased in dimension. The parietal and visceral pleura were slightly adherent at apex. Otherwise normal.

In the right thoracic cavity was about three pints of clotted blood, pressing the lung upward and the diaphragm downward. This hæmorrhage was the immediate cause of death.

The aneurysm itself was found to be from the anterior part of the ascending aorta and very near the heart. It was filled with a post-mortem blood clot, and nowhere was there to be seen more than a trace of fibrinous deposit. No evidences of the needling were visible. Everywhere the aneurysmal walls seemed thin, especially at upper point already mentioned, and posteriorly where the rupture occurred. In shape it was that of a flattened spheroid, with the antero-posterior diameter the lesser. In size it was six inches and a half by eight inches. The aneurysm, bracing itself against the aorta from which it sprang and also against the elastic lung, did no damage whatsoever to the posterior walls of the thoracic cavity nor to the spinal column itself. Both were in perfect condition, and illustrate the possible ability of these organs to resist successfully long-continued pressure.

Anteriorly the third rib was eroded clear through two inches from the sternum, the latter also being eroded. Second rib badly eroded. The intercostal muscles anterior to the aneurysm had also disappeared by a process of absorption from pressure. The aneurysm, in its relation to the heart, was almost sessile, and, in fact, the specimen herewith presented shows the upper part of the heart dilated, so close is it.

The result of the operation, so far as inducing the formation of a white thrombus is concerned, was, unfortunately, negative. The proximity of the aneurysm to the heart and the consequent interference of the latter's free action, together with the attending dilatation, account for the severe paroxysms of pain following the surgical interference of July 15th.

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The Microscopical Society of Washington held its eighth annual soirée on Tuesday evening, the 3d inst. The programme embraced an address by the president, Dr. J. Melvin Lamb, on The Field of the Microscope, and the exhibition of fifty-four sets of specimens.

The American Dermatological Association will meet on September 13th at the Pequot House, New London, Conn., instead of at Cushings Island.

## ANÆMIA :

ITS TREATMENT WITH A NEW PREPARATION OF IRON.\*

By REYNOLD W. WILCOX, M. A., M. D.,

PROFESSOR OF CLINICAL MEDICINE IN  
THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL ;  
ASSISTANT VISITING PHYSICIAN TO BELLEVUE HOSPITAL.

WHEN one considers the frequency of pathological conditions of the blood, no apology is necessary for presenting a paper upon this subject. These conditions are found in all grades and classes of people; the pampered daughter of the millionaire is no more exempt than the shop-girl; our foreign-born suffer equally as the native population.

In the discussion of this question I prefer to follow the classification of Oppenheimer and Gräber :

1. Simple anæmia : where both the corpuscles and hæmoglobin are diminished.

2. Chlorosis : where the corpuscles are normal and hæmoglobin diminished (females).

3. Primary chlorosis or pernicious anæmia : where the corpuscles are diminished and the hæmoglobin is relatively increased. Perhaps this might be better stated by saying that the percentage of decrease of corpuscles is greater than that of hæmoglobin, which latter may fall to twenty per cent. The symptomatic varieties of anæmia may be due to many causes :

1. Hæmorrhage.

2. Pathological discharges—*e. g.*, prolonged lactation, sexual excesses, profuse menstruation, suppuration, albuminuria, diabetes, watery diarrhœa.

3. Malignant growths.

4. Toxic and infective processes, such as the fatal cases of pernicious anæmia, reported by Koran, from carbonic-dioxide poisoning, from tea, coffee, tobacco, alcohol, syphilis, tuberculosis, or myxœdema. Here should also be considered those cases of auto-infection designated faecal anæmia by Sir Andrew Clark.

5. Animal parasites.

6. Obstacles to taking food which are mechanical in their nature.

7. Dyspepsia.

8. Venous stasis in cardiac and pulmonary disease.

9. Impaired sanguification in diseases of cytogenic organs, malaria, leucæmia, or Hodgkin's disease.

10. Fever.

*Ætiology.*—Predisposing causes :

1. Sex : female.

2. Age : infancy and youth, old age.

3. Constitution : so-called irritable weakness.

Exciting causes :

1. Deficient supply of food.

2. Want of light and air.

3. Excess or defect of bodily exercise.

4. Unusual states of temperature ; hot or cold temperatures.

5. Increased expenditure of unoxidized material, physiological discharges ; menstruation or lactation.

6. Psychological influences : depressing emotions.

The symptomatology of anæmia may be divided into the general : dropsy, loss of body weight, fever.

Alimentary : retching, vomiting, atonic dyspepsia, constipation, sometimes diarrhœa.

Circulatory : palpitation, faintness, præcordial distress, hiccough.

Respiratory : dyspnœa, slight cough without expectoration.

Integumentary : pallor, hyperidrosis.

Genito-urinary : polyuria, variable menstruation, sexual torpidity.

Nervous : irritable weakness, morbid hyperæsthesia, headaches, tinnitus, neuralgia, convulsions, delirium. In regard to œdema, however, Benezúr and Csatsy found that in the anæmia of Bright's disease the amount of hæmoglobin was not consonant with that of œdema.

The physical signs of anæmia are practically two, so far as the circulatory apparatus is concerned : 1. The *bruit de diable* of Bouillaud, or the *Nonnengeräusch* of Skoda, is due to slackness of the venous wall and a comparative emptiness of the vessels. This murmur is intensified with deep inspiration and arrested by forced expiration or coughing ; it is better heard and is more musical when the patient is standing or sitting than when recumbent. The vibratory sensation, the *frémissement cataire* of Laennec, is due to vibrations of the walls of the veins which are imparted to them by the vibrations of the blood. The muscular contraction produced by turning the head on its axis strengthens the bruit ; so also does light pressure with the stethoscope. The jugular veins can always be compressed by the belly of the omo-hyoid muscle, so that the presence of the murmur must be determined by an avoidance of these conditions. I prefer to accept Hamernyk's theory, that these murmurs are produced by the whirling movement of the blood in the jugular bulb at the lower end of the internal jugular veins, and that these veins have a different-sized lumen along their course and at the termination of the sinus venosus which explains these eddies.

2. The cardiac anæmic murmurs are due to functional disorder of papillary muscles, and are ventriculo-systolic. Balfour believes that these murmurs in the pulmonary area are really due to mitral regurgitation, which in turn is due to defective nutrition of cardiac muscle and dilatation of the ventricular cavity, so that we may say that in the lighter grades of anæmia the murmur in the neck is heard, while as it becomes greater that in the second left intercostal space appears. When this condition becomes extreme we observe intraventricular murmurs, and these are heard at the apex. It is interesting to note that in the following recorded cases as the percentage of hæmoglobin increased the murmur at the apex was the first to disappear, that with further improvement that in the second left intercostal space followed, and that when the percentage approached the normal the *bruit de diable*, last of all, vanished.

The composition of the blood has recently received considerable attention. Gorup-Besanez states that the blood of man contains one part of iron to two hundred and thirty parts of red blood-globules, quoting the analysis of C.

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Schmidt. Selmaltz, in his investigations concerning the specific gravity of human blood, found that it varied from 1.059 in the male to 1.056 in the female, the variation being only three one-hundredths. The ingestion of a thousand cubic centimetres of a physiological solution of salt had a very short and feeble influence. The specific gravity may fall to 1.030 in anæmia and cancerous cachexia; it varies according to the amount of hæmoglobin it contains. In serious disease of the stomach the mass of the blood itself is diminished on account of inanition. In phthisis and cardiac disease its density is increased because of the slowing of the peripheral circulation. Jones finds a resemblance between his specific-gravity curves and those of Leichtenstern for hæmoglobin, and explains that the variations of these substances are closely related to those of specific gravity. Hence the determination of the hæmoglobin by means of the color is accurate because it is dependent upon the specific gravity and number of corpuscles.

Meyer and Pernou found that the iron in the liver cells of a fœtus was ten times as great in amount as in a grown animal, showing that it might be stored there to provide for future growth. Jacobi injected iron into the blood-vessels of dogs and rabbits, and found that ten per cent. of it was excreted by the bowels, liver, and kidneys. Of that deposited, fifty per cent. was found in the liver, and the rest in the spleen, the kidneys, the walls of the intestine, and other organs. It was all removed from the blood, however, in two or three hours after its administration. The fact that the excess of iron is stored in the liver may be looked upon as a physiological, not a pathological process.

In estimating the value of a remedy for the increase of the iron in the hæmoglobin, it is necessary that we should not trust entirely to the physical examination of the heart and the blood-vessels and the color of the mucous membranes and of the skin, but also should have an exact means of measuring the hæmoglobin in the blood. Daland has shown conclusively, what I have for some time more than suspected, that the methods of counting blood-corpuscles, such as Gowers's, or the use of the Thomas-Zeiss hæmacytometer, give such variable results from the same specimen of blood, not only when examined by different observers, but also when several portions are examined by the same observer, that the results are by no means satisfactory. Besides, it is extremely trying work for the eyes, and I have for some time abandoned making estimations of the number of blood-corpuscles. In the hæmoglobinometer made by Reichert, of Vienna, which I show, we have not only simplicity of operation, but, I believe, accuracy in ascertaining the amount of hæmoglobin contained in the given specimen of blood.

The technique of this instrument is simple; however, to insure accuracy of results, certain precautions must be taken. In the examination of the blood in the cases that I am narrating to-night the time from 11 A. M. to 1 P. M. was selected. My light was a gas-jet, four-foot burner, five feet distant. I made use of the same capillary tube for all examinations. The finger from which the blood is taken should be cleaned with ether and thoroughly dried.

The cut was made with a sharp-pointed tenotomy knife. The blood should flow freely, and the work should be done quickly, so that clots do not form. The finger must not be squeezed. The capillary tube must be filled at one attempt. Use water for dilution at the temperature of the body, and clean the tube at the time of using. Discharge the blood and water into the cell slowly, so as to avoid bubbles and a marked meniscus at the edge, filling, however, both divisions of the cell to the same level. The water should be discharged with a steady current, so as to thoroughly diffuse the blood into the menstruum. Turn the color-wedge from light to dark and note the reading, then turn it from dark to light and make a second reading, which should correspond with the first. Do not refer to a past record before an examination. Above all things, the examination should be made quickly and neatly. In this method of recording our results we are unbiased by any statement of the patient, and are also independent of any deception in the estimation of the color of the mucous membranes, which readily simulates that of health in those cases, by no means infrequent, where a febrile reaction accompanies anæmia.

In successfully treating anæmia it is necessary to fulfill the *indicatio causalis*, thus presupposing a consideration of the subjects mentioned above. The *indicatio morbi* brings up the consideration of food, which should be nourishing and easily digested, mostly nitrogenous; exercise in the open air, the amount to be regulated; the breaking off of bad habits; and the treatment by remedies.

In recent times it has been observed that the hæmoglobin of the blood has increased after moderate bleeding. Dogiel, on the strength of experiments upon dogs, confirms the deductions of Scholz that moderate bleeding, say with ten or fifteen leeches, does not alter the arterial blood tension, but if it is repeated every three or four weeks the patient gains in weight and the number of blood-corpuscles increases. Vogt and Sehteherbakoff also found the hæmoglobin to be increased under similar circumstances. Schubert treated a number of cases of chlorosis by blood-letting and hot baths. The venesection was at the rate of seven to fifteen grains to the pound of body weight for each bleeding. The patient was kept in bed from twenty-four to forty-eight hours after the operation, and this treatment was repeated once or twice each year. The treatment with laxatives has at times been followed by so much success that Hamilton has said that if he were compelled to treat anæmia by either laxatives or chalybeates he would use the former. In Sir Andrew Clark's theory that anæmia arises in a large number of cases from self-infection—in other words, that a large number of anæmias are of faecal origin—there is certainly some proportion of truth; however, the most rigid and extraordinary antiseptics, which nowadays can be readily obtained by naphthaline, salicylate of bismuth, or beta-naphthol, does not seem to meet with the success that we should expect, although quite recently Pick has professed to have obtained good results in chlorosis from this method. My own personal experience is that it will succeed in only a limited number of cases, so at the present time we can say that neither in bloodletting nor

in laxatives, nor yet in securing intestinal antiseptics, can we hope to obtain such brilliant results as by the administration of iron.

In giving iron we have, up to this time, been hindered by certain apparently insurmountable difficulties. The organic salts of iron have had but a limited use, owing to their comparative inefficiency. The inorganic salts of iron have hitherto presented many disadvantages. Bland's pills, so much lauded and popularized by Niemeyer, certainly fail in a considerable number of cases. Notwithstanding the large amount of iron which one can administer in them, in many instances improvement does not follow their prolonged and uninterrupted administration. I am inclined to think that the potash is partly responsible for this, since it is, as we all know, one of the agents that promote waste. The tincture of the chloride of iron has easily held the first place in popularity and efficiency. Combined with phosphoric acid, when well borne by the stomach, its therapeutics is unassailable. The formula of Flint has been for many years one of my favorites. A coated tongue, feeble digestion, and constipation are supposed to contra-indicate the use of iron. I should rather say that these conditions called for a previous purgation and correction of the digestion, preliminary to a course of ferruginous treatment. On the other hand, I am quite as strongly opposed to the administration of a laxative at the same time with iron, such as is frequently found in its association with aloes, because the metal, being slowly absorbed, requires a slow passage along the intestine. I believe that there is no doubt that large doses of iron are less constipating than small ones, but I do not believe that the final result—namely, the absorption—is so satisfactory. Iron is absorbed more rapidly in catarrhal conditions of the alimentary tract, and in those cases tends to accumulate in the liver. Castellino has found, in his experiments, that hæmoglobin is absorbed rapidly, is always well borne, increases the number of red cells and the specific gravity of the blood, and improves the general condition. If the administration of hæmoglobin, however, is stopped before the normal condition is reached, its effect is only fugitive. In secondary anæmia it fails completely, in that its effects are only transitory. It is more rapid in its action than any other iron preparation. Obviously, the use of this preparation will be extremely limited. The iron found in wines is too small in amount to be considered, yet I am in the habit of prescribing wines, and especially Schreiber's dietetic Tokay, for my patients.

Since, then, we are of the opinion that iron is our sheet-anchor in the treatment of anæmia, and since all preparations hitherto used either have been inefficient or have presented certain disadvantages, we come now to a consideration of a preparation which, I think there is no reasonable doubt, will revolutionize the treatment of anæmia, in that the objections to the strong preparations have been done away with. Dr. George W. Weld, of New York, realizing the great injury done to the teeth by the tincture of the chloride of iron, set about obtaining a preparation which, while retaining all the therapeutic effects, should present none of the disadvantages. After years of experi-

mentation, this preparation has been put on the market by Parke, Davis, & Co., under the name of Weld's syrup of chloride of iron. It was found with the official tincture that the acid would attack the enamel of the teeth, and, curiously enough, in Smith's experiments, when two drachms of the tincture were added to an ounce of water, the destructive energy upon the calcium salts of the teeth was increased, and it was found that, of iron preparations, the chloride was the most harmful, the syrup next, and the wine the least of all. Other preparations of iron, which are bland, are by no means so valuable as the tincture of the chloride of iron. I have tested clinically all the albuminates and peptonates of iron, and all are objectionable because, on the one hand, they are inefficient, frequently requiring administration for many months, and, in the second place, give rise to extremely bad-smelling flatus. If you add water to a simple solution of iron chloride, which is devoid of other acid, you get the basic salts of iron in free hydrochloric acid. Weld has shown that these basic salts of iron are not soluble in strong acids, so that they protect the teeth in the same way that alcohol and syrup do; when, however, water is added, these salts are dissolved, and the acid then attacks the enamel. Thus it is seen that it is the free hydrochloric acid that is so destructive to the teeth. In Weld's iron this excess of acid, which is unnecessary for perfect solution of the iron salt, is removed, and in no way does this impair the therapeutic value of the preparation, because the hydrochloric acid is again added to it from the gastric fluids. It is easily assimilated; better tolerated than the old tincture of the chloride, because it does not produce nausea; gives rise to no disagreeable eructations; and contains no alcohol save that which is found in the tincture, of which half an ounce contains only twenty drops. The constipation which is noticeable on the use of all iron preparations is easily corrected by equal parts of fluid extract of cascara sagrada and glycerin, the proper dose to be determined by experiment.

Each fluidounce of Weld's syrup of the chloride of iron contains forty drops, equaling twenty-four minims, of the tincture of the chloride of iron of the United States Pharmacopœia. It is not pretended that Weld's syrup will not stain the teeth; soft-boiled eggs, salads, etc., will of themselves stain the teeth, but it can be asserted that Weld's syrup will not injure the enamel of the teeth. On using a tooth-brush, the surface is always found intact, even after month-long immersion in this preparation. Weld's syrup of the chloride of iron is simply the tincture of the chloride of iron, United States Pharmacopœia, with the excess of acid neutralized and a certain amount of syrup of gaultheria added to improve the taste. The following cases will illustrate its usefulness:

CASE I. *January 15, 1892.*—H. B. C., United States, aged twenty-four, single, no occupation. Glycosurie fourteen months ago. Under Martineau's treatment sugar disappeared from the urine in three months, and has not returned. Has suffered from polyuria; her daily amount of urine sixty to ninety-five ounces. She complains of dull headache in the afternoon. Suffers backache when walking, has nausea and occasional vomiting, trembling, and pains in limbs. Slight cough without expectoration,

dizziness and fainting spells. Dyspnoea, which is marked on ascending stairs. Her diet has not been restricted.

*Physical Examination.*—Pallor, lips bloodless, not œdematous. Pulse 92, small and weak. Anæmic murmur in right side of neck, also in second left intercostal space. Apex beat weak, otherwise normal. Liver easily felt at edge of ribs. No enlargement of spleen. Urine, ninety-four ounces, free from albumin, sugar, and casts. Specific gravity, 1.018, acid. Reichert's hæmoglobinometer, seventy-eight per cent. Ordered Weld's iron, two drachms three times daily.

*February 13th.*—Reichert's hæmoglobinometer, eighty-five per cent.; quantity of urine, fifty ounces, normal. Anæmic murmur has disappeared from second left intercostal space. Improvement marked as regards symptoms and faintness. Pulse good, 82, and of fair volume. Ordered Weld's iron, three drachms three times daily.

*March 14th.*—Hæmoglobinometer, ninety-one per cent.; much improvement in headache and backache. No nausea or vomiting; cough, however, still continues. Less dyspnoea; pulse 72, of good force; murmurs have both disappeared; liver normal; urine, sixty-two ounces. Ordered two drachms Weld's iron three times daily.

*April 11th.*—Symptoms are entirely relieved. Urine, fifty-five ounces; specific gravity, 1.017; no sugar, albumin, bile, or casts. Liver normal in size. Reichert's hæmoglobinometer, ninety-eight per cent. Discharged cured.

CASE II. *January 19, 1892.*—L. D., aged seventeen, single. Sick one year. Complains of headache, which is frontal, constant, sharp, but not enough to keep awake at night. Sometimes worse in middle of day. Pulse weak. She is languid, disinclined to exertion, sometimes dizzy, but never faints. No cough; formerly palpitation, marked shortness of breath, hands and feet cold. No appetite, no distress after eating. Bowels regular every day. Catamenia anticipate two or three days. Flows four days, not profuse, of good color. No urinary or bowel symptoms.

*Physical Examination.*—Pulse 78, weak, small, and of low tension. Tongue pale and flabby; teeth indent the edges. *Bruit de diable* in right side of neck. Ventriculo-systolic murmur in second left intercostal space. Apex-beat weak, diffused, shortened, somewhat irregular in force and rhythm, on exercise. Reichert's hæmoglobinometer, sixty-six per cent. Ordered Weld's iron, two drachms three times daily.

*February 4th.*—Headache yesterday; is now fourteen days over period. Pulse 72, better. Still has anæmic murmurs. Hæmoglobinometer, seventy-six per cent. Ordered Weld's iron, two drachms three times daily.

*February 23d.*—Has not felt quite so well during last week owing to loss of sleep caused by death of father. Pulse now weaker in force, rhythm is good. Sounds at apex weaker also. Anæmic murmur not so loud as before; heard in neck and at second left intercostal space. Period last week as usual. Reichert's hæmoglobinometer, eighty-four per cent. Ordered Weld's iron, two drachms three times daily.

*28th.*—Has felt very much better since last report. Anæmic murmurs can not now be heard. Reichert's hæmoglobinometer, ninety-three per cent. Ordered Weld's iron, two drachms three times daily.

*March 15th.*—Hæmoglobinometer, ninety-seven per cent.

*April 3d.*—Pulse, 68, good; lips of excellent color. Hæmoglobinometer, one hundred and two per cent. Discharged entirely well.

CASE III. *January 23, 1892.*—M. McC., United States, aged seventeen, sick three weeks. Vomiting constantly, whether stomach is full or empty. Vomits a whitish matter, never bloody. Pain in head in both temples; not always present, but

worse on vomiting. Dizziness on going up stairs, also dyspnoea. Short, dry cough, which is slight; palpitation of heart on walking; appetite fair. Bowels very constipated, no urinary symptoms. Menstruation very irregular for last three months and continues two days without pain; discharge pale and scanty. Sleeps well and is drowsy in day-time. Has pains about neck.

*Physical Examination.*—Tongue clean, pale, and flabby. Conjunctivæ pearly. Lips pale, no swelling of feet. Pulse, 90, feeble, compressible; slight anæmic murmur in right side of neck, also in second left intercostal space. Apex beat weak, with but little impulse. Reichert's hæmoglobinometer, sixty-three per cent. Ordered Weld's iron, half an ounce three times daily.

*February 7th.*—Has felt better, headaches and dizziness better, shortness of breath less marked. Anæmic murmur in second intercostal space has disappeared. Reichert's hæmoglobinometer, seventy-four per cent. Ordered Weld's iron, three drachms three times daily.

*24th.*—Has not taken medicine for two days. Nausea has returned; heart sounds, however, are better. Reichert's hæmoglobinometer, eighty-eight per cent. Ordered Weld's iron, two drachms three times daily.

*March 3d.*—No nausea, no vomiting; dizziness absent; very little shortness of breath; pulse, 72, of good volume and regular; no anæmic murmurs. Hæmoglobinometer, ninety-one per cent. Ordered Weld's iron, one drachm three times daily.

*29th.*—Hæmoglobinometer, ninety-eight per cent. Discharged upon the patient's statement that she feels perfectly well.

CASE IV. *January 24, 1892.*—C. B., aged eighteen, single, sick one year. Menstruation at thirteen, always irregular, recurring every three to eight weeks, lasting five or six days; profuse. For the last six months she has had her periods every fourteen days, lasting from eight to ten days, profuse, but little leucorrhœa. Headaches at times constant, worse in the morning. Dizziness, palpitation of the heart, fainting on one occasion, fainting feelings frequently, shortness of breath on ascending stairs, pain in the stomach almost all the time, poor appetite of late. Pain under the right shoulder. As a rule, food does not distress her. Bowels move every day. Before each menstruation there is an attack of diarrhœa. Loss of flesh and strength.

*Physical Examination.*—Pulse, 88, broad, weak, irregular in force and rhythm. Conjunctivæ jaundiced, pupils fully dilated. Lips pale, tongue clean and pointed. An anæmic murmur in the neck, but none in the second left intercostal space. At the apex there is a shortened first sound, varying in intensity and irregular in rhythm. Reichert's hæmoglobinometer, fifty-six per cent. Ordered Weld's iron, three drachms three times daily.

*February 14th.*—After an interval of sixteen days, she flowed six days, the first three days as usual, the last three there was an improvement. Pain during the first day in the stomach, some headache, but less than formerly. Less pain in stomach, no diarrhœa. Reichert's hæmoglobinometer, seventy-one per cent. Ordered Weld's iron, two drachms three times daily.

*21st.*—Headaches, dizziness, fainting feelings were all improved; appetite good. Reichert's hæmoglobinometer, seventy-nine per cent. Ordered two drachms Weld's iron three times daily.

*March 12th.*—At the last period she flowed for six days; her head aches very little, the dizziness is better, there is no palpitation, and no fainting; no shortness of breath and very little pain in the stomach; food does not distress her; pulse, 72; heart beats stronger than at last report. The murmur in

the neck is less loud. Reichert's hæmoglobinometer, eighty-seven per cent. Ordered Weld's iron, two drachms three times daily.

22d.—No murmur is now heard, and she has greatly improved in appearance and feelings.

April 4th.—No headaches; she has slight dizziness and is restless at night; pulse, 68, good. Reichert's hæmoglobinometer, one hundred and three per cent. Discharged well.

CASE V. January 26, 1892.—E. H., Ireland, aged nineteen, single. Sick five weeks. She was a tea fiend. Vomited after eating, but not at other times. Pain in stomach before vomiting. The matter vomited is food unchanged. Belches wind. Bowels irregular, constipated, move two or three times a week, pain before movement. The head aches in left frontal region, dizziness, shortness of breath on walking, violent palpitation on ascending stairs. Menstruation absent for two months, usually irregular, from five to seven weeks, flows three days, color good, no pain. She has been losing flesh of late and has poor appetite.

*Physical Examination.*—Pulse, 92, weak, compressible, small. Conjunctivæ pearly. Tongue pale, tremulous, flabby. Anæmic murmur in neck, also in second left intercostal space. Apex beat and sounds normal. Reichert's hæmoglobinometer, forty-nine per cent. Ordered Weld's iron, three drachms three times daily.

February 24th.—No vomiting or stomach pain, headache absent, palpitation and dizziness improved. Anæmic murmur in neck, also in second left intercostal space. Reichert's hæmoglobinometer, sixty-five per cent. Ordered Weld's iron, two drachms three times daily.

March 10th.—Has returned to tea-drinking and has some vomiting, otherwise improved. Anæmic murmur in second left intercostal space is now absent. Reichert's hæmoglobinometer, seventy-eight per cent. Ordered Weld's iron, two drachms three times daily. Tea was forbidden.

15th.—Considerable improvement; vomiting has completely disappeared; murmurs now heard only in neck. Hæmoglobinometer, ninety-one per cent. Ordered Weld's iron, two drachms three times daily.

April 12th.—This patient has not yet reported, but, judging from her improvement, she is now well.

CASE VI. February 4, 1892.—L. C., United States, aged eighteen, single. Sick two weeks. Two weeks ago she had cold in chest, cough, expectoration, which was whitish, hard to raise. Dizziness, shortness of breath. In menstruation considerable pain, but nothing else unusual. Headaches on top of head, sometimes fainting feelings. Obligated to sit down suddenly. Bowels very constipated. Poor appetite. Food distresses her; nausea.

*Physical Examination.*—Pulse, 98, small, feeble, slightly irregular. Conjunctivæ pale, pearly. Mucous membranes anæmic. Tongue coated, tremulous, and flabby; anæmic murmur in neck and second left intercostal space and roughened respiration. Reichert's hæmoglobinometer, fifty-two per cent. Ordered Weld's iron, three drachms three times daily.

18th.—Much improved, but is still weak; shortness of breath and headache still present, but not so marked. Cough and expectoration less, appetite much improved; bowels now regular, food does not distress her; pulse, 90, of fair volume, and respiration normal; anæmic murmur in second left intercostal space less marked. Reichert's hæmoglobinometer, seventy per cent. Ordered Weld's iron, three drachms three times daily.

March 15th.—Murmur heard only in neck, and that is not marked; slight cough, dyspnoea absent. Reichert's hæmoglobinometer, eighty-two per cent. Ordered Weld's iron, two drachms three times daily.

April 6th.—Feels perfectly well. Hæmoglobinometer, ninety-five per cent. Iron to be continued in same dosage for two weeks. Discharged from observation.

CASE VII. February 12, 1892.—S. M. F., United States, aged thirteen; sick one year. Complains of headaches, dizziness, languor for several months; fair appetite; sweats easily; coated tongue; constipation, sometimes palpitation. Cold does not result in cough, but tonsils rapidly enlarge. Has not menstruated.

*Physical Examination.*—Pale, skin soft, easily grasped, blue veins showing on forehead. Conjunctivæ pearly; lips pale; mucous membranes the same. Anæmic murmur in neck, also in second left intercostal space. No pulmonary signs; abdomen full. Scapulæ prominent. Expansion half an inch in chest, showing thirty-six inches on expiration; muscles soft. Pulse, 78, weak. Reichert's hæmoglobinometer, eighty-three per cent. Ordered full diet, pulmonary gymnastics, and Weld's iron, one drachm three times daily.

March 7th.—Great improvement in appearance as regards muscles, but still anæmic murmurs are present. Abdomen less protuberant, scapulæ less prominent. Reichert's hæmoglobinometer, eighty-seventy per cent. Ordered Weld's iron, two drachms three times daily.

21st.—Chest expansion, two inches in expiration; its measurement is twenty-nine inches. No murmurs. Checks and lips of good color. Pulse, 72, good. Reichert's hæmoglobinometer, ninety-two per cent. Ordered Weld's iron, two drachms two times daily.

April 10th.—Chest expansion, two inches in expiration; its measurement is twenty-nine inches and a half. Feels very well. Reichert's hæmoglobinometer, ninety-nine per cent. The iron discontinued.

CASE VIII. February 8, 1892.—M. S., France, aged thirty-two; sick one month. Always healthy; for the last month headache in temples constant, sleep interrupted by it. Vomiting of food and mucus for two days; some pain in stomach; poor appetite; bowels regular every day. Of late some dry cough; palpitation on exertion; never dyspnoea. Loss of flesh; no swelling of feet; sometimes fainting feelings.

*Physical Examination.*—Tongue pale and flabby; mucous membranes pale; anæmic murmur in neck, also in second left intercostal space; apex sounds weak; pulse, 90 and weak. Menstruation regular, but scanty and pale. Reichert's hæmoglobinometer, sixty-six per cent. Ordered Weld's iron, two drachms three times daily.

22d.—Less headache and vomiting; palpitation now seldom; no fainting; pulse, 88; heart sounds better, though appetite is still poor; no murmur in second left intercostal space. Reichert's hæmoglobinometer, eighty-five per cent. Ordered Weld's iron, three drachms three times daily.

March 16th.—Her appetite has much improved. Pulse, 72, good. Reichert's hæmoglobinometer, ninety-six per cent. Ordered Weld's iron, two drachms three times daily for two weeks, and then to report if not perfectly well.

CASE IX. February 11, 1892.—E. S., United States, aged nineteen, single; sick six months. Cough not severe, does not keep her awake at night; no vomiting; expectoration whitish, scanty, and easy to raise; generally only in the morning. Palpitation of heart; shortness of breath, however, is absent. She has lost flesh and more strength. Her headaches are constant. She never faints; has cold hands and feet, but no dizziness; appetite good; food does not cause distress; constipation; has no menstrual symptoms, except scanty flow and cramps.

*Physical Examination.*—High-pitched inspiration and expiration at right and left apices; whistling bronchophony; crepitant râles down to upper border of third rib; rest of chest

normal; first and second sounds of heart accentuated; anæmic murmur in neck slight; soft blowing ventriculo-systolic murmur at apex. Pulse, 72, weak, but regular. Lips pale, œdematous, mucous membranes pale. Reichert's hæmoglobinometer, seventy-one per cent. Ordered Weld's iron, three drachms three times daily.

*February 25th.*—Cough improved; expectoration yellowish. No palpitation or shortness of breath. Feet now cold, but not the hands. Has had no menstruation since January 15th. Pulse, 66, of better volume. Lips not so pale. Reichert's hæmoglobinometer, eighty-five per cent. Ordered Weld's iron, two drachms three times daily.

*March 10th.*—Has but little cough and scanty expectoration. No coldness of feet. Has menstruated since last report. Color improved, otherwise no change. No murmurs either in neck or apex. Reichert's hæmoglobinometer, ninety-four per cent. Ordered Weld's iron, two drachms three times daily.

*23d.*—Feels first-rate; has no headaches, no coldness of hands or feet. Pulse, 68, good. Inspiration less high pitched; no whispering bronchophony; no râles. Pulmonic second sound slightly accentuated. Hæmoglobinometer, one hundred and two per cent. Ordered to stop iron; discharged well.

CASE X. *February 11, 1892.*—M. O'B., United States, aged seventeen, single; sick five weeks. Suffered from chorea three years ago, with repetitions each spring. Constant headaches at vertex keep her awake at night. Shortness of breath on exertion; palpitation, which is fluttering, on ascending stairs; also pain about the waist; frequent fainting; dizziness; sometimes ringing in her ears; appetite poor; food distresses after eating; nausea, but no vomiting; bowels regular; cold hands and feet. No disturbance in menstruation, except cramps. The feet swell, also the face

*Physical Examination.*—Lips pale; œdematous. Pulse, 96, weak and irregular. Anæmic murmur in neck, also ventriculo-systolic murmur at second left intercostal space and at apex. Reichert's hæmoglobinometer, fifty-one per cent. Ordered Weld's iron, three drachms three times daily.

*February 25th.*—Slight chorea in left side of the face and in the left arm. Headache better; does not keep awake nights at present. No pain or palpitation of heart; dizziness on two occasions; feet still cold; has not been unwell for five weeks; feet do not swell, neither does the face. Pulse, 84, more regular. Murmurs are still present. Reichert's hæmoglobinometer, seventy-two per cent. Ordered Weld's iron, two drachms three times daily.

*March 17th.*—Menstruation since last report, but not unusual. Shortness of breath improved; no palpitation; appetite good; no distress after eating. Pulse, 72, still weak. Murmur at the apex very faint. Chorea diminished. Reichert's hæmoglobinometer, eighty per cent. Ordered Weld's iron, two drachms three times daily.

*30th.*—Chorea less marked. Murmurs only in the neck. Pulse, 68, better force. Hæmoglobinometer, ninety-one per cent. To continue with Weld's iron for a month.

CASE XI. *February 14, 1892.*—A. C., United States, aged twenty-one, single; sick for four years. Tubercular family history. For the last two years she has been subject to colds. Cough usually not marked, save in the morning; no expectoration; appetite poor; never distressed after eating. She sometimes complains of dizziness and faintness; sometimes dyspnoea and palpitation, especially on exertion. Four years ago she had infiltration of the right apex, which was presumably tubercular.

*Physical Examination.*—Slight dullness over the right apex, and increased transmission of voice sounds, especially the whispered voice; markedly high-pitched and prolonged inspiration;

no râles. Pulse, 92, weak. Pupils dilated; conjunctivæ pearly. Anæmic bruit in neck on right side; no heart murmurs. Reichert's hæmoglobinometer, fifty-three per cent. Ordered Weld's iron, three drachms three times daily.

*March 7th.*—No cough, appetite good, no dizziness, no faintness or shortness of breath, and very little palpitation, save on ascending stairs; no headaches. Her food does not distress her after eating; bowels regular every day. Reichert's hæmoglobinometer, seventy-one per cent. Ordered Weld's iron, two drachms three times daily.

*20th.*—Appetite excellent; feels generally better. Pulse, 68, good. Lips good color, no anæmic bruit in neck, and all pulmonary signs have improved markedly. Reichert's hæmoglobinometer, eighty-eight per cent. Ordered Weld's iron, two drachms three times daily.

*April 10th.*—Has markedly improved. Pulse, 66, good force and volume. Hæmoglobinometer, ninety-nine per cent. Ordered to omit all medication.

CASE XII. *February 16, 1892.*—K. M., United States, aged nineteen, single. Sick three months. Always well until this. Complains of shortness of breath on exertion, palpitation of heart, throbbing in epigastric region, and sometimes coldness of hands and feet; headaches on top of head constant, but worse on being tired; dizziness; sometimes weak and fainting spells. She has no cough or expectoration, no swelling of feet; is regular in menstruation, pain before flow for three days, flow becoming more scanty and pale; appetite good; bowels constipated; no distress after eating.

*Physical Examination.*—Pulse, 102, weak. Skin and conjunctivæ pale. Tongue clean, tremulous, and flabby. Loud anæmic murmur in right side of neck. Rough blowing murmur in second left intercostal space. First sounds of heart weak; tenderness of liver, but no enlargement; spleen normal, no pulmonary signs. Reichert's hæmoglobinometer, forty-six per cent. Ordered Weld's iron, three drachms three times daily.

*March 5th.*—No shortness of breath, palpitation improved, feet still cold; has had one attack of headache which lasted three days; no fainting. Last menstruation was, as usual, of scanty flow with pain. Her appetite has markedly improved; anæmic murmur in neck and second intercostal space still present, although not so loud. Reichert's hæmoglobinometer, sixty-two per cent. Ordered Weld's iron, three drachms three times daily.

*15th.*—Shortness of breath the same, headaches improved, also palpitation. Pulse, 71, good. Reichert's hæmoglobinometer, seventy-four per cent. Ordered Weld's iron, half an ounce three times daily.

*April 2d.*—Has no symptoms excepting occasional headaches. Pulse, 68, good. No murmurs. Reichert's hæmoglobinometer, ninety-eight per cent. Patient discharged well.

In making an analysis of these cases, we may say that the cause of the anæmia in Case I was a state of malnutrition following diabetes and arising in the liver. Cases II, VIII, and XII evidently became anæmic through overwork, loss of fresh air and sunlight. Case IV is accounted for by the menorrhagia from which she suffered, and which was cured during the last week of observation by curetting of the uterus under ether: her improvement, however, dated from the commencement of the treatment by iron. Dyspepsia evidently was the cause of the anæmia in Case III, which could well be named as one of Sir Andrew Clark's fæcal anæmias. I believe that the cure was obtained quite as readily with the administration of iron as it would have been with beta-naphthol, and I speak after considerable ex-

perimentation with intestinal antiseptics. Case X developed her usual spring chorea while under treatment, yet the attack was mild and improved rapidly. Case V was a tea fiend, and a great portion of the result could be justly assigned to the breaking off of the habit. Cases VI, IX, and XI were of the tubercular diathesis, and Case VII should be added here, as the condition was one of hypotrophy, such as has recently been described by Solis-Cohen. Iron, when change of life, scene, and habit can be obtained, is certainly a most valuable prophylactic. In all these cases outdoor exercise was insisted upon, for iron to be of the most value must be sunned, regular hours for sleep and meals and a nitrogenous diet prescribed, and the bowels regulated by cascara sagrada and glycerin.

*Conclusions.*—1. In anæmia iron is by far the best remedy.

2. Of all preparations, the tincture of the chloride is the most valuable.

3. This preparation is objectionable in that it excites nausea, disgust, and vomiting, stains and destroys the teeth.

4. These disadvantages are obviated in Weld's syrup of the chloride of iron.

5. In removing these disadvantages, its therapeutic efficacy is not in any way impaired.

690 MADISON AVENUE, April 12, 1892.

## THE SARATOGA WATERS:

THEIR USES AND ABUSES.\*

BY LEONARD S. RAU, M. D.

In taking up this subject, I do so in order to try to revive an interest in the medicinal use of these waters rather than to hope to be able to say anything new about them; for they have been used and abused for so many years, and there has been so much written about them, that it would be presumptuous on my part to attempt to tell you anything new. After practicing for four summers at one of the principal hotels in Saratoga, I have seen and learned much in regard to these waters, and, as some of my experiences have been interesting and instructive, I make this my plea for reading a paper to you on so old and threadbare a subject.

Let me begin by dividing the principal waters into several general classes: First, the cathartic waters, as represented by the Congress, Hathorn, Empire, Carlsbad, etc. Next the alkaline waters, such as Vichy, Kissingen, and Geyser. Then the iron waters, examples of which are the Columbian and Washington. Besides these may be mentioned the High Rock (the oldest of all), the Excelsior, the Red Spring with its baths, the Favorite, the Patterson, the White Sulphur, the Hamilton, etc. There are some twenty-eight in all, and they contain the various *salts, iodine, iron,* etc. Careful analyses have been made of each, but I shall not trouble you with any of these.

It would seem natural to believe that even a layman could understand that a combination of all, of many, or even of several of these waters, might bring disastrous results,

and yet it has been my privilege to see this very thing done over and over again. Early in the summer of 1890 the Kensington Hotel was visited by a large number of school teachers on their annual excursion. They received invitations to visit the various springs, and, starting out early in the morning, they began to drink the waters, and some of them were not content until they had tasted of all the various kinds, so that when night came I was kept busy going from one patient to another, trying to relieve most violent colicky pains and endeavoring to control severe diarrhœas. Some of the patients told me frankly that they drank anywhere from twenty to twenty-five glasses of water that day. It is useless to add that fruits, corn, salads, pastries, and what not were freely indulged in whenever they found a few moments spare time between their drinks. Seriously speaking, however, some of the cases suffered intensely; several showed marked symptoms of collapse, requiring considerable stimulation, morphine, atropine, etc.; and one case terminated fatally, whether or not as a direct result of drinking the water I am unable to say, for I could not get a complete history of the case. I shall take the liberty of briefly relating as much of the history as I was able to obtain:

Miss B., aged twenty-five, teacher, sent for me on the night of the 8th of July, 1890. She had been perfectly well up to this time. I found that she had been drinking the waters freely, and that toward evening she was seized with vomiting and diarrhœa and severe griping pains. I applied a mustard leaf over the epigastrium and gave a powder of bismuth, opium, and ginger, which was to be repeated hourly until the vomiting and diarrhœa were controlled. She took in all three powders, each containing half a grain of powdered opium. Next morning, though weak, she left Saratoga with the rest of the party for Lake George. A week later I received a letter from New York stating that she had had no vomiting or diarrhœa after she took the third powder, but that twenty-four hours after I had last seen her, while on her way home, she was seized with intense pains in the abdomen. Physicians were summoned. They found her suffering with general peritonitis and she died on the fifth day. This was certainly a very sad termination of an excursion.

Many people, some physicians included, consider the waters worthless and ineffective. My experience just related may perhaps convince them to the contrary. There is and can be no doubt that if the waters are properly used and a regular diet observed—the patients, in other words, living "*Kurgemäss*"—much benefit may be derived from their use. My friend Dr. Burchard, in a paper on this subject written some few years ago, strikes the key-note of the situation by saying: "The trouble is that the people won't eat porridge instead of birds, especially when they have to pay for birds and not for porridge." Another great trouble is that the springs are owned by private individuals, whose principal object, of course, is to make their spring a financial success. The result is that men are continually boring for new springs, and every little while they meet some old spring in their search for a new one, the waters become mixed, and the old and what was believed to be re-

\* Read before the Metropolitan Medical Society, December 9, 1891.

liable spring becomes polluted. Of course, the owner soon finds out the trouble, but he can not afford to close his spring while the damage is being repaired, and consequently the public are the sufferers. This fact was demonstrated in the summer of 1888, when a number of my patients, by only drinking one or two glasses of Hathorn water, were seized with violent cramps and vomiting. Other physicians had similar experiences, and inquiry showed that the water had become mixed with the water from another spring. The damage was, however, quickly repaired. The springs do not seem to be in the same condition every year, so that patients often say to me: "Doctor, why is it that last year one glass of water acted splendidly on me, whereas this year two or even three glasses seem to have little if any effect?" I can only explain this fact by supposing that the waters really do change in character, for a time at least. And now in reference to the question of the springs being doctored. It is, of course, next to impossible to obtain any definite information in regard to this matter. I am willing to believe that the springs at times are charged with carbonic-acid gas, but have no positive evidence to that effect; but I do not believe that salts and other ingredients are added to them.

The fact of the springs changing in character leads me to speak of the recommending of different waters by physicians living at a distance from the springs. Patients before leaving the city go to their physician and say: "Doctor, I am going to Saratoga; what water shall I drink?" and he recommends one in good faith, of course, but in reality knowing nothing about the condition of the water. To illustrate this: I called on a medical friend on my return from the springs one fall, and he asked me which cathartic water I found most satisfactory. I told him the Empire. Next summer all his patients were drinking Empire; but it so happened that this was an off year for Empire, so the result was unsatisfactory for both physician and patients. Many people, too, drink the waters because they are so accessible, and think that on general principles they will do them good, for it would never do to be in Saratoga and not drink the waters. Over and over again, while walking on the piazza or in the corridor of the hotel, I am accosted by an acquaintance, who stops me and asks in an off-hand way (of course, he does not expect to pay for this): "Doctor, what water do you think I had better drink?" or, "Don't you think that Congress is a very good cathartic and would do me good?" As to his physical condition, of course, I know nothing, and yet he wants me to recommend medicine for him. They drink the waters as they please, or as their friends advise them, and then, when they obtain no beneficial results, the natural inference is that the waters are worthless. I assure you, gentlemen, that I am not consulted ten times during a season as to just what waters to drink, how to drink them, and how to live while drinking them; and some of my Saratoga colleagues tell the same story. You all know how different this is in Europe. There every watering-place has its regularly appointed physicians; the people come from all over the world and consult one of these physicians; he lays out a plan of diet and a mode of living, extending over from three to six weeks, and the pa-

tients carry out these rules conscientiously—in fact, they have to; they have no alternative. But how is it in Saratoga? The people go there, seldom if ever consult a physician, immediately begin to drink the waters *ad libitum*—the Congress, the Hathorn, or what not—eat everything on the varied bills of fare, go to the races, indulge in their favorite mixed drinks, gamble till early morning, and then, after a couple of weeks, grow weary, or their funds give out, they leave the place thoroughly disgusted, rather worse than better, and regretting not having gone to Carlsbad instead. Other people really do get up early, drink their water conscientiously, but pay little or no attention to diet. There is no doubt in my mind, and I could cite a number of cases to illustrate this, that, did the people who come to Saratoga to drink the waters, drink them as they would do or have to do abroad, they would obtain just as much benefit therefrom, for there can be no doubt of the cathartic and cholagogue action of the Congress, Hathorn, Empire, etc., or of the antacid and diuretic action of the Vichy, Kissingen, or Geyser. I have obtained most excellent results in cases of constipation, gastro-duodenitis, hepatic engorgement, gastritis, dyspepsia, etc., by recommending a plan of treatment somewhat as follows:

Rise at 7 A. M.; go to the spring (Congress, Carlsbad, Hathorn, or Empire); drink a glass of water *hot*; walk for ten minutes; another glass of water, hot or cold; walk for half an hour to an hour. Breakfast, consisting of milk, eggs, meat, coffee, or tea diluted. Avoid raw fruit, hot rolls, or fresh bread. Then go to stool. At 11 A. M. one to two glasses of Vichy (medium); walk for half an hour or so. Dinner at two. Eat no fried meats or fish, no salads, no corn, no pastry, no raw fruit. Take a rest or a nap till five, then a walk or a drive. At six, one glass of Vichy. Supper at 7:30. Light diet—milk, toast, eggs, stewed fruit. At nine, another glass of Vichy, and retire at ten. This plan to be kept up for not less than three weeks, avoiding all mental excitement. If there is a rheumatic tendency, the Red Spring or magnetic baths three to four times a week, Vichy with meals and Geyser at night, have given me satisfactory results. Diabetics and patients with uric-acid diathesis do extremely well on Vichy or Kissingen in large quantities. In chlorotic and anæmic patients I have been much pleased with the effects of Columbian or Washington (the iron waters), being careful to tell my patients only to drink these waters from one and a half to two hours after eating, for, unless these directions are given, the patients always complain of severe headache after taking the water. These waters just mentioned I have found most satisfactory; but there is no doubt of the efficacy of many of the others, and the paper would be too long were I to attempt to describe the uses of each of the twenty-eight springs.

Unfortunately, the great mass of people who visit these springs annually do so for recreation rather than health, so that the noise, the excitement, the style, gambling, racing, etc., keep away the invalids, who know that in the height of the season they can obtain little rest, for, although they may not care to participate in the festivities, still they feel them to be somewhat contagious, and are not

sure that they can resist the various temptations, and so prefer to stay away. The majority of those drinking the waters do so as a pastime, obtain little, if any, beneficial results, and return to their homes firmly convinced that the waters have lost their efficacy and that Saratoga can no longer be considered a health resort. This view is being rapidly spread over the country, and unless radical means are taken to convince people to the contrary, this resort will soon be a thing of the past, as a watering-place, at least. Let me, for one, raise my voice against these abuses and try to make you gentlemen believe as I do—that the virtues of the Saratoga waters exist now just as they always did, only they are not taken advantage of. No one who knows Saratoga will deny the healthfulness of the place, with its bracing air, dry climate, and magnificent trees. Perhaps I can give no better proof of this than by telling you that at the Kensington Hotel, where many families with a countless number of children of all ages congregate every summer, in the past four summers there has not been a child ill for five consecutive days. I doubt whether any physician can furnish better statistics than that.

Much can be done by physicians to correct this erroneous idea of the lost virtues of Saratoga. Let them, instead of in an off-hand way saying to their patients: "Oh, go to Saratoga for a few weeks, drink the waters and enjoy yourselves," tell them to consult a physician when they get to the springs. Let them give their patients a letter to the physician, stating the nature of their ailments, etc. The owners of the springs should either consolidate into a stock company for mutual benefit and protection, or there should be some State supervision and each spring should have its own physician whom patients can consult if they so desire, and who will see that the spring is in a good condition and that the patients are taking the waters according to their physicians' directions. The hotel managers should have printed bills of fare for people who drink the waters, these to contain no article of food which ought not to be taken while drinking the waters.

By some such means as these much, very much, could be done to change the rapidly developing opinion of the inefficacy of the Saratoga waters, and thousands who now cross the ocean every year to obtain relief could obtain it in their own country without the annoyance of an ocean voyage, foreign travel, and expense, and, furthermore, they would tend to bring back Saratoga, the garden-spot of America, to its former glory and usefulness.

72 WEST FIFTY-FIFTH STREET.

**Meetings of State and National Medical Societies for the Month of June.**—State Medical Society of Arkansas, 2d, Little Rock; Oregon State Medical Society, 2d, Portland; Rhode Island Medical Society, 2d, Providence; American Academy of Medicine, 4th, Detroit; American Medical Association, 7th, Detroit; Massachusetts Medical Society, 7th, Boston; Maine Medical Association, 8th, Portland; South Dakota State Medical Society, 8th, Salem; Delaware State Medical Society, 14th, Dover; Minnesota State Medical Society, 15th, St. Paul; American Association of Genito-urinary Surgeons, 20th, Richfield Springs, N. Y.; American Ophthalmological Society, 20th, New London, Conn.; New Hampshire Medical Society, 20th, Concord; Colorado State Medical Society, 21st, Denver; Medical Society of New Jersey, 28th, Atlantic City.

## A MODIFICATION OF WYETH'S METHOD OF BLOODLESS AMPUTATION AT THE HIP JOINT.

BY STEWART LEROY MCCURDY, M. D.

DENNISON, OHIO,  
PROFESSOR OF ORTHOPEDIC AND CLINICAL SURGERY,  
OHIO MEDICAL UNIVERSITY, COLUMBUS, OHIO;  
LECTURER ON TOPOGRAPHICAL ANATOMY AND LANDMARKS,  
WESTERN PENNSYLVANIA MEDICAL COLLEGE, PITTSBURGH, PA.;  
SURGEON, P. C. C. AND ST. L. RY. CO.

THE advance made in amputations at the hip joint, as suggested by Professor John A. Wyeth, must be considered one of the principal ones in modern operative surgery. The operation is described by Wyeth as follows:

The patient being placed in position with the hip of the side to be operated on well over the corner of the table, the foot is elevated, and an Esmarch bandage applied to drive the contained blood toward the heart. The bandage should not be tightly put on over the seat of the disease for fear of driving septic matter into the circulation. With the rubber bandage still in position, the needles are next introduced.

Two steel mattress needles, three sixteenths of an inch in diameter and a foot long, are used. The point of one is inserted an inch and a half below the anterior superior spine of the ilium and slightly to the inner side of this prominence, and is made to traverse the muscles and deep fascia, passing about half way between the great trochanter and the iliac spine, external to the neck of the femur and through the substance of the tensor vaginae femoris, coming out just back of the trochanter. About four inches of the needle should be concealed by the tissues.

The point of the second needle is entered an inch below the level of the crotch, internally to the saphenous opening, and passing through the adductors comes out about an inch and a half in front of the tuber ischii. No vessels are endangered by these needles. The points are protected by corks to prevent injury to the operator's hands.

A piece of strong, white rubber tube, half an inch in diameter and long enough when tightened in position to go five or six times around the thigh, is now wound very tight around and above the fixation needles and tied.

The Esmarch bandage is removed, and five inches below the tourniquet a circular incision is made, and a cuff, which includes the subcutaneous tissues down to the deep fascia, is dissected off to the level of the lesser trochanter, at which level the muscles and vessels are divided squarely and the bone sawed through. All vessels (including the veins) which can be seen are tied with catgut, and the smaller bleeding points can be discovered by slightly loosening the tourniquet, which is then entirely removed.

The remaining portion of the femur is now easily enucleated by dividing the attached muscles close to the bone and opening the capsule as soon as it is reached. . . .

One other important point I wish to emphasize—viz., the advisability in certain cases of doing this operation in two sittings.

In one of my cases the patient was greatly exhausted, and after dividing the femur at the lesser trochanter and securing the vessels, fearing the supervention of shock, as indicated by the pulse, I closed the wound, which healed by first intention. At the first dressing (on the seventeenth day), the remaining portion of the bone was removed by an incision over the trochanter major. The recovery was uninterrupted.

I should prefer to complete the operation at one sitting, but cases will occur where the danger of shock may be obviated by stopping short of enucleation, leaving this for a week or two when reaction and convalescence are assured.

In neither of my cases was there any bleeding, and, in fact, amputation at the hip joint is now a bloodless operation.

I have some hesitation in even presenting a modification of an operation devised by so eminent a surgeon, and one that has been so extensively used by surgeons throughout the country. It has occurred to me, however, that the disadvantage of even having it necessary under extreme circumstances to subject a patient to a second operation should be avoided if possible.

Some have been content with what is known as Jordan's operation, which is performed by making an incision from over the greater trochanter to the end of the stump and down to the bone. The head of the bone is then disarticulated and the soft parts are dissected from the trochanters and shaft down to a line with the lower edge of the flap. The head of the bone thus liberated is swung out so as to admit the assistant's hand into the cavity, pressure being made internally upon the femur with one hand and externally with the other hand. With the assistant still at his task of controlling the vessels, the surgeon proceeds to make the flaps, ligate the femoral, etc.

To perform this operation well, one must have a skillful, trusty, and, above all, muscular assistant. The task of controlling the femoral artery with the fingers while the hip joint is opened and the head and neck of the femur are dissected from the dense soft structures surrounding it, with the making of the flap and the ligating of the vessels, is, to say the least, trying.

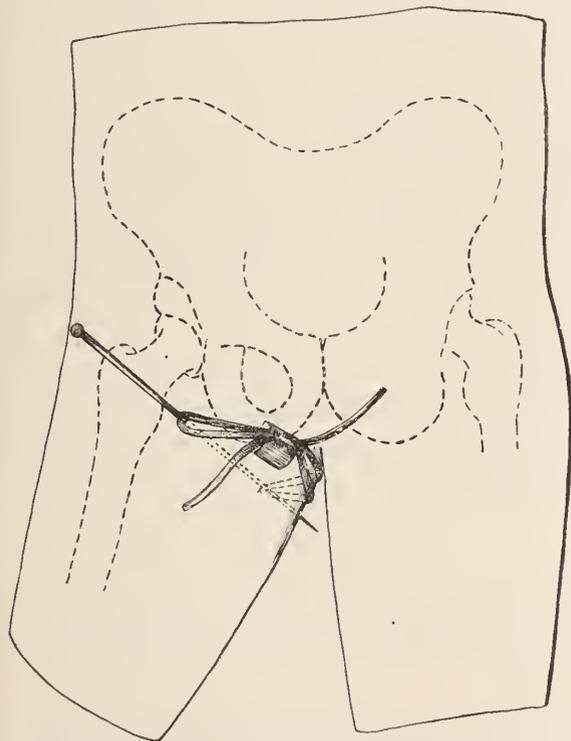


FIG. 1.

An effort has been made to combine what appears to be the advantages of both the above-described methods, and at the same time make the operation as bloodless as Wyeth's and as rapid as Jordan's. As is shown in the accompanying drawing, the Wyeth operation is so modified

as to be performed with but one needle instead of two, and *always at one sitting.*

First draw a line from the most prominent point of the greater trochanter to the perinæum. The needle is entered on this line at a point just internal to the femur, and is passed directly through the thigh so as to make its exit just below the *tuber ischii*. Passed through at this point the needle will be external to all the important blood-vessels, and the only hæmorrhage possible will be from the smaller vessels upon the external aspect of the thigh. A figure of 8 is now made by throwing a round rubber tourniquet around the projecting ends of the needle, over the internal aspect of the thigh, sufficiently tight to destroy femoral pulsation beyond the tourniquet. The flaps are now made, which is followed by disarticulation.

After ligating the blood-vessels, the cord and needle are removed and the stump is ready for final dressing. The point of the needle should be guarded, as Wyeth suggests, with a cork.

The second cut is prepared in view of carrying out the same idea of a bloodless amputation at the shoulder joint.



FIG. 2.

The steps in such an operation are at once suggested to the surgeon, after having studied the rules laid down for the hip operation.

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**The Death of Dr. Samuel H. Orton**, formerly of New York, took place at South Norwalk, Conn., on April 26th. He was a graduate of Princeton College and of the College of Physicians and Surgeons of the class of 1852. He was prominent as a surgeon in the regular army, during the late war, at Newark, at New Orleans, at Fort Schuyler, and elsewhere. He resigned from the army at the close of the war, and was appointed examining surgeon of recruits at New York, in which office he remained until the spring of 1891. He was in his sixty-third year at the time of his death.

**The Lenox Medical and Surgical Society.**—At the next meeting, on Monday evening, the 9th inst., Dr. Freeman will read a paper on The Dispensary Abuse.

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PUERPERAL ECLAMPSIA.

This topic formed the subject of a very interesting discussion at a recent meeting of the Berlin Medical Society. The discussion followed a paper by Professor Olshausen, who took a somewhat conservative view of the ætiology and treatment. He favored the self-intoxication theory, but would not commit himself as to the nature of the poison further than to say that it arose from a hindered functional activity of the kidneys. One of the speakers advanced the theory that the pathological factor was pathogenic bacteria, a theory which he said received support from the investigations of certain French bacteriologists of the micro-organisms in the urine of eclamptic patients. Still, he admitted that these investigations lacked reliability. In reference to the embola of fat found in the lung tissue, Virchow stated that they occurred very frequently and in great abundance. The same condition obtained in crushing injuries of bones, in which cases the fat presumably came from the crushed marrow. But that could not be the source of the fat embola in eclampsia, and they did not come from the liver, as was held by some. He maintained that they arose from the adipose tissue—which, he said, gynecologists were in the habit of styling connective tissue—of the pelvis, which was subjected to traumatism by the child's head during an eclamptic seizure. The embola, therefore, must be considered as an effect and not as a cause. In the many autopsies Virchow had made, the kidneys, in the majority of the cases, had shown only slight changes, such as were frequently seen in other conditions in which eclampsia did not occur.

In the matter of treatment, Dürrssen advocated his method of rapid delivery by incising the cervix, and if need be the vagina and perinæum, and extracting the child with the forceps or by turning. He regarded incision of the cervix as quite safe provided the upper part was dilated and the incision made through the lower, or vaginal, portion only. When the upper part of the cervix was not sufficiently dilated, he passed a thin-walled colpeurynter, filled it with air, and forcibly drew it down, thus dilating the internal os, and then he made the incisions into the lower part. The most recent statistics of puerperal eclampsia showed a maternal mortality of fifty per cent., and a foetal mortality of twenty-five per cent. Of twenty-six cases which he had treated in this manner, all the women had been saved and only two of the children had died.

Olshausen, while agreeing with Dürrssen as to the advisability of his method in certain severe cases, considered it too extreme to be applied in every case. Cases did occur in which the obstetrician could foretell, after the first or second seizure, that they would pursue a favorable course and that the uterus would empty itself without any interference. These cases

could be safely managed by the means hitherto employed, and without exposing the patient to the risk of what was, after all, a dangerous procedure. This seems the most reasonable view to take. Still, to our mind, credit must be given to Dürrssen for advocating a method that would have saved many a woman who has been sacrificed by the delay attending the means hitherto employed for evacuating the uterus of its contents.

PENSIONS FOR THE CITY HEALTH DEPARTMENT OFFICERS AND EMPLOYEES.

THE recent mortality among the employees of the health department who were exposed to typhus fever, as well as the past experience of that department in the death of officers and employees exposed to contagious diseases in the discharge of their official duties, has suggested the establishment of a pension fund for the benefit of their heirs, similar in features to the plan of the Police Pension Fund. A bill for this purpose that has been introduced into the Senate provides for the creation of such a fund, to consist of all fees for searches and transcripts of records of births, deaths, and marriages kept in the Bureau of Vital Statistics, all fines and penalties for violations of the sanitary code and health laws, and such sums as may be annually appropriated by the Board of Estimate and Apportionment from the proceeds of theatrical and excise licenses. The bill also provides that the board of health shall be the trustee of this fund, and grant pensions to any physician or employee of the disinfecting corps or of the hospitals for contagious and infectious diseases who, while in the performance of his duty or by reason of its performance, shall have become permanently disabled, either physically or mentally; such pension not to exceed one half or be less than one quarter of the annual compensation of such physician or employee. To a widow or minor children of such physician or employee a pension not to exceed \$300 per annum is to be granted, the pension to lapse if the widow remarries or when the children come of age. The bill further provides that any physician or employee may, after twenty years' continuous service in the department, on his own request or on a physician's certificate of disability, be retired on half pay, the latter not to exceed \$1,200 per annum, and to be continued during the life of the pensioner.

While the last clause in the bill is manifestly just—for the very nature of their occupation is apt to bring on early disability, like that of a soldier, a sailor, a policeman, or a fireman—still, at the present time it seems as if it might jeopardize the success of the remainder of the bill, as creating a new corps of pensioners.

It is unnecessary here to argue that death or disability incurred in the line of such duty is as heroic and as worthy of the proposed recognition by the State as that in the case of the policeman or fireman who strives to protect life and property. Indeed, it is comparable with that of the soldier or sailor who risks his life to protect his country from the invasion of an enemy, only in the present case we have the more insidious enemy, disease.

Any medical officer in the army or navy, engaged in such duty, could feel while discharging it that his widow and children would be cared for in case of his death. We believe that this consideration has nothing to do with the efficiency with which the duty is discharged, as is shown in the case of those officers of the Marine-Hospital Service, whose families are not pensioned, who have died in the discharge of dangerous duty, as well as by the loss of life among medical volunteers during the yellow-fever epidemics of 1873, 1878, and 1879. Still, this fair recognition of the existence of an obligation by the State might make the mental condition of an official engaged in such duty less anxious.

It is to be hoped that the present Legislature will enact this law, and do justice to an efficient class of public servants.

## MINOR PARAGRAPHS.

### A MEDICAL EDITOR ASSAULTED.

DR. JOSEPH H. RAYMOND, editor of the *Brooklyn Medical Journal*, made some editorial comments on the results of a libel suit recently tried in Brooklyn, in the May issue of that journal. These comments were to the effect that the outcome of the trial, which was unfavorable to the plaintiff, was acceptable to the medical profession of Brooklyn, and the editor promised a later and fuller review of the testimony. These comments were the occasion of an attempted assault upon the editor with a whip by Dr. Charles N. Dixon Jones, a son of Dr. Mary Dixon Jones, the plaintiff in the suit. If Dr. Raymond's opinion of the tone and judgment of the medical profession was correct, an assault upon him was the sure way to elevate him into the position of a martyr; if his opinion was incorrect, a horsewhipping was not in any wise likely to alter his mind for the better. There does not seem to be much opportunity for a cowhide in the argument of medical questions. The accounts, as given in the daily papers, indicate that Dr. Raymond was very little, if at all, injured. The notoriety is probably, however, excessively annoying, and can not be lessened, since he has indicated that he must prosecute his assailant.

### THE ALLEGED DISCOVERY OF A MEASLES BACILLUS.

ALLUDING to the alleged discovery by Dr. Canon and Dr. Pielicke, of the Moabit Hospital, Berlin, of a specific bacillus in the blood and various secretions of measles patients, the *Lancet* expresses its hope that the announcement is not another cry of "Wolf," unless it is to be the last one.

### ITEMS, ETC.

**The Michigan State Medical Society** held its twenty-seventh annual meeting at Flint on Thursday and Friday of this week, under the presidency of Dr. George E. Ranney, of Lansing.

**The New York Hospital.**—Dr. Frank Hartley has been appointed a surgeon to the hospital, to succeed Dr. Thomas M. Markoe, who recently resigned after forty years' service.

**Bellevue Hospital Medical College.**—Dr. A. Alexander Smith has been appointed professor of principles and practice of medicine and clinical medicine in place of Dr. E. G. Janeway, resigned. Dr. Hermann M. Biggs has been appointed professor of materia medica and therapeutics, pathological anatomy, and clinical medicine in place of Dr. Smith, and has been nominated attending physician to Bellevue

Hospital in place of Dr. Janeway. Dr. Henry M. Silver has been appointed demonstrator of anatomy in place of Dr. Biggs.

**A Correction.**—In Dr. Sachs's and Dr. Armstrong's article on Morvan's disease, the word "painful" in the sentence before the last on page 486, should be *painless*.

**Changes of Address.**—Dr. H. J. Boldt, to No. 51 West Fifty-second Street; Dr. S. J. Meltzer, to No. 66 East 124th Street.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from April 17 to April 30, 1892:*

PHILLIPS, JOHN L., Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect on the final adjournment of the board of officers convened by Par. 1, S. O. 32, c. s. Headquarters Department of Missouri.

DE LOFFRE, AUGUSTUS A., Captain and Assistant Surgeon, is granted leave of absence for fourteen days on surgeon's certificate of disability, with authority to enter the Army and Navy General Hospital, Hot Springs, Arkansas, for treatment.

JANEWAY, JOHN H., Major and Surgeon, is relieved from the further operation of so much of special orders as directs him, in addition to his other duties, to perform the duties of post surgeon at Frankford Arsenal, Pennsylvania.

By direction of the Secretary of War, Par. 13, S. O. 74, March 29, 1892, A. G. O., removing the suspension of the orders changing the stations of APPEL, AARON H., Captain, and CABELL, JULIAN M., First Lieutenant and Assistant Surgeon, is revoked.

RAFFERTY, OGDEN, First Lieutenant and Assistant Surgeon, is granted leave of absence for one month, to take effect on or about May 1, 1892.

SNYDER, HENRY D., First Lieutenant and Assistant Surgeon, granted leave of absence for one month and fifteen days, to take effect when his services can be spared by his post commander.

MUNDAY, BENJAMIN, Captain and Assistant Surgeon, is granted an extension of one month to leave of absence granted in S. O. 40, Department of Dakota, March 19, 1892. S. O. 98, A. G. O., April 26, 1892.

### Society Meetings for the Coming Week:

MONDAY, *May 9th*: New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Lenox Medical and Surgical Society (private); Boston Society for Medical Improvement; Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

TUESDAY, *May 10th*: Nebraska State Medical Society (first day—Omaha); New York Medical Union (private); Medical Societies of the Counties of Albany (semi-annual), Greene (annual—Cairo), and Rensselaer, N. Y.; Kings County, N. Y., Medical Association; Newark, N. J., and Trenton (private), N. J., Medical Associations; Camden (annual—Camden), Morris (annual), and Sussex (annual) County, N. J., Medical Societies; Norfolk, Mass., District Medical Society (election—Hyde Park); Franklin County, Vt., Medical Association (annual); Baltimore Gynecological and Obstetrical Society.

WEDNESDAY, *May 11th*: Nebraska State Medical Society (second day); New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Medical Society of the County of Albany; Pittsfield, Mass., Medical Association (private); Franklin (annual—Greenfield), Hampshire (annual—Northampton), and Worcester (annual—Worcester), Mass., District Medical Societies; Philadelphia County Medical Society.

THURSDAY, *May 12th*: Indiana State Medical Society (first day—Indianapolis); Nebraska State Medical Society (third day); New York Academy of Medicine (Section in Paediatrics); New York Academy of Medicine (Section in Genito-urinary Surgery); Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; South Boston Mass., Medical Club (private); Pathological Society of Philadelphia.

FRIDAY, *May 13th*: Indiana State Medical Society (second day); Yorkville Medical Association (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.

SATURDAY, *May 14th*: Indiana State Medical Society (third day); Obstetrical Society of Boston (private).

## Proceedings of Societies.

### NEW YORK ACADEMY OF MEDICINE.

SECTION IN GENERAL MEDICINE.

*Meeting of April 19, 1892.*

Dr. A. A. SMITH in the Chair.

**Anæmia; its Treatment with a New Preparation of Iron.**—Dr. REYNOLD W. WILCOX read a paper with this title. (See page 512.)

Dr. GEORGE W. WELD said that the preparation was practically non-alcoholic; the only alcohol in the syrup, so called, was the alcohol contained in ordinary tincture of chloride of iron, each half-ounce containing twenty drops. Regarding the name of syrup of chloride of iron, when one came to taste it, one would discover that it was not a syrup in the sense of the other syrups, which, as everybody knew, were apt to derange the stomach. In regard to its acidity, it was acid in reaction, and necessarily so to hold the basic salt of the iron in solution, for the moment any solution of iron was brought to a neutral point there would be precipitation of the basic salt, which in this case would be the hydrated oxide. The syrup was not acid enough to destroy the enamel of the teeth or to cause nausea or vomiting. Strictly speaking, there were five ingredients in the preparation—iron, saccharine matter, alcohol, oil of gaultheria, and an alkali used to neutralize the free hydrochloric acid. The oil of gaultheria and the hydrochloric acid were present in a very small percentage. Practically, then, there were only three ingredients—the alcohol, the iron, and the syrup. Some six or eight years before, in experimenting with tincture of chloride of iron, the speaker had placed a tooth in the tincture, and, on taking it out, after three hours, been very much surprised that the enamel was not destroyed in the slightest degree, because he had heard a great deal about the injurious effects of this particular preparation. He had thought it very strange, and had concluded there must be some mistake, but, in order to make sure, he had left it in for twenty-four hours, and on taking it out had again found that the enamel was not at all injured. Then his attention was called to an old experiment—that of putting zinc into strong sulphuric acid, when the zinc was not harmed in the least, but the moment water was added there was an immediate and powerful effect of the sulphuric acid. He then added some water to the tincture of chloride of iron and put the tooth into it. The enamel was entirely destroyed. [The speaker showed a number of teeth that had been immersed in solutions of tincture of chloride of iron of various strengths, which strikingly illustrated the destructive action upon the enamel.]

Dr. A. H. ELLIOTT said that his interest in this subject was purely from a chemical standpoint. Some six or seven years before Dr. Weld had got him interested in his endeavors to counteract the injurious action of tincture of chloride of iron upon the teeth, and, in order to get a thoroughly good idea of what he was working upon, he had made an examination of a lot of enamel of teeth, in order to see the kind of material that was being acted upon by tincture of chloride of iron. Then his

attention was called to the fact that acids generally acted very rapidly upon this enamel; in fact, as near as he could remember, one of the first experiments of the kind had been with a five-per-cent. solution of acetic acid—pretty good vinegar. In that case the teeth were attacked to such an extent that about five or six per cent. of the enamel was dissolved by this simple acid. Other acids would destroy enamel as well, the effect varying with the strength, provided, of course, there was no grease or alkali on the teeth to protect them. Then Dr. Weld had called the speaker's attention to the fact that he had concluded that he could add Vichy water to the tincture of chloride of iron, and thus counteract the acidity. Although this had rather amused him as a chemist, nevertheless he had done it, and had found out afterward by making experiments that he could neutralize the free hydrochloric acid in the tincture of chloride of iron by adding bicarbonate of sodium, which Dr. Weld was practically doing by the addition of Vichy water. By adding too much bicarbonate of sodium the point of neutrality would be passed, and the solution would then, of course, become distinctly alkaline. This naturally would not do, as precipitates would be thrown down, and the preparation be made entirely useless. It became necessary, therefore, to add the bicarbonate of sodium very carefully so that only the free hydrochloric acid would be neutralized, but the solution still be acid in reaction, in order to hold the salt of iron in suspension. The difficulty that Dr. Weld had met with in using Vichy water, or, rather, the difficulties, as there were two, had been, first, that he did not know the strength of the tincture of chloride of iron, for, although the druggists said it was made according to the United States Pharmacopœia, we all knew that there were variations in the amount of the free acid. In the second place, he did not know the strength of the Vichy water, so he could never tell just how much Vichy water to add to the tincture of chloride of iron, unless he had the Vichy water analyzed every time. So that this method of counteracting the corrosive action of the tincture of chloride of iron was not always successful, although it could be used in a number of cases, and he did use it in that way. The speaker had then thought that, if one could use the bicarbonate of sodium carefully and find out how much to add to a stipulated amount of tincture of the chloride of iron, the free hydrochloric acid could be neutralized, and yet the preparation still retain its acidity. This saturation point had been found and syrup of gaultheria added. The speaker still had a preparation of tincture of chloride of iron that had been treated by this method several months before, and there was not the slightest evidence of precipitation of any of the ingredients of the solution, whereas preparations of tincture of chloride of iron treated with Vichy water would precipitate if kept for any length of time.

He had obtained from various places in the city a number of samples of tincture of chloride of iron from pharmacists who were reliable. The actual amount of the solid chloride of iron averaged from 8.6 to 14.7 per cent.; so one could imagine what the preparations were. According to the United States Pharmacopœia, tincture of chloride of iron should contain about thirteen per cent. of the dry chloride. The acid over and above that necessary for the solution of the iron in it—for it must be remembered that metallic iron required a certain amount of hydrochloric acid to clear it—averaged from nothing in one to a sample which contained ten per cent. more than was necessary. A sample of syrup of chloride of iron obtained in the open market had been handed to him, and he had found no free acid in it, but more bicarbonate of sodium than appeared to be necessary. This had caused a curious chemical phenomenon to take place in the syrup—namely, the hydrochloric acid had acted on a portion, with the result that sodium chloride had been formed.

But this had resulted in this one preparation of the syrup, something that had been entirely unlooked for, but that added to the efficacy of the syrup, for in this preparation there were the bicarbonate of the sesquioxide of iron and the protochloride of iron—a very curious and happy outcome, from a chemical standpoint.

Dr. J. C. SMITH had used Reichert's hæmoglobinometer for several months at the same time with Gowers's, and was positive that the first-named instrument is not only more accurate in results, but also far easier of manipulation.

Dr. A. S. DANA spoke of a patient who, on March 2d, had been suddenly attacked with a severe chill, followed by very acute pleuritic pain in the left side. At the end of two weeks a purulent collection broke into the bronchial tubes, and large quantities of pus were evacuated. The patient was very much emaciated, and his anæmic condition became extreme, with severe cough, profuse night-sweats, and a very irritable stomach. He was immediately put on the use of tablespoonful doses of syrup of chloride of iron every four hours, and the dose was increased to three tablespoonfuls, with gratifying results. The cough was relieved to a great extent, the anæmic condition was rapidly improving, the stomach took kindly to the iron, and the patient was on the road to rapid recovery. He had been taking during the preceding two weeks an amount averaging seven ounces and a half of the syrup every twenty four hours, without any stomach irritation. The speaker mentioned also the case of a child, three months old, that had pronounced diarrhœa, milk passing through with the stools in an apparently undigested condition. The abdomen was much distended, and there were nausea and vomiting. After using the usual remedies with no apparent effect, the speaker had resorted to Weld's syrup of chloride of iron, giving teaspoonful doses every two hours. The improvement was marked, almost from the beginning, the nausea and vomiting were checked, the tympanites subsided, and the complexion of the child entirely changed for the better. In a number of other cases he had had unusual success with the same syrup.

Dr. C. E. QUIMBY called attention to a preparation of ozone, and said he believed it was now possible to make a permanent solution of ozone in a neutral menstruum.

## Book Notices.

*Diseases of the Urinary Apparatus.* Phlegmasic Affections. By JOHN W. S. GOULEY, M. D., Surgeon to Bellevue Hospital. New York: D. Appleton & Co., 1892. Pp. xiii to 342. [Price, \$1.50.]

MOST of this work having appeared in the *Journal* during the past six months, it will not be necessary to make any extended review of it for our readers. The old students from Bellevue Hospital especially, with the profession in general, will be glad to welcome Dr. Gouley's work upon the diseases of the urinary apparatus. It is not issued as a treatise on genito-urinary diseases at large, but is chiefly concerned with the phlegmasic affections, of which it is a good exposition, and well worth reading.

*The Medical Annual and Practitioners' Index: A Work of Reference for Medical Practitioners, 1892.* Tenth Year. Bristol: John Wright & Co. Pp. lii to 667.

THE yearly editions of this work have become so familiar to the medical profession that a review, properly speaking, would

be a waste of space and time. It is pleasant to note, however, that the editors have a progressive spirit which annually adds new features to the work. The Dictionary of New Remedies has been improved this year by the introduction of the chemistry of the new synthetic drugs and a dose table of the latest medicinal remedies. This part of the work has been in charge of Dr. Percy Wilde, and is thoroughly and concisely treated. For those who have access to few medical journals this book is invaluable in giving the latest views and methods of treatment of diseases, by the leaders of medical thought.

*Bacteriological Diagnosis: Tabular Aids for Use in Practical Work.* By JAMES EISENBERG, Ph. D., M. D., Vienna. Translated and augmented, with the Permission of the Author, from the Second German Edition, by NORVAL H. PIERCE, M. D., Surgeon to the Outdoor Department of Michael Reese Hospital. Philadelphia and London: The F. A. Davis Co., 1892.

THIS volume considers the subject of micro-organisms in three divisions—non-pathogenic bacteria, pathogenic bacteria, and fungi. The first are subdivided into bacteria that liquify gelatin and those that do not, and the second into those that may be cultivated outside the animal body and those that can not. The tabulation that is followed in the case of all micro-organisms insures their description under the headings of place found; form and arrangement; motility; growth on gelatin, agar-agar, potatoes, and blood-serum; temperature for the best growth; rapidity of growth; spore formation; aerobiosis; gas production; gelatin reaction; and color production.

The name of the micro-organism is followed by that of its discoverer and the title of the journal or book in which it was originally described.

In an appendix there is a description of the technique used in the cultivation and staining of bacteria that will be very useful in laboratory work.

There is no book in the English language that gives the information this does so concisely and yet comprehensively; and it needs but to be seen to appreciate that it is the most serviceable work we have for reference and use in the bacteriological laboratory. The translator has performed his work satisfactorily.

*A Practical Manual of Diseases of the Skin.* By GEORGE H. RONÉ, M. D., Professor of Materia Medica, Therapeutics, and Hygiene, and formerly Professor of Dermatology in the College of Physicians and Surgeons, Baltimore. Assisted by J. WILLIAMS LORD, A. B., M. D., Lecturer on Dermatology and Bandaging in the College of Physicians and Surgeons, Baltimore. Philadelphia and London: The F. A. Davis Co., 1892. Pp. viii to 303. [No. 13 in the *Physicians' and Students' Ready-Reference Series.*]

THIS little book was never intended for a systematic treatise. It is a book for the student or the busy practitioner whose time is too limited to allow him to go over the complete systems of dermatology in looking up the diagnosis of an ordinary case. Its descriptions are brief, but clear and intelligible. The chief diagnostic points of the different diseases are made prominent, and the most accepted methods of treating them are laid down without any theorizing. In his list of conditions for epilation by electrolysis the author forgets to mention the one important factor in the case—viz., a patient's willingness to stand the pain. The indiscriminate way in which the needle electrode is recommended to be inserted into the skin may lead some to believe that it is a perfectly painless procedure, but they will find out their error very soon. It requires considerable pride to undergo the pain necessary for this treatment. This, with a few other

such irregularities, almost necessary in a work of its size, constitute all there is in it to criticise. It is a thoroughly commendable little reference book.

*Psycho-Therapeutics*, or Treatment by Hypnotism and Suggestion. By C. LLOYD TUCKER, M. D., Member of the Medico-psychological Association, etc. Third Edition, revised and enlarged. London: Baillière, Tindall, & Cox, 1891. [Price, \$2.]

IN less than three years this work has gone through three editions, an evidence of the interest the profession takes in this subject and of the popularity of the volume.

The present book is larger than its predecessors, as the author has incorporated such criticisms and reports as have been published since the appearance of the last edition, with a view of throwing all the light possible on the theory of psychotherapeutics.

While there is a strong sentiment throughout the book regarding the value of hypnotism as a therapeutical agent, yet it is urged that the same discrimination should be exercised in its application as in that of any other remedial agent; and the frank acknowledgment of personal failures, as well as the reference to those reported by others, shows the fairness and impartiality with which the subject is considered.

The volume is commended to any one desiring a satisfactory work on hypnotism.

*Les tumeurs de la vessie.* Par J. ALBARRAN, Chef de clinique des maladies des voies urinaires à la Faculté de médecine de Paris (hôpital Necker). 75 figures et 9 planches. Paris: G. Steinheil, 1892. [Prix, 18 francs.]

PROFESSOR GUYON prefaces this work with a reference to the fact that tumors of the bladder have virtually been scientifically studied only during the past fifteen years, and remarks that the accumulation of material, the discoveries in pathology, and especially the advent of cystoscopy, have made a new history of the subject desirable. The fact that the author was his associate for four consecutive years is a sufficient guarantee of the character of the material that he has had access to.

The history of the subject is divided into the ancient, up to 1874, when Billroth proposed the hypogastric incision for the removal of vesical neoplasms; and the modern, subsequent to that date. After considering the structure and development of the normal mucous membrane of the bladder, the subject of classification is presented. Tumors are divided into primary, or those originating in the bladder, and secondary, or those developing by propagation from contiguous structures or by generalization.

The primary tumors are subdivided into those of the epithelial, those of the connective, and those of the muscular tissue, following Bard's theory of cellular specificity.

The tumors originating from the epithelium are subdivided into an atavie group, of an allantoidian type, in which the epithelial cells resemble those of the intestine of allantoidian origin and the epithelium of the villosities of the chorion; a vesical adult group that is subdivided into a variety having a common epithelial layer, one having an epithelial layer in which the polygonal cells have a large nucleus surrounded by clear protoplasm, and one of a glandular type; and epithelioma, including the lobulated or tubulated, cylindroma, carcinoid and reticulated growths, and myo-epithelioma.

Tumors originating from the connective tissue are divided into an atavie group, including sarcoma, myxoma, and fibromyxoma; and an adult group, fibroma. As an adjunct to the connective-tissue tumors, we have angioma.

The muscular tissue tumors include the myomata, while the

heterotopic tumors embrace dermoid cysts, dermoid or horny epithelioma, chondroma, and rhabdomyoma. As an adjunct to this group there is the hydatid cyst.

The pathological anatomy is clearly described and the text is illustrated by colored woodcuts. The ætiology, pathogeny, and symptomatology are well described.

The cystoscopes of Nitze and Leiter, the megaloscope of Boisseau du Rocher, the urethro-cystoscope of Grünfeld, and the panelectroscope are described, and their advantages and disadvantages properly portrayed. The chapter on diagnosis is very comprehensive. Under the head of treatment the various operations for opening the bladder are mentioned, the question of suture is considered, and sections are devoted to resection and total extirpation of the bladder. There is a table of two hundred and twenty collected cases.

The volume is well printed, and, besides the illustrations in the text, there are nine large phototypes of cystic tumors. The work is a valuable contribution to the literature of an important subject.

## Reports on the Progress of Medicine.

### GENERAL SURGERY.

By MATTHIAS L. FOSTER, M. D.

**What is a "Felon"?**—Burrell (*Bost. Med. and Surg. Jour.*, Feb. 4, 1892) is convinced that the term "felon" is very loosely applied to a variety of inflammatory diseases of the finger, and suggests that this term should be abolished and an anatomical classification of the inflammatory affections of the finger be adopted. The classification he proposes is: 1, dermatitis; 2, paronychia; 3, cellulitis of the finger; 4, suppurative thecitis; 5, periosteitis or osteitis of the phalanges. While he feels sure that most practitioners distinguish these various affections, he maintains that the distinction is frequently not made in name, and that the common text-books on surgery neglect to clinically distinguish them. The treatment of these various conditions differs. Dermatitis requires local applications; paronychia, an incision through the nail or its removal, with a proper dressing afterward; cellulitis, a limited incision into the pulp of the finger with evacuation of the pus; suppurative thecitis, an incision through the sheath of the tendon, evacuation of the pus, antiseptics, and immobilization of the fingers, hand, and arm; periosteitis or osteitis, an incision down through the periosteum at the earliest moment. These affections run into one another, and it is at times impossible to make a clear distinction between them, but the distinction is needed, for an incision down to the periosteum is worse than useless in dermatitis, and not necessary in any except in periosteitis or osteitis where such an incision is imperatively demanded.

**Symmetrical Congenital Defects in the Anterior Pillars of the Fauces.**—Toeplitz reports (*Arch. of Otol.*, January, 1892) the observation of two symmetrical openings in the palato-glossal arches of a young man, the right one being slightly larger and somewhat more remote from the margin of the anterior pillar. The margins of the openings were smooth, without a trace of cicatrization. They were elliptical in form, about half an inch long by three sixteenths of an inch wide, and led from the cavity of the mouth into the space usually occupied by the tonsils, which in this case were absent. More marked on the right side than on the left, a quarter of an inch below the margin of the opening, was a slight indication of what might be considered a radiated scar, but to the observer it rather resembled radiated folds. Dr. Toeplitz states that he has been able to find very few similar cases recorded in the literature of the subject.

**Acute Orchitis following Influenza.**—The latest addition to the multitudinous sequelæ attributed to influenza is made by Harris (*Lancet*, Jan. 2, 1892) in the form of acute orchitis. The patient, aged sixty-seven, came under treatment complaining of "pains all over," especially in the back, head, and back of eyes, slight cough, temperature 103.2°

pulse 120, tongue slightly furred, bowels open. Five days later he complained of pain, tenderness, heat, swelling, and redness of the left testicle. This occurred during an epidemic of influenza. The patient had not left his bed and had no trouble with his urine, and there appeared to be nothing to account for the inflammation of the testicle except the theory that it was a sequela to that disease. Briscoe (*ibid.*, Jan. 23, 1892) reports a similar case.

**Intussusception.**—Barker (*Lancet*, Jan. 9, 1892) suggests the following procedure in cases of intussusception which can not be reached from below, and which are found, on opening the abdomen, to be so tightly strangulated that reduction, even if feasible, could end only in disaster, instead of forming an artificial anus or resecting the whole mass of damaged bowel directly and suturing the divided ends together:

"At the point at which the intussusciens receives the intussusceptum the two portions of the bowel are at once united by a continuous circular suture of fine silk taking up the serous and muscular coats of each, and carried on to the mesentery. A longitudinal incision is then made for about two inches through all the coats of the intussusciens on its free margin. This gives access to the sausage-like intussusceptum within. The latter is then drawn out through this incision and is cut across close to its upper end; or, if too long to be first drawn out, it may be cut across *in situ*. A few stout silk sutures are, however, passed through all the walls of the stump as the mass is gradually cut off, and are tied tightly so as to keep the serous surfaces in contact and control all bleeding from the vessels entering it at its mesenteric attachment. The stump is now cleansed, dried, and dusted with iodoform, and is allowed to drop back through the incision into the lumen of the intussusciens. Then the longitudinal incision in the latter is closed by a continuous suture from end to end. Toilet of the surrounding parts and closure of the abdominal wound complete the operation."

Mr. Barker has performed this operation twice, each time on a patient in a desperate condition, and in neither case did the operation avert a fatal result. Nevertheless, he professes to have demonstrated that the operation is quite feasible, that it can be performed in a reasonable time and without much difficulty, and that he is impressed with the feeling that, under less unfavorable conditions and with an increased experience of details, this method will prove very successful.

**Anthrax successfully treated by Excision of the Pustule.**—Lowe (*Lancet*, Jan. 23, 1892) reports two cases in which excision of the focus of inoculation arrested the progress of anthrax. In one the pustule was situated on the neck, in the other on the cheek. It seems strange that such an operation should check the disease, but one fact is established—viz.: that theoretical considerations should never deter any one from operating, not only during the early stages, but at whatever period of the disease the cases present themselves.

**Suprapubic Dislocation of the Head of the Femur.**—Nash reports (*ibid.*) a very unusual and remarkable form of dislocation of the head of the femur which differed very materially from the ordinary pubic dislocation, in which the head of the bone lies on the pubic bone or beneath the anterior-inferior spine of the ilium.

A boy, eleven years of age, was running behind and pushing a swinging boat when he slipped under it. On its return the boat struck his right knee, dislocating the hip. On admission to the hospital there was a contusion over the front of the right knee. The right leg was everted, abducted, and shortened to the extent of two inches and a half or three inches. The head of the bone could be seen and felt lying half way between the umbilicus and Poupart's ligament. Both trochanters could easily be felt on rotating the limb. There was considerable effusion into the soft tissues around the joint. The femoral artery could be felt pulsating on the inner side of the small trochanter. Methylene was given and reduction attempted by means of pulleys and manipulation, but the head of the bone could not by any means be brought below the pelvic brim. The patient was then put into bed with an extension applied; an attack of acute rheumatism supervened, so that over two months elapsed before an operation could be performed. Then methylene was given and an incision was made down to the neck of the femur, the head was exposed, and all the ligamentous and muscular attachments to the neck and great trochanter divided. The tip of the great trochanter was found to be separated and a large amount of periosteum stripped off the back of the femur. Connecting the shaft with

the acetabulum was a mass of bone formed by the periosteum which had been stripped off. The head of the bone was resected, as traction still failed to effect reduction. Six months later the hip was quite stiff and there was about two inches of shortening present.

Mr. Nash states that he has not been able to find any record of a similar dislocation.

**Echinococcus of the Orbit.**—Olga A. Mashkovtzeva (*Med. Obozrenie; Brit. Med. Jour.*, January 23, 1892) relates the case of a pale and very emaciated Tartar girl, two years of age, who was brought to her on account of eye disease of three months' standing. The affection had been steadily growing worse, the child becoming ever more restless, fretful, and sleepless. There was very marked exophthalmia of the right eye, with swelling of the eyelids, œdema, and congestion of the ocular conjunctiva; the globe was dislocated forward and inward, was immovably fixed, atrophied, and degenerated; and the cornea was represented solely by a grayish spot of the size of a lentil. The whole external portion of the orbit was filled with an immovable tumor, homogeneous in its consistence, and indistinctly fluctuating. A malignant neoplasm, growing from either the eyeball or the optic nerve, was suspected and the eye was extirpated. The child bore the operation well, and her general condition rapidly improved. The tumor was found to be an echinococcus cyst of the size of a small hen's egg, containing hooklets, but no secondary cysts, and occupying the site of the external rectus, the lacrimal gland, and the adjacent cellular tissue, all of which were entirely absent. The hydatid was surrounded by a dense fibrous capsule. The whole eyeball was transformed into an equally dense pigmented mass.

**Pneumonotomy and Pneumonectomy.**—Willard (*Univ. Med. Mag.*, February, 1892) has been conducting some experiments on dogs regarding these operations, which he reports, together with a digest of the literature on the subject, and presents the following conclusions:

His experiments in thoracotomy and in bronchotomy show that the entrance of air into the pleural cavity is a far more serious matter as regards the collapse of the lung and of the patient when the lung tissue is normal than when it is diseased or already crippled.

Incision into the substance of the lung with removal of a portion is well borne in dogs. Hemorrhage, though free, is not fatal, and can be arrested by packing.

Adhesion of the parietal and visceral layers can readily be obtained by sutures, and the resulting pleurisy is slight.

Surgically, these experiments point out that similar adhesive inflammation can be secured and thus permit safe incision into tubercular or other diseased lung tissue without infection of the pleural cavity.

A lung can be drawn into the wound made by excision of the ribs and so sutured to the edges of the opening that the pleural cavity can be excluded.

Pneumonectomy, performed for gangrene or for abscess of the lung, offers better results than is possible in cases not treated surgically.

**Abscess of the Brain from Aural Disease.**—Körner (*Arch. f. Ohrenheilkunde; Ctrbl. f. Chir.*, 1892, No. 3) arrives at the following conclusions, after a consideration of the reports of a hundred cases of intracranial abscess due to aural disease, nine operations, and ninety-one autopsies:

1. Abscess of the cerebrum was found in sixty-two cases, of the cerebellum in thirty-two, in both at the same time in six. Children under ten years of age seldom suffer from cerebellar abscess, on account of the great distance of the posterior fossa of the skull from the auditory meatus. Men are about twice as liable to abscess of the brain as women. The right side is affected more frequently than the left.

2. Regarding the extension of the disease from the temporal bone to the brain, he concludes that, contrary to the generally received opinion, in a very large portion of the abscesses of the brain which result from suppurative otitis and develop near the seat of the primary lesion a demonstrable continuity with the same can be found. Therefore, in order to avoid later trouble after an apparently brilliant result, besides emptying the abscess, the diseased bone should be sought and removed.

3. Abscesses of the brain dependent on disease of the petrous bone lie in the immediately neighboring portions of the brain, in the temporal lobe, or in the half of the cerebellum on the same side. In seven of the hundred cases this seemed to be contradicted, and Körner acknowledges

it to be not proved, for to prove it it would be necessary to have data regarding each case, showing that a disease of the temporal bone was present, which could cause abscess of the brain, that no pyæmia was present, and excluding any general tuberculosis or suppurative inflammation of the air passages.

4. The information in regard to incapsulation and quality of the pus was deficient. In one case the odorless condition of an abscess which resulted from a fetid otitis was mentioned.

5. As complications, thrombosis of the venous sinus was found seventeen times on the right side, five times on the left; in the ninety-one autopsies, suppurative meningitis was found seventeen times, rupture into the lateral ventricle ten times, into the fourth ventricle once. The frequency of the complications does not permit the conclusion that these abscesses were inoperable in their early stages.

6. In regard to the diagnosis between otitic abscesses in the temporal lobe and the cerebellum these points must be borne in mind: 1, The age: cerebral abscesses are three times as frequent as cerebellar in children under ten; 2, the seat of the primary bone lesion; 3, labyrinth disease does not certainly indicate cerebellar abscess; 4, location of painful area by percussion; 5, pain, vertigo, and optic neuritis are uncertain signs; 6, disturbances of speech occur only in cerebral affections, but are seldom met with on account of the preponderance of right-sided abscesses.

**Surgical Treatment of the Gall-bladder.**—Ignatow (*Chirurgischeskii Vestnik; Ctrbl. f. Chir.*, 1892, No. 9), after an extensive consideration of this subject, draws the following conclusions:

Operative interference is always indicated by intense pain associated with symptoms more or less plain of closure of the ductus cysticus or choledochus.

Cholecystotomy must be considered the typical operation, because it has the greatest range of application.

The so-called normal cholecystotomy is attended with the least mortality.

In all obscure cases, where the walls of the gall-bladder have undergone more or less marked pathological changes, especially in cholecystitis ulcerosa and empyema of the gall-bladder, normal cholecystotomy is indicated as the least dangerous operation.

Cholecystectomy can not be recognized as a radical treatment for gall stone, and is, therefore, to be confined to cases of malignant disease of the walls of the gall-bladder, and cases of impassable stricture of the ductus cysticus.

The so-called ideal cholecystotomy is indicated in recent cases with only slight changes in the walls of the gall-bladder.

Cholecystenterostomy is the only applicable operation, and in many cases, in the absence of malignant growths, a radical one, for the cure of unremovable stricture of the ductus choledochus.

**Intestinal Occlusion.**—Pernice (*Riforma med.; Deutsche med. Zeitung*, Jan. 25, 1892) has conducted a series of experiments on dogs, in which he completely occluded the intestinal canal at various points. The following is a partial *résumé* of his results:

Death resulted from stenosis of the duodenum in from four to six days, and from stenosis of the ileum in about ten days.

The only positive diagnosis that can be made with regard to locality is between stenosis of the large and of the small intestine.

The symptoms of stenosis of the small intestine are about the same as those of stenosis of the pylorus, but they become less marked the greater the distance of the obstruction from the stomach. These symptoms are dejection, aversion to food, thirst, vomiting, which occurred from half an hour to two hours after ingestion into the stomach, and sometimes without this, particularly of bile, and especially severe in stenosis of the duodenum, rapid and weak pulse, subnormal temperature, emaciation, constipation, and lessened excretion of urine, rarely anuria. In the urine, indican was always present, sometimes bile pigment was found, rarely traces of albumin, once signs of spermatorrhœa. The changes in the blood consisted of a considerable increase of the red and white blood-corpuscles with increase of hæmoglobin during the first few days, and then a gradual decrease until death.

In stenosis of the lower colon, constipation and tenesmus were constant, rarely associated with vomiting. The animals remained lively and took nourishment. Their weight diminished but slightly, there

were no changes in pulse or temperature, while in the blood only an increase in the white and a slight decrease in the red blood-corpuscles was observed.

After death the principal anatomical changes found were emaciation, dryness of the tissues, enlargement of the alimentary canal above the obstruction with atrophy of the part below, great hyperæmia of the liver, and thrombosis of the veins, also hæmorrhages by diapedesis, a thickened condition of the circumportal connective tissue, atrophy of the liver cells, formation of pigment, sometimes biliary engorgement, fatty degeneration of the cells, and atrophy of the acini.

## Miscellany.

**The Physiology and Pathology of the Mammalian Heart.**—In the *Proceedings of the Royal Society*, No. 306, Dr. C. S. Roy and Mr. J. G. Adami, of the University of Cambridge, give the following abstract of a communication of theirs:

Our communication begins by stating that we have sought to study the action of the mammalian heart in conditions (unexcised and intact) as nearly approaching the normal as we were able to make compatible with the employment of exact methods of research. This is followed by a general consideration of the difficulties attendant upon such a study, and of the means by which these difficulties may be overcome.

Under the heading of Methods we describe a *cardiometer* which we employed to measure the contraction volume and the "output," as well as the changes in the volume of the heart other than those due to its rhythmic contractions and expansions. A description is also given of the method of employing it, together with a statement as to the degree of the accuracy with which, according to our experience, the instrument supplies information regarding the changes in the volume of the heart. We then describe an automatic counter, which we employed for measuring out and recording the output of the heart, as obtained by the cardiometer.

This is followed by a description of our *myocardiograph*, which we made use of to record the contractions and expansions of any part or parts of the ventricular and auricular walls without interfering with the movements of the heart. In most cases we employed this instrument to obtain simultaneous records of the contractions of one auricle and one ventricle. We state also our doubts as to the value of observations made on the heart by "button" cardiographs.

Section III begins by a consideration of the relationship between the circumference of a hollow spherical muscle and its cubic contents, this being illustrated by a diagram, and by one or two concrete examples with regard to the bearing of this subject upon the physiology of the ventricles.

We then state the relation between the internal circumference of a hollow spherical muscle and the resistance to contraction of its walls. Reference is also made to the elastic resistance which the heart wall itself offers to contraction, and the bearing of this upon the production of negative pressure within its cavity under certain conditions.

We then consider briefly the effect on the ventricular contractions of changes in the blood pressure within the systemic and pulmonary arteries, pointing out how much the heart has in common with the voluntary muscles of the body, and explaining why the amount of residual blood is liable to changes, concluding with a few remarks upon "failure of the heart."

In Section IV we enter upon a study of the effects of the vagus nerve upon the heart. We begin with the changes in the contraction volume, and point out that, at first sight, our curves seem to show that, other things being equal, the volume of blood expelled at each systole varies in inverse ratio to the rapidity of heart beat. We show, however, that this general law does not hold good for vagus slowing (if, indeed, it be exact for slowing of any kind), which is found to be accompanied by a lowering of the output; that, with moderate slowing, this diminution of the output may be as much as thirty or thirty-five per cent.

We then speak of the increase in the amount of residual blood in the heart which is produced by vagus excitation, showing that this does not necessarily indicate any weakening of the ventricular contractions.

We next analyze myocardiographic records of the action of the vagus upon the heart, showing that the auricular contractions are weakened or arrested, and noting that the influence of the vagus upon the force of the auricular contractions bears no constant proportion to the vagus slowing. By strong vagus excitation or by muscarin the auricles may be completely arrested, it may be, for hours. This complete arrest is, in some cases, led up to by progressive weakening, but sometimes arrest occurs immediately after fairly strong beats, or with fairly strong beats presenting themselves at times during the arrest. These latter cases may be explained by weakening of the excitations which reach the auricles from the sinus, although they are possibly due to diminished excitability of the auricles.

On coming to the effect of the vagi upon the ventricles we find that the distention of the heart during vagus actions is due to the ventricles being more expanded, both in diastole and in systole. We point out that the increased volume of the heart at the end of systole is a necessary result of the increased contraction volume, and combat the conclusions of those who ascribe it to weakening of the ventricular contractions, pointing out that the greatly increased contraction volume increases to a corresponding extent the work done at each contraction. We give detailed reasons for concluding that this suffices to explain the apparent diminution of the ventricular contractions.

We then examine the influence of the vagus upon the tonus of the relaxed ventricles, and point out that the great distention during vagus action is due entirely to increased intraventricular pressure during diastole, and not, as has been asserted by some, to any change in the elasticity of the relaxed ventricular wall.

Next, we consider the cause of the rise of venous (systemic and pulmonary) pressure, and find that this is due not to any increase in the amount of blood entering the veins in a given time or to contraction of their walls, but that it is to be ascribed to the diminished inflow into the ventricles.

The cause of this diminished inflow into the ventricles leading to corresponding diminution of the output is twofold—namely, weakening or arrest of the auricles, and, secondly, the elastic resistance of the ventricular wall to distention. We show that this explanation must apply to both sides of the heart, and that observed facts correspond with it.

We then consider the after-effects of vagus excitation, and show that the temporary increase in the output which is sometimes present may be explained by a temporary increase in the force of the auricular contractions, and by the venous pressure taking some little time to fall after the vagus excitation has ceased.

After this, we examine the influence of the vagus upon the heart rhythm, and show that, when the vagus excitation reaches a certain degree (varying in different animals), the ventricles begin to beat independently of the sinus and auricles; that this rhythm, which is at first slow and irregular, gradually becomes fairly rapid and almost completely regular.

This rhythm, we show, must be looked upon as the same as that which, as Woodridge and Tigerstedt observed, makes its appearance when the ventricles are severed from the auricles. We point out, however, that the independent ventricular rhythm of vagus action is characterized by the slowness with which it establishes itself.

This characteristic is due to the lowering of the excitability of the ventricles produced by vagus action, and we adduce a considerable number of facts showing that the vagus *does* lower the excitability of the ventricles, and that, by means of muscarin and by discontinuous stimulation of the vagus, it is possible to isolate the influence of the vagus on the rhythm and force of the auricles from its influence upon the excitability of the ventricles. The power of the vagus to stop the ventricles temporarily can only be explained by this diminution of their excitability.

We show that, with a certain degree of vagus excitation, irregularity of the ventricles necessarily results, in consequence of the sinus and the ideo-ventricular rhythms interfering with one another; that

this is the common cause of irregularity; and that irregularity may also be caused by the auricles not responding to all the impulses which reach them from the sinus.

We explain that, in rare instances, direct excitation of the vagus may so lower the excitability of the ventricle that the contractions may not extend over the whole of their walls, and may in this way produce the apparent weakening which is sometimes met with.

In Section V we pass on to study the effect of direct excitation of the *nervi augmentores (accelerantes)* upon the heart, and show that the acceleration of the rhythm may be extremely slight if the heart be beating fast, and that the acceleration and augmentation of force of the heart bear no constant proportion to one another. The augmentor nerves increase the diastolic expansion of the auricles and also increase their systolic contraction; but these two effects do not go hand in hand.

Excitation of the augmentors increases the output of the heart, owing to the increased force and frequency of the auricular contractions, the result of this being that the pressures in the systemic and pulmonary arteries rise, while the systemic and pulmonary venous pressures fall. If there be but little quickening, the contraction volume of the ventricles is increased.

The augmentors, on direct stimulation, cause a slight increase in the diastolic expansion of the ventricles, which is passive in nature and due to the increased force of the auricular contraction. The force of the ventricular contractions is increased; they contract more completely, diminishing the amount of residual blood, in spite of the fact that the arterial pressure is usually somewhat raised.

There are certain nerve fibers other than the *nervi augmentores* proper which pass from the stellate ganglion to the heart, sometimes by the annulus of Vieussens to the inferior cervical ganglion, but sometimes as separate branches passing directly to the heart from the ganglion stellatum or the annulus. On peripheral excitation of the cut nerves there is marked weakening of the contractions, both of the auricles and of the ventricles, usually with some degree of slowing, this being sometimes followed on cessation of the excitation by a very well marked increase in the force and frequency of the auricular and ventricular contractions. They may be vaso-constrictors for the coronary vessels, although we give no proof of this.

There are nerve fibers which descend to the heart by the vago-sympathetics, which, on excitation under certain conditions, increase the force and frequency of beat of the auricles and ventricles, and which may be vaso-dilators for the coronary vessels.

Reflex excitation of the vagus produces results which are the same as those of direct excitation of the nerve, and the curves are more typical and satisfactory than those obtained on direct excitation of the nerve.

Excitation of a mixed nerve like the sciatic usually produces effects on the heart similar in kind to those due to direct excitation of the augmentors, but the phenomena are complicated by the greater rise of the pressure in the systemic arteries. Sometimes the increase in force of the ventricle more than counterbalances this increased resistance to contraction, and the amount of residual blood in the left ventricle is reduced; in other cases the increase in force of the ventricular contractions is not sufficient to counterbalance the increased resistance, and the residual blood in the left ventricle is increased.

In Section IX we show that excitation of the central end of a mixed nerve like the sciatic or splanchnic usually affects both the augmentor and vagus centers in the medulla, and that, in nearly all cases, the augmentor center is the more strongly excited of the two, so that augmentor effects show themselves during the excitation, but are succeeded by vagus action on ceasing to excite the nerve. In many cases augmentor effects alone show themselves. When excited reflexly the augmentor center ceases to act earlier than the vagus; the opposite, therefore, to what takes place with direct excitation. In rare cases the excitation of the vagus center may be stronger than that of the augmentor from the first. Although, in the absence of any augmentor action, the vagus does not reduce the force of the ventricular systole, it does unmistakably have the power of inhibiting the strengthening influence which the augmentors exert upon the ventricular contractions.

In Section X, upon the part played by the vagus in the economy, we

show that vagus excitation relieves the heart of work, and therefore of waste, to as great an extent as is compatible with a continuation of the circulation, and conclude that the vagus acts as a protective nerve to the heart, reducing the work thrown upon that organ when from fatigue or other cause such relief is required by it. The presence of fibers in the sciatic and other mixed nerves which cause reflex excitation of the vagus would seem to indicate that this nerve may be used by other parts of the body to diminish the output of the heart and lower the blood-pressure, thereby reducing the activity of the circulation as a whole. The influence of the blood-pressure in the systemic arteries on the degree of vagus activity and the readiness with which the vagus center is called into play by raising the intercranial pressure indicate that the vagus mechanism is specially employed in lowering the circulation so as to limit cerebral congestion. The vagus acts chiefly in the interests of the heart and central nervous system.

The power of the vagus over the heart is limited, and the ideo-ventricular mechanism, which comes into play when the vagus action exceeds a certain limit, must be looked upon as the means by which arrest of the circulation and death is prevented, whenever from any cause the nerve exerts a maximum influence. The power of the vagus to lower the excitability of the ventricles makes their temporary arrest possible, but this reduction of the excitability of the ventricles can not be kept up, no matter how strong the stimuli applied to the nerve, for a period long enough to endanger the economy.

In Section XI we show that the function of the augmentor in the economy is to increase the work and tissue waste of the heart as part of the mechanism by which the nervous system governs the circulation, and that the augmentor mechanism sacrifices the heart in order to increase the output of the organ and enable the ventricles to pump out their contents against a heightened arterial pressure. Such excessive action of the heart is limited by the vagus, which, as we have seen, readily steps in so soon as the call for an increased supply of blood has ceased. It may do so earlier, presumably because the increased blood-pressure or the fatigue of the heart calls for vagus intervention.

In Section XII we consider the mode of interaction of the vagi and augmentores; we point out that when the vagi are paralyzed by section or atropine the augmentores have no control over the cardiac rhythm, and that therefore they can only act by inhibiting the influence of the vagi on the rhythmic center of the heart. When neither nerve is acting on the auricles they contract with a certain force, which is increased by the augmentores and diminished or inhibited by the vagi. The force of the ventricular contractions is increased by augmentor action: this increase can be inhibited by vagus excitation, which latter has otherwise no power to reduce the strength of ventricular contractions.

The force of the heart's contractions is influenced by other factors than the vagi, augmentores, and other nerves. The pressure of the blood in the coronary arteries is one of the most important of these factors. If this be lowered, the contractions of both auricles and ventricles diminish in strength, while a rise of pressure in the systemic arteries causes an increase in the force of the heart's contractions, so that the force of the heart's contractions is to a certain extent regulated automatically by changes in the blood-pressure in the aorta, which is one of the variable quantities affecting the work of the left ventricle.

Change of the volume of blood in the body affects greatly the contraction volume and output of the heart. Injections into the veins of a volume of defibrinated blood equal to one tenth of the total blood in the body may double the output. It is important to note here that there is no increase in the strength of the ventricular contractions; increase in the work, therefore, of the ventricles due to increase in the output has no tendency to automatically increase the force of the ventricular contractions, as is the case with rise of pressure in the systemic arteries. We refer to the bearing of this in cases of plethora.

Increase of the watery constituents of the blood increases the contraction volume and output to the same extent (though only temporarily) as does transfusion of blood, but acts more unfavorably on the heart, seeing that the work done by the ventricles is increased, while the nutritive value of the blood supplied to the coronaries is diminished.

The increased output of the heart both in plethora and in hydræmia is due to rise of pressure in the systemic veins increasing the volume

of blood which enters the right ventricle during diastole. We refer to the bearing of these facts upon the treatment of chlorosis and heart disease.

In Section XIV we consider the limits of the power of the heart to perform the work thrown upon it, and show that in strictly physiological conditions, and in spite of the beautiful mechanism by which the force of the ventricular contraction is regulated, the heart, like the voluntary muscles of the body, is liable to fatigue when the work thrown upon it greatly exceeds that required to maintain the circulation under ordinary circumstances. We take as example the increased work thrown upon the organ during active muscular exertion, and show that exertion and endurance of fatigue are limited mainly by the limited power of the heart to continue supplying the increased amount of blood which is required by the acting voluntary muscles. We show that those luxuries which are forbidden or limited in "training," and which are known to hinder prolonged exertion—such as water, alcohol, tobacco, caffeine—all directly weaken the force of the heart's contractions, and, in the case of water, place the organ under a disadvantage; also that fatigue of the heart leads to dilatation of the organ.

On comparing the power of fatigued ventricles to carry on increased work, as compared with well-nourished unfatigued ventricles, it is found that not only is the strengthening effect of the augmentor nerves upon the individual contractions less in the former case, but also that the fatigued and therefore dilated heart is *per se* unfavorably placed for meeting increase in the work thrown upon it. An explanation is given of the reason why in heart disease failure takes place during exertion.

The part played by the vagus in protecting the diseased heart from harmful overwork is referred to, and it is shown that irregularity of the heart in disease may be explained by the mode in which this nerve, when acting powerfully, releases the ventricles from the control of the rhythmic center in the sinus. The chief forms of rhythmic and arrhythmic irregularity are considered, and it is shown that these correspond with the forms of irregularity which can be produced by vagus action. The irregular heart expends more energy, and its tissues therefore are more wasted, for a given amount of work than the heart which is beating regularly.

The effect upon the heart of imperfect aeration of the blood is, first of all, to produce powerful vagus action from the medullary center; this is usually, though not always, accompanied in curarized animals by diminution of the output of the heart. But reasons are given for assuming that the output would be increased in uncurarized animals, owing to the high venous pressure which results from struggling. Besides the vagus action, it can be shown that asphyxia causes progressive weakening both of the auricles and of the ventricles, and attention is drawn to the fact that the considerable rise of pressure in the systemic arteries in asphyxia is accompanied by vagus effects upon the heart, and not by augmentor action, as is the case, so far as we know, in all other instances in which the vaso-constrictor center is excited in the normal individual.

It is noted that the change in the heart and circulation which takes place during asphyxia points to the conclusion that, when the total amount of oxygen in the blood is lowered, it is for the benefit of the economy that those organs, such as the central nervous system, whose continuous blood supply is a vital necessity, should be richly furnished with blood by constriction of the vessels of the spleen, kidney, and digestive system, whose blood supply can be cut off temporarily without danger to life, and also that the heart should carry on the circulation in a manner involving as little waste as possible of its own substance. This, as we have seen, is the function of the vagus nerve to bring about.

**Epidemic Neuroparesis** is the name given by Dr. B. W. Richardson, of London (*Aselepiad*, ix, 33), to influenza. In all essentials, he says, the symptoms start from a catarrh, and are attended, as might be expected from their rapidity, with more or less of febrile disturbance. They are, in brief, symptoms of a *neuroparesis*, with pyrexia.

From the first the symptoms are nervous in character. The pain, the heaviness of spirit, the languor, are all characteristic of organic nervous shock. The local symptoms in the pulmonary organs are of the same type. The dullness preceding crepitation; the irregular extension

of the pulmonary lesions, in patches, over the lung; the invasion of both lungs at different points; and, in some instances, the sudden congestion of the structure of both pulmonary organs—these signs all point to nervous failure as distinct from acute sthenic pneumonia, as we commonly understand that affection. The character of the expectoration also is special. The well-known rusty expectoration of ordinary pneumonia is not presented in distinctive manner, nor does the urine follow the same changes in relation to the chlorides. There is also another condition which markedly distinguishes the pneumonic paresis from the specific sthenic inflammatory pneumonia—I mean the quickness of the changes, not only from bad to worse, but from bad to recovery. I was called to a patient late one night in consequence of the danger arising from a sudden and extreme congestion of both lungs, from their bases to a point three inches above the apex of each scapula. The resistance to the circulation was extreme, and under the resistance the febrile excitement was considerable, while, from the imperfect aeration of the blood, the cerebral oxidation was vehemently disturbed. It seemed as if death were inevitable, and so it would have been if the commanding influence had continued to exert its sway; a few hours, in fact, would have been sufficient to bring life to an end. It was like a process of rapid destruction of respiratory function. But twenty-four hours later all the general symptoms were relieved in the fullest degree, and the respiratory murmur was so clear that, if my own ear had not heard the difference, I fear I should have distrusted the evidence that might have been brought before me in regard to the modification that took place in so short a period. This was a rather extreme case, and I doubt not that during the late widespread epidemic multitudes like it in the way of rapid intensity of symptoms and comparative rapidity of relief—leaps into and out of danger from pulmonary lesion—have been observed. But this is not the feature of ordinary sthenic pneumonia. It is the feature of a sudden paresis from some temporary nervous shock and nervous failure.

There has been another peculiarity in this epidemic relating to the bronchial complication and the bronchial discharge. There has usually been some excess of bronchial secretion in advanced stages of the affection, but not of secretion of the same tenacious character, and in the same excess, as in common broncho-pneumonia. Hydrops bronchialis has not, in my observation, been a prevailing cause of death, neither has it been, except actually *in articulo*, a troublesome symptom. The term "simple acute bronchitis" could not be applied readily to the cases of most marked character coming under the epidemic; and, when bronchial symptoms have appeared, it has been surprising to see with what rapidity they have disappeared as the influence at the root of the mischief has passed away.

The symptoms in sequence, what some have called the secondary symptoms, have borne out remarkably the idea of the nervous origin of the disease. The cerebral attacks are either dependent on the pulmonary disturbance, or are due to the same influence, interfering with the nervous governance of the cerebral circulation, as that which interferes with the pulmonary circulation. But the cerebral lesion is more continuous, as is common to cerebral and nervous injury; hence the often prolonged stretch of nervous symptoms which follows a fairly quick recovery from the acute stage of the disease. At one time I thought that possibly there was formed in the blood, under the perverted oxidation that is in progress, a new substance of toxic character; and this, indeed, may be the fact. The carbon of the blood can not be naturally oxidized, and therefore the nervous oxidation in the great centers will be perverted. This will, of necessity, lead to disturbed cerebral function, to delirium, to water pressure, and to the coma which is so often a prominent symptom of the later stages in fatal seizures. This central nervous failure would lead in its turn to the congestion of other vital organs, like the liver and kidneys, that are under nervous control, and depend on nervous supply for their natural activity. Thus the mischief of the neuroparesis, commencing in the pulmonary circuit, extends to the whole system; and in observing the symptoms we are practically watching development of phenomena, precisely as when we are watching the development of anæsthetic symptoms under the administration, by inhalation, of a narcotic vapor or gas, like nitrous oxide, ether or chloroform. And the perfection of our art should be to place the patient under such conditions that the influence causing the symptoms shall be

neutralized, and the body be so circumstanced that the natural acts shall swing round into their usual course.

**A Case exemplifying Gross Negligence.**—Mr. Lorenzo D. Bulette, of the Philadelphia bar, contributes the following article to the April number of the *International Medical Magazine*:

It may be of interest to the physician to know that the act of leaving his horse standing unfastened, or if unfastened then unattended, in a populous place, while making a professional visit, constitutes gross negligence, for which he will be responsible to the person who suffers injury thereby; and this too in face of the fact that the known qualities and habits of the animal are such as to induce the belief of perfect safety in so doing. Evidence of the quiet and gentle character of the animal, or to the effect that he was accustomed to stand without being tied, must, in such case, be disregarded by the jury in reaching their verdict.

This is the law as it was laid down in *Overington vs. Dunn*,\* which was an action for damages for an injury caused in the following manner, as appears from the evidence at the trial:

The defendant was a practicing physician, who, on the day the injury occurred, had left his horse and gig in a lane about ten yards from the door of the house in which his patient was. He did not secure his horse in the ordinary way, or leave any person in charge of it. The position of the defendant, while attending his patient, was such that he could see the horse from the place where he stood. But, while the defendant was engaged in the examination of his patient, the horse, unperceived, passed out of the lane into the street leading down through the built-up portion of the city, and, while going at a considerable rate of speed, came in contact with the horse of the plaintiff, which was in a team attached to a wagon. The shaft of the defendant's gig entered the plaintiff's horse, causing an injury from which the animal died.

The defendant's evidence showed, and it was received in this instance without objection, that the horse was well broken, that he was kind and tractable, and that he was accustomed to stand for hours together without being tied. Further evidence, on the part of the defendant, gave a description of the place in which he left his horse. The house was in the suburbs, and built upon a lane or court about thirty feet wide. Across the lane where it opened into the street there was a large gate, which the defendant found open and left it so. Owing to obstructions, he was unable to drive quite up to the door of the house, but he drove as near to it as the circumstances of the place would allow. It also appeared that, owing to these obstructions, it was impossible for the horse to get from the place at which he was left without backing for quite a distance.

The judge before whom the cause was tried charged the jury that negligence was a question of fact for their consideration, but that, in deciding it, they ought not to take into view the peculiar qualities of the defendant's horse; they should rather consider and decide whether the care taken by the defendant would be sufficient in the case of any horse, whatever his known character and disposition. And this, on appeal, was affirmed to be the law.

Negligence is the omission to exercise that degree of care which the law requires; and it can occur only in cases where there is legal obligation to observe care. If no care be taken where the law requires it, the negligence is gross. If some care be taken, but less than the law requires, the negligence is greater or less according to the degree of deviation from the legal requirement.

It is sometimes supposed that, where little or no danger is to be apprehended from the omission of care, the obligation to exercise care is proportionally less or does not exist at all; and such appears to be the view of the defendant in this case. But his idea confounds the fact of negligence with the danger or risk attending it. They are, however, entirely distinct. Cause and effect are not more so. A grossly negligent act, as the law would term it, may, in fact, be attended with very slight risk, while, on the other hand, an act perfectly proper, and performed with extraordinary care, may, from causes not foreseen and for which the agent may not be responsible, be followed by disastrous results.

\* 1 Miles, 39.

In this case there was no evidence of any care used by the defendant to restrain his horse at the time he left him. On the contrary, it is express that he left his horse at large. In the eye of the law his negligence was gross; it could not be greater. He, no doubt, thought that there was no risk attending his neglect. It may be conceded that most persons, as his counsel asserted, would have done as the defendant did, but the event proved that it was unsafe. It was an error of judgment; and the law makes him responsible for the consequences.

**The New York Academy of Medicine.**—The programme for the meeting of Thursday evening, the 5th inst., included a paper on The Reaction of Ether with Urine, by Dr. Andrew H. Smith, and one entitled Practical Hints on the Examination of Urine, by Dr. R. A. Witthaus.

At the next meeting of the Section in General Surgery, on Monday evening, the 9th inst., Dr. W. B. Coley will read a paper on Hydrocele in the Female, with a Report of Fourteen Cases, and Dr. John Ridlon will read one on Fracture of the Neck of the Femur; a Report of Twelve Cases treated by the Thomas Hip Splint.

At the next meeting of the Section in Genito-urinary Surgery, on Thursday evening, the 12th inst., Dr. R. W. Taylor will report A Peculiar Case of Urinary Fever, Dr. Charles Heitzman will read a paper on Pus in the Urine—how to discover its Source, and Dr. Samuel Alexander will read one on Blood in the Urine—how to discover its Source.

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 12th inst., there will be a discussion on Summer Diarrhœa in Children.

**Mortality in Cities in the United States.**—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for April 29th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varicellæ.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.	
New York, N. Y.	Apr. 23.	1,515,301	901	124		3				2	27	36	23	7
Chicago, Ill.	Mar. 26.	1,099,850	469	48						16	19	22	1	1
Chicago, Ill.	Apr. 2.	1,099,850	507	60						18	7	11	4	6
Chicago, Ill.	Apr. 9.	1,099,850	548	51						21	12	18	5	3
Chicago, Ill.	Apr. 16.	1,099,850	452	43						11	8	16	3	1
Chicago, Ill.	Apr. 23.	1,099,850	473	47						13	10	12	3	4
Philadelphia, Pa.	Apr. 9.	1,046,964	493	58						5	17	21	5	1
Philadelphia, Pa.	Apr. 16.	1,046,964	442	62						3	8	18	3	...
Brooklyn, N. Y.	Apr. 23.	806,343	386	39						2	14	21	3	1
St. Louis, Mo.	Apr. 16.	451,770	163							1	1	6		
St. Louis, Mo.	Apr. 23.	451,770	158							1	2	4	1	
Boston, Mass.	Apr. 23.	448,477	222	35						2	7	16		
Baltimore, Md.	Apr. 23.	434,439	193	26						3	11	8	3	
San Francisco, Cal.	Apr. 16.	298,397	118											
Cincinnati, Ohio.	Apr. 22.	296,908	108	15						2	1	7		2
Cleveland, Ohio.	Apr. 23.	261,353	100	12						1	3	5		1
New Orleans, La.	Apr. 2.	242,039	149	20							2			
New Orleans, La.	Apr. 9.	242,039	132	16							1	1	1	
New Orleans, La.	Apr. 16.	242,039	154	17							1			
Pittsburgh, Pa.	Apr. 23.	238,617	100	14	1					1	1	3	3	
Detroit, Mich.	Apr. 16.	205,876	113							2	5	10		
Detroit, Mich.	Apr. 23.	205,876	107							9	14			
Milwaukee, Wis.	Apr. 23.	204,468	80	9						1	1	7	1	
Minneapolis, Minn.	Apr. 16.	164,738	60							1	3	1		
Louisville, Ky.	Apr. 23.	161,129	59	5							1			
Rochester, N. Y.	Apr. 23.	133,856	56	5							5			1
Providence, R. I.	Apr. 23.	132,146	53		1						2			
Toledo, Ohio.	Apr. 22.	81,434	36							2				
Nashville, Tenn.	Apr. 23.	76,168	27	2										
Fall River, Mass.	Apr. 22.	74,298	28								1			
Portland, Me.	Apr. 23.	36,425	14											
Binghamton, N. Y.	Apr. 23.	35,005	11											
Mobile, Ala.	Apr. 23.	31,076	24	6										
Galveston, Texas.	Apr. 8.	29,084	11	1										
Galveston, Texas.	Apr. 15.	29,084	8	3										
Auburn, N. Y.	Apr. 23.	25,858	13	4										
San Diego, Cal.	Apr. 16.	16,159	4											
Pensacola, Fla.	Apr. 16.	11,750	5							1				

**Some of the Dangers of washing out the Stomach.**—The April number of the *Practitioner* contains an article by Dr. W. Soltan Fenwick which concludes as follows:

At the present day every imaginable symptom that can in any way be connected with the digestive organs is immediately considered as an indication for the use of lavage, and we find that not only are chlorosis, atonic dyspepsia, and the gastric crises of ataxia subjected to this treatment, but even cases of reflex vomiting are supposed by some to necessitate the employment of the douche. But it is obvious that in those

cases where the treatment fails to do good it is extremely likely to do harm, since, as Leube pointed out, it has the effect of removing those products of digestion whose manufacture has caused the stomach a considerable amount of labor. And for my own part I fail to understand how washing out the organ in a case where the normal amount of secretion proves insufficient can possibly increase its digestive powers; or the lavage of the stomach prevent the occurrence of symptoms which are wholly dependent on organic disease in another organ remotely situated. In one case of tabes dorsalis, accompanied by exceedingly severe gastric crises, I had the stomach washed out every day for some weeks and the state of digestion carefully watched; but beyond the fact that the symptoms of the disease grew steadily worse, I could detect no material alteration in the condition of the patient. In like manner, the few cases of atonic dyspepsia and chlorosis which I have treated by lavage have, without exception, proved exceedingly rebellious and only improved when subjected to the more ordinary course of medical treatment. I would therefore conclude by saying that although lavage is an invaluable remedy in certain cases of gastric disease, its indiscriminate employment in every case of disorder of digestion will prove a curse rather than a benefit, and will eventually throw discredit upon the whole method of treatment.

**To Contributors and Correspondents.**—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

ON THE SCOPE OF ORTHOPÆDICS.

By F. BEELY, M. D.,  
BERLIN.

IN the introduction or preface of treatises upon orthopædic surgery, authors usually give a concise definition of this specialty and a short enumeration of the diseases which come under the head of this department. In some essays that have appeared within the past few years the necessity for so doing has been emphasized. Dr. N. M. Shaffer, for example, delivered an address before the International Medical Congress at Berlin in 1890 entitled, *What is Orthopædic Surgery?* Dr. Gibney also read a paper before the American Orthopædic Association, at its fifth annual meeting at Washington, in 1891, called *Orthopædic Surgery; its Definition and Scope*,\* and Dr. Shaffer's reply was published in the *New York Medical Journal* for November 14, 1891. There seems to be no definite agreement as to the true definition of this specialty. Authors in different countries vary very materially in their views upon this subject. Shaffer, for example, says: "Orthopædic surgery is that department of surgery which includes the prevention, the mechanical treatment and the operative treatment of chronic or progressive deformities, for the proper treatment of which special forms of apparatus or special mechanical dressings are necessary." Dr. Gibney, whose paper is essentially a critique upon Dr. Shaffer's address, agrees with him in the main, but he does not think that the scope of orthopædics should be limited from the standpoint of mechanico-therapy. Acknowledging Shaffer's definition to be to a great extent the true one, Gibney omits, however, the qualifying phrase of the definition, which says: "For the proper treatment of which special forms of apparatus, etc., are necessary." Dr. L. A. de Saint-Germain, in his *Chirurgie orthopédique*, defines the problem thus: "Le redressement, la rectification, des difformités." But we find in his book sections on obesity, malformations of the ears and of the teeth, hypertrophy of the tongue, hare-lip, navi, strabismus, etc. Dr. E. H. Bradford and Dr. R. W. Lovett, in their treatise on *Orthopædic Surgery*, 1890, without giving the definition, say: "Orthopædic surgery should include the prevention as well as the cure of deformity." Besides Pott's disease, club-foot, lateral curvature, bow-legs, the diseases of the joints, etc., they include spondylolisthesis, congenital dislocation of the hip, webbed fingers and toes, and cerebral paralysis, but omit to cite the deformities resulting from fractures, dislocations, and burns. Dr. Schreiber, in his *General and Special Orthopædic Surgery (Allgemeine und specielle orthopædische Chirurgie, 1888)*, calls orthopædics "the science of the deformities of the human body." Dr. Hoffa, in his treatise, limits its sphere to those deformities of the body which appear as deviations of posture and stature of the skeleton. The purport of these two books is very similar. Hoffa in-

cludes prosthesis under orthopædics, which means the manufacturing of all apparatus and bandages. Both authors devote special chapters to the treatment of orthopædic diseases following fracture or dislocation of bones, traumatic lesions and burns of the soft parts, and inflammation of the soft parts. There are numerous other examples, but the foregoing quotations may be sufficient. It is impossible in so short an article to indicate the various definitions given by different authors. The question therefore arises, Is it necessary or even advisable to confine or limit the realm of orthopædic surgery? Possibly it would be best to leave it all to gradual development. Should we not rather hold fast to the present opinion, and, without regard to principles, study from the various sources those diseases the treatment of which is generally accepted by orthopædists?

It may be of some interest to glance into the history of orthopædic surgery—viz., as to how it originally developed—thus trying to gain further insight into its nature, and become familiar with methods which may lead us to accord to it proper rank among the specialties. General medicine has been divided into specialties, because it has been impossible for one man to acquire a proficiency in all. This separation has been due to different circumstances. It was necessary that either one particular organ or a restricted region of the body should be studied—for example, the nose, throat, or larynx; or a specified system of tissue which the specialist should select as his province—as that of the skin, the nerves, etc.; or therapeutical measures the application of which required special dexterity; or else appliances, like massage, gymnastics, and electrotherapeutics. The department of the last named is, of course, not limited. One is at first uncertain as to which category of specialties orthopædy belongs. From the many definitions attempted, it appears that great effort has been made to secure for it a firmly planted position in the department of surgery. The fact that scientific authors and practitioners desire to do so seems evident. On an anatomic-physiological basis, a scientific system may be more clearly erected. Pathological anatomy, symptomatology, diagnosis, and therapeutics are more clearly allied to it, while it is difficult to find a systematic scientific classification from the therapeutical point of view. The practitioner, to whom the scientific point of view is not of much importance, desires to appear to the public not so much as practicing therapeutical methods as that of being an authority upon the treatment of a special class of diseases, so that he need have no fear of being supplanted in order that his patient may have change of treatment. We can not admit that this view of the subject is the right one, as it is not consistent or in accordance with historical development, as least so far as Germany is concerned, and I think that German conditions are especially suitable as illustrating this point, as Germany has had for so long a time the advantage of a thoroughly instructed medical profession of the highest scientific order. If we glance at the history of orthopædic surgery in Germany, as sketched by Hoffa, our attention is especially drawn to the names of Heine (1770-1838) and to Helsing. Hoffa says of the

\* *N. Y. Med. Jour.*, Nov. 7, 1891.

former: The name of Heine takes the first rank among the founders of orthopædia.

Johann Georg Heine, of Württemberg: "His establishment was the prototype of all others"; and, regarding the latter (Hessing), we are indebted to him, a skillful mechanic, for the knowledge of all kinds of splint-capsule apparatus, and various apparatus for supporting the spine. Heine was in early life an apprentice to a cutler and afterward to a manufacturer of surgical instruments. Neither of these men belonged to the medical profession, nevertheless they greatly advanced orthopædic surgery, and have become famous beyond the confines of Germany. Their reputation was due to their skillfulness in the use of mechanical instruments. Heine devoted himself exclusively to the application of orthopædic apparatus, and scorned to make use of gymnastic exercises or subcutaneous tenotomy, invented at that time by Stromeyer. He equally despised the aid of medicine administered internally (see *Bibliographisches Lexicon*, by Goult). Both of these men have proved that eminence and success, not surpassed even by the most celebrated contemporary surgeons, may be acquired by the adoption solely of mechanical methods. It is not to be wondered at that Heine, as he had been deprived of the advantage of medical instruction, and also on account of his eccentric therapeutical theories, should have made many mistakes, especially as he often ventured upon the treatment of diseases when the proper mechanical instruments could not be procured. On account of his general success he became extremely arrogant, and he practiced general medicine irrespective of all professional ethics. These shortcomings, however, did not detract from his real merit, save that he did not during his lifetime receive full credit for his valuable services. Hoffa continues: "He steadfastly adhered to his conviction that in orthopædy mechanical methods should alone be adopted. Many of his disciples and imitators have practiced his teachings, and thus great reproach rests upon Heine for having delivered orthopædy into the hands of the manufacturers of instruments. The medical profession, consequently, became averse to treating deformities, and so gradually, up to the present time, the majority of them prefer to relegate their patients to the department of the bandagist."

Upon this point I differ with Hoffa. Heine, I think, was on the right track. Members of the profession who do not appreciate the value of mechanical apparatus are to be blamed for this decadence, for they leave to the bandagist the most important department of therapeutics. Mechanical treatment is, and ever will be, the very essence of orthopædy. Upon that it stands or falls. If mechanical treatment be left out, orthopædy becomes either operative surgery or gymnastics and massage. The orthopædist must, of course, take personal supervision of the mechanical treatment, and not simply prescribe the apparatus as the practitioner prescribes his medicine. The apparatus should be made under his special direction, and he must assume the entire responsibility of its application and use. Under these conditions alone can he hope for continual development and progress. What would be thought of a surgeon who restricted his practice to diagnosis and prescription,

and turned his patient over to the nurse for mechanical treatment? What the patient demands of the surgeon he should require of the orthopædician. From the difficulty of defining the line between orthopædy and surgery there arose, according to Hoffa, the term "orthopædic surgery." As I have expressed my opinion to the effect that mechanical treatment is the essence of orthopædy, I should therefore prefer to have it called *mechanico-therapy*. The last term would be the more significant, but in Germany this term is used for "cures by motion" or gymnastics and massage. General surgery, then, would be divided into mechanical surgery and operative surgery. As there are some physicians who prescribe only internal medicine and do not perform surgical operations, so there are others who practice both internal and external treatment with equal skillfulness. Some surgeons undertake operative work only, others mechanical only, while many others practice both combined. An entire separation could be practicable only in large cities.

The consideration from this standpoint leads to the question, What diseases belong to the department of orthopædy and which of them belong to general surgery? Unfortunately, I do not know to what extent Heine carried his experiments. As to Hessing, we know that besides treating deformities, he also treated joint diseases, some cases of dorsalis, and also fractures successfully. We have seen, therefore, that from the above-mentioned illustrations the criterion of orthopædy is the mechanical treatment; and the representatives of orthopædic surgery, and other physicians who have had equal advantages show a predilection for solving mechanical problems. By this means patients may be supplied with apparatus from the technical and therapeutic point of view. The orthopædician should undoubtedly be placed upon equal footing with other specialists, in order that the sufferings of mankind may be alleviated. He may lay claim to the treatment of fractures, as well as to mechanical treatment of spondylitis; he may undertake the treatment of hernia as well as curvature. This should be taught in the universities, and it would then lead to a higher estimation of, and to more rapid progress in, mechanical surgery. Young doctors would then have the opportunity of studying the mechanical as well as the operative treatment of deformities, and would be glad to avail themselves of it, as they have hitherto been unable to do, notwithstanding that the professors have had the desire for imparting the knowledge. The number of operations in the treatment of deformities would be greatly diminished, as there are, as a matter of fact, very few that could not be avoided, if relatively simple mechanical means could be correctly and promptly administered. Nearly every osteoclasia or osteotomy in genu valgum or rhachitic curvature of the lower part of the thigh; almost every bloody operation in pes equino-varus; in fact, nearly every violent redressment of angular ankylosis of joint disease, has been necessarily performed because of incompetent knowledge of mechanical treatment.

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**Resorcin**, in five- to ten-grain doses, dissolved in plenty of water and flavored with orange-peel syrup, is reported to relieve the nausea and depression following the excessive use of alcoholic stimulants.—*British and Colonial Druggist*.

THE INFLICTION OF THE  
DEATH PENALTY BY MEANS OF ELECTRICITY.

BEING A REPORT OF SEVEN CASES.

With Remarks on the Methods of Application and the  
Gross and Microscopical Effects of Electrical Currents of Lethal Energy  
on the Human Subject.

By CARLOS F. MACDONALD, M. D.,

PRESIDENT OF THE NEW YORK STATE COMMISSION IN LUNACY;  
PROFESSOR OF MENTAL DISEASES IN THE BELLEVUE HOSPITAL MEDICAL COLLEGE;  
LECTURER ON INSANITY IN THE ALBANY MEDICAL COLLEGE.

(Concluded from page 509.)

AUTOPSIES.

*William Kemmler.*—The autopsy, held about three hours post mortem, was by verbal direction of the warden officially in charge of the writer, and was performed by Dr. E. C. Spitzka, Dr. George F. Shrady, and Dr. W. T. Jenkins, of New York, and Dr. C. M. Daniels and Dr. George E. Fell, of Buffalo, N. Y. Notes were taken by Dr. Shrady, from which the following is compiled :

Body fairly well nourished. Rigor mortis marked, particularly in the muscles of the jaw, neck, and thorax, and gradually extending from above downward, involving the feet and legs last. Post-mortem discoloration existed over lower portion (posterior and lateral aspects of trunk) of body, and extended up as far as the anterior axillary line, also on the pendent surfaces of the upper and lower extremities. The upper extremities were partly flexed and rotated outward, the nails showing post-mortem lividity. There was a seminal discharge, which, on microscopic examination, was found to contain a large quantity of dead spermatozoa. There was marked post-mortem discoloration of the forehead, about an inch in width, corresponding with the position of the strap, beginning at the hair on the left side and extending to the hair line on the right side. A corresponding discoloration from the pressure of the chin strap was also noted. There was an oval depression of the scalp upon the vertex, due to the pressure of the electrode, beginning at the anterior hair line and measuring four inches in its long and three inches and a half in its short diameter. Anterior to the posterior portion of the depression and in the immediate line there was a vesication an inch and a half in length, very superficial in character, crescentic in shape, and upon which the hair appeared to be slightly scorched. On the small of the back, corresponding to the level of the fourth sacral vertebra below and second above, four inches and a half in vertical diameter and four inches and a half in transverse diameter, was a burn, presenting four concentric zones, of which the outermost had a pale area, corresponding to that of the rubber cap of the electrode, and one fourth of an inch in diameter.

Succeeding this was a vesication, partial below and complete above, about an inch in diameter above and one third of an inch below.

Then followed another zone, which was in its upper third a complete eschar, black in appearance, and in its lower part showed desiccation of a greenish-brown color. The last or inner zone showed a number of vesicles, chiefly peripheral, and below the center was a black eschar, half an inch in its vertical and five eighths of an inch in its transverse diameter. Above was a tongue-shaped, pale area, with a lateral projection to the left of the median line, extending about two inches, and an upper projection in the dorsal furrow, which was more sharply pointed, and which on its periphery showed a reddened portion, with here and there vesication. In addition, the back showed a number of depressions produced by the folds of the

shirt and suspenders, such as are commonly found in dead bodies lying on the back.

On incising the skin over the sternum, the blood which escaped was unusually dark and fluid, and remained so on exposure. The muscles of the thorax were of the usual color. "Tardieu spots" were noticed on the posterior border of the lower lobe of the left lung. When placed in water, more than half of the lung floated above the surface, showing a marked emphysematous condition. The bronchi were normal in appearance, and contained mucus and air bubbles. The right lung was adherent throughout to the diaphragm. In the middle lobe of this lung there were numerous well-marked "Tardieu spots." The heart weighed five ounces and three quarters; its valves and substance were normal in appearance, and its ventricles were empty. The stomach contained a pint of undigested food. The blood from the cut surface of the liver was of a dark-crimson hue. The gall-bladder was distended with bile. The spleen was normal in size and appearance. The left kidney weighed three ounces and a half, and the right three ounces; both were markedly congested. There was no vermicular action of the intestines on exposure to the air or on irritation. The bladder was contracted.

The scalp, on being removed, showed the outer aspect of the vertex of the skull to be in a desiccated condition, corresponding with the site of the electrode as previously noted, but of a larger area, being four by four inches, the zone of the scalp being only two and a half by three inches, the long diameter being antero-posterior. On removal of the skull-cap, the dura was normal in texture, somewhat dull in color, particularly over the area corresponding with the zone of contact. In the pre-Rolandic region the meningeal vessels, measuring along the convexity antero-posteriorly four inches on the left side and three on the right, were filled with carbonized blood. On the internal aspect of the calvarium the meningeal vessels in the dura and in their contents appeared to be black and carbonized. The carbonized vessels were so brittle that their ends were torn off with the calvarium and presented a broken, crummy appearance. This carbonization was limited in an abrupt manner. The other meningeal vessels in the region corresponding to the outer burn, previously described, contained blood of a dark-crimson hue. In the narrowest portion of this region was seen, a little posteriorly, in the median line, a dark discoloration sending out a right lateral prolongation three fourths of an inch in the direction of the longitudinal sinus, and in width seven eighths of an inch. Over the left cerebral hemisphere, one third of an inch to the left of the median line, there was a deep carbonized spot corresponding with the desiccated portion of the calvaria. The pia and gyri were of a pale-buff color; the rest of the cerebral cortex was normal in appearance. While observing this anæmic area it was noticed that its blood-vessels began to fill. The pia and arachnoid on the convexity of the brain were perfectly normal. An interesting fact was observed on handling the pons and medulla, in that they were found to be warm. By a thermometer inserted in the fourth ventricle, the temperature was noted at 97° F. The area of this temperature corresponded with an area of temperature on the back of the neck which was noted at 99° F., three hours post mortem, the temperature of the room being 83° F. The smaller vessels of the pia were ectatic. *Capillary hemorrhages were noted on the floor of the fourth ventricle, also in the third ventricle and the anterior portion of the lateral ventricle. The circumvascular spaces appeared to be distended with serum and blood.* The brain cortex in the area of contact was sensibly hardened to one sixth of its depth, where there was a broken line of vascularity. The vessels over the corpus striatum showed enlargements in different parts of their ramifications. The pons was slightly softened.

The spinal cord was removed entire, but showed no gross appearances of pathological condition. Portions of the brain and spinal cord were preserved for purposes of hardening and microscopical examination. The blood taken immediately after death showed, under the microscope, a markedly granular condition, almost suggesting an electrolytic dissolution of the red corpuscles.

A preliminary microscopical examination of portions of the brain and spinal cord, including specimens from all the cerebral lobes of both sides, segments of the cervical, dorsal, and lumbar regions of the spinal cord, with the connected nerve groups, was subsequently made by Dr. Spitzka, who states as follows:

The brain, spinal cord, and peripheral nerves appeared structurally healthy in every portion examined, except in the area corresponding to the discolored (anæmic through extreme contraction of vascular channels) area of the Rolandic and pre-Rolandic regions, the ventricular surfaces, and the pons and medulla oblongata. The latter, which had been the seat of a remarkable post-mortem preservation of a temperature approaching that of the normal human body, were distinctly softer than the observer has been accustomed to find these parts in autopsies on persons of Kemmler's age, and performed so soon after death. The hæmorrhagic spots in the fourth ventricle, which were strongly marked, were not accompanied by signs of parenchymatous rupture of larger vessels. Hence they may be regarded as having the same significance as the "*taches de Tardieu*" found on the surfaces of other organs—notably, the heart and lungs.

The peculiar softened vesicular zone of tissue underlying the outermost layer of the cerebral cortex being very fragile, will require extreme care in hardening and manipulation to enable me to obtain reliable specimens. It is noteworthy that this "destruction line" runs parallel to the free surface of the brain and does not "dip" with the sulci.

Examination of the fresh specimen revealed the existence of vacuoles (probably gas bubbles) in the ganglion cells and in the parenchyma of the "destruction line." From the fact that no hæmorrhages had occurred in this softened area, it is a just inference that it was produced after life had become entirely extinct, for the continuance of a blood circulation in a softened brain area is incompatible with the bloodless appearance already noted and the absence of capillary hæmorrhages in this very district while they were present in those remote from the site of the electrode.

A more minute analysis will be completed, but can not be reported until some future time.

That the "cooked" appearance of the muscular tissue of the back beneath the site of the electrode, and the desiccation of the skull and so-called "carbonized" state of the blood-vessels on the internal aspect of the calvaria over the area corresponding to the zone of contact, were due to the unduly prolonged second contact, together with failure to properly moisten the electrodes, there can be no question, no such results having been observed in any of the subsequent cases, the surface lesion in these latter being limited to superficial vesication of the skin at the points of application of the electrodes, as will presently appear.

All of the subsequent autopsies, including the microscopical examinations, were made by Dr. Ira Van Gieson, of the Pathological Laboratory of the College of Physicians

and Surgeons, and are here described substantially in Dr. Van Gieson's language.

*Schichiok Jugigo.*—The post-mortem examination in this case was held four hours after death. The pupils were alike and moderately contracted. The body was well nourished and unusually well developed. The anterior epithelial cells of the cornea had desquamated from the central portion by the action of heat. There was a bulging forward of the sclera of the left eye at the left sclero-corneal junction. Conjunctiva anæmic. The scalp and skin covering the neck had a dull, purplish hue. The skin of the anterior surface of the body was not discolored or ecchymosed. At the flexure of both elbows were a number of symmetrical linear ecchymoses, which were more marked on the right side. Also a curved, narrow ecchymotic line just below the outside of the right nipple. These probably were caused by the straps. At the posterior surface of the right knee-joint, and on the posterior and inner and upper surface of the calf, the epidermis was raised, wrinkled, and folded. At the flexure of the knee joint the epidermis had been torn away to the extent of about an inch in diameter. The right lower extremity was flexed and bent more to the median line than its fellow. There is a slight discharge of thin, milky fluid from the urethra and some still remaining in the canal. A sample of this fluid was taken for microscopical examination. Post-mortem rigidity well marked except in the arms, where it was only slight. The whole posterior surface of neck, trunk, arms, and lower extremities was of a dull, purplish hue. There were a few slight blisters on both temples, and both cheeks and eyelids. There were raised whitish streaks on both sides of the neck, just below the angle of the jaw.

The trunk was opened by a straight incision from the top of the sternum to the pubes. The fat was an inch thick over the abdomen. Muscles red and firm. Diaphragm at left side was found at the level of the sixth intercostal space, and on the right side at the fifth intercostal space. Portions of small intestine were taken for microscopical examination.

Examination of heart: Auricles and ventricles flaccid and in diastole and filled with fluid blood. The larger vessels were tied and the heart removed. The left ventricle was well filled with fluid blood but no clots. The auricles were the same. The blood was of the same color in the left ventricle as in the right. Valves normal. On opening the vessels, a large quantity of dark-colored liquid blood escaped, half filling the pleural cavity. There were no pleural adhesions. Lungs perfectly healthy, but slightly congested.

The spleen was found to be of normal size, the capsule smooth, pulp firm, and uniformly filled with blood, and the arrangement of the Malpighian bodies and splenic connective tissue entirely normal.

The pancreas was perfectly normal and a portion removed for microscopical examination.

Liver entirely normal, and a portion was also removed for microscopical examination.

The gall-bladder was filled with bile.

Left kidney: The capsule was non-adherent. It was rather large and the cortex of normal thickness. The kidney was uniformly injected and the markings in the cortex were normal as to number and arrangement. The right kidney was in the same condition.

The stomach was empty, the mucous membrane pale; the rugæ were well marked and perfectly healthy.

The intestines were healthy. The small intestines were filled with semi-fluid fæces. The large intestines showed the same condition.

The urinary bladder was normal and half full.

Examination of brain: The brain was exposed by a straight incision of scalp over the vertex from ear to ear, and saw cuts through the skull at a slight angle and at the level of the eyebrow. The scalp showed several old scars, and was slightly less adherent under those portions where the electrode was attached. The skull was symmetrical. The dura mater was normal and the vessels moderately dilated. The longitudinal sinus was found to be normal and contained some fluid blood. The brain was removed in the usual way. The pia mater was uniformly thin and transparent; the vessels in a medium state of congestion; subpial fluid small in amount. The blood was everywhere fluid in the meshes of the pia mater. There was no apparent difference in that portion which the electrode covered. The vessels at the base were perfectly normal. The ventricles contained a small amount of clear fluid. The roof and floor of the lateral ventricles were normal. The ependyma was smooth and transparent. White substance firm. Gray matter normal in every respect. Floor of the fourth ventricle at the upper half contained some dilated vessels, and on the left side there were a number of minute, radiating petechial spots from one to two millimetres in diameter. (See Fig. 1.)

The spinal cord was exposed in the usual manner. The external appearance of both cord and membranes was entirely normal, and the vessels containing, if anything, even less blood than usual, due, probably, to the short time that had elapsed between the occurrence of death and the holding of the autopsy. Sections half an inch apart showed nothing abnormal. A portion of both sciatic nerves was taken for microscopical examination.

Owing to the great length of time necessary to make this autopsy as completely and minutely as was done, and the subsequent careful microscopical examinations, it was not considered necessary to examine the brain and spinal cord in the other cases, especially as nothing of any importance had been observed in these organs in this case.

*Harris A. Smiler.*—Posterior surface of the body was of the same color, and also showed the same blisters as in the case of Jugigo. The left leg showed the same state of contraction.

The body was opened by the long, straight incision, as in the case of Jugigo. The diaphragm was found at the left side at the sixth intercostal space and on the right side at the fifth intercostal space. The left lung was slightly adherent at the apex. The heart was rather small. The left ventricle was somewhat firmer than the right, which latter was a little flabby. The auricles were distended with fluid blood. The right ventricle was empty and collapsed. The apex of the left lung was small and shrunken and retracted, and contained a few small, scattered, dense, tubercular nodules, some of which were calcified. Otherwise the lung was normal and resembled the preceding case. Right lung shows the same set of changes, but not so marked. Small ecchymotic spots (Tardieu's spots) were observed under the pericardium on surface of left ventricle. The walls of the ventricles were of normal thickness. There were signs of an old endocarditis below the aortic valves. All the valves were healthy.

The spleen was small and the pulp soft and normal.

The pancreas was normal.

The liver was normal both in size and texture.

The left kidney was greatly hypertrophied and the capsule non-adherent. The cortex was somewhat thickened and the markings distinct and regular; moderately congested. The right kidney was small, two and a half by three quarters of an inch in size, and weighed forty-eight grammes—less than an ounce and three quarters. The tissue was normal, but the kidney was apparently congenitally small.

*Intestines.*—Descending colon was filled with gas; ascending colon and small intestine pallid and contained semi-fluid material.

Stomach contained undigested food, potatoes, etc. Mucous membrane pale and coated with a thin layer of slimy mucus. Bladder distended with urine. Walls and mucous membrane normal.

Examination of brain and cord deemed unnecessary. The blood was fluid everywhere and darker than normal.

*Joseph Wood.*—Autopsy held at 1.25 p. m.

Body presented same appearance as in preceding cases. There was the same contraction of the legs and the same general appearance as in the others. Same condition of epithelium of cornea.

Median incision made as in other cases. Diaphragm attached to fifth intercostal space on both sides. There were half a dozen scattered petechial points found under the pericardium, half a millimetre in diameter. On the anterior surface of both ventricles and on the posterior surface of the left ventricle were five scattered similar points. On the posterior surface of the right ventricle were three similar small points and one larger, three millimetres and a half in diameter.

Heart normal in size and condition of ventricles the same as in the case of Smiler. Both lungs were free from adhesions. The right lung, bronchi, pulmonary vessels, and lung tissue were normal, but somewhat more pigmented than usual. The substance of the lung was dry and dark pink in color. Heart muscles pale and firm and of normal thickness. All the valves were normal.

Spleen was normal in size and dark red in color, and showed two thickened white patches on capsule. The pulp was firm.

The pancreas was normal.

The liver was normal in every respect.

Both kidneys normal in every respect.

Nothing abnormal was found in the intestines.

The gall-bladder was distended with normal bile.

The urinary bladder was of normal thickness, but the mucous membrane was considerably congested.

The brain and cord were not examined.

*James J. Slocum.*—Autopsy held at 1.45 p. m. There were the same blisters and external appearances as in the others. There was also the same appearance of cornea. Median incision was made as in the other cases.

*Heart.*—Petechial spots scattered about as in the other cases, and were also observed under the pulmonary pleura. The left ventricle was firmly contracted, while the right was flabby. Both auricles, especially the right one, were filled with fluid blood. The left lung was free from adhesions. The upper lobe of right lung was slightly adherent. The left lung was in the same condition as the others, but slightly œdematous. The right lung was in the same condition. There was a well-marked large group of petechial spots at the center of anterior surface of left ventricle.

The spleen was of normal size, with the pulp soft, of dark-red color and somewhat congested.

Pancreas was normal both on the surface and on section.

The gall-bladder was half full of bile and the common duct patulous.

The liver was normal in every respect.

The left kidney was very much congested, but normal in all other respects.

The right kidney was in a similar condition.

A careful examination of the intestines showed nothing abnormal.

The bladder was collapsed and normal.

The trachea was normal.

## MICROSCOPICAL EXAMINATION.

The practical results of the microscopical examination are, that the passage of the electric current through the body is attended with no recognizable changes in its tissues or organs, excepting the local thermic changes in the skin at the points of application of the electrodes and some minute petechial spots on several of the organs.

Such a summary of the examination, however, seems insufficient without adding that it was determined by most exhaustive and modern investigation, and as there are apparently no recorded examinations of similar cases in medical literature, it seems not inappropriate to give the detailed report subjoined, showing in what way and to what extent the tissues were examined.

Specimens were taken from all four of the subjects, but the material from the Japanese criminal was especially selected for minute study, as it could be obtained the soonest after death.

Notes about the technical preparation of tissues are added at the conclusion of the report.

*The Examination of the Cells in General.*—For this purpose the ciliated cells of the trachea, the liver cells, and the ganglion cells were studied especially with the oil-immersion lens. The physical properties of the protoplasm are in no way changed. The arrangement of the protoplasm, its volume, consistency, its behavior with light and staining reagents, are not at all different from the ordinary cell body. The same may be said of the constituent elements of the nucleus. None of the cells in any of the tissues examined show any signs of mechanical violence, such as tearing, fracture, or disintegration of the protoplasm. Neither does there appear to be any chemical change in the nucleus or cell body, as far as can be determined with micro-chemical methods. (The cells thus studied were prepared with solutions of corrosive sublimate, and also osmic acid.)

*The Blood.*—The blood cells are not damaged in any way by the current. The red cells have their normal size and shape. The white cells are uniformly spherical and have the usual arrangement of the nuclei. The blood was very perfectly preserved, even the blood plaques being unchanged.

*The stomach, small intestine, and kidney* are unchanged, with the exception of a slight amount of post-mortem degeneration in the parenchyma cells. The stomach shows the appearances of functional activity.

*The liver and pancreas and spleen* show no changes.

*The Muscular System.*—The smooth muscles, studied from the gastro-intestinal tracts and the heart muscle fibers, are unchanged.

In sections of the eyelid lying directly beneath the electrode the voluntary muscle fibers are normal.

*The blood-vessels* are not altered. *The lungs and genital organs* were not examined microscopically. The fluid ejaculated from the urethra in the case of the Japanese criminal does not show spermatozoa.

*The central nervous system* was examined with especial care. It has recently been determined that, during periods of muscular fatigue or prolonged muscular exertion, certain of the motor-ganglion cells are diminished in volume, which is recovered again during periods of muscular repose. Speaking roughly, this shrinkage of the ganglion cells during muscular fatigue represents a sort of mechanical equivalent of the work done by the muscles. Hodge (*Am. Jour. of Psychology*, May, 1888, 1889, and 1891), in inducing experimentally the effects of fatigue in ganglion cells by the prolonged action of weak electrical currents, found that the ganglion cells suffered a vacuolation, shrinkage in the volume of the cell body, and a still greater reduction in the size of the nucleus. This diminution of the

ganglion cell was tangible enough and could be measured, and in some cases in Hodge's experiments with the current on cats the nucleus shrank to 43.9 per cent. of its original bulk.

Although it could hardly be expected that there would be time enough for the ganglion cells of these criminals to show traces of the intense muscular contractions, yet the ganglion cells of the central convolutions and the anterior spinal cornua were very carefully examined to see if there would be any shrinkage coincident with the expenditure of so great an amount of muscular energy as was manifested during the contacts.

The ganglion cells in these regions, however, as far as can be determined by careful comparison with sections from the same regions in other ordinary healthy subjects, seem to be normal in size, or at least do not show any striking reduction in volume. A slight shrinkage may be present, but it would be almost impossible to determine it from the lack of a normal standard to make measurements with. Concerning this suspected change in the ganglion cells, then, it may be said that if there is any shrinkage at all, it is of very limited extent.

At the autopsy some minute petechial spots were found on the floor of the fourth ventricle (Fig. 1).<sup>\*</sup> Microscopically, these spots are small masses of extravasated red blood-cells, situated, for the most part, in the perivascular spaces just beneath the ependyma.

The diagrams show the distribution and character of those hæmorrhages well enough, so that we may omit detailed description of them. A few of the extravasations are more deeply situated and have a more significant position with regard to the important nuclear groups in the medulla. Fig. 2*a* shows one of the hæmorrhages just on the outskirts of the sensory vagus, and other smaller ones close to the hypoglossal nuclei. The extravasation near the vagus is confined by the perivascular space of the median lateral artery of the medulla, which takes the course of the dotted line *x, y*, in Fig. 2.

These hæmorrhages look as if due to the passage of blood along the perivascular spaces, and out into the tissues after rupture of a small vein or capillary, but whether any especial significance should be attached to these hæmorrhages, or whether they are caused directly by the current, or by intense muscular tension, or by manipulation in removing the brain, are questions extremely difficult to decide about.

*The Peripheral Nerves.*—The sciatic nerves from both sides were examined without finding any change or difference between the sciatic of the electrode side and its fellow.

The delicate structures of the *retina* lying so close to the electrode are not altered.

*The skin beneath the electrode* is but slightly changed. The epidermis is absent or raised up from the corium and has a dried-up appearance. The corium, structurally, is nearly normal; the connective-tissue nuclei are not shrunken and stain well, but the connective-tissue bundles and fibers seemed changed chemically and behave abnormally with certain staining reagents. The sweat glands are degenerated to a considerable extent; they have a desiccated appearance.

It would then appear from this examination that, beyond the scalding effects of the electrodes, electric currents passed through the body in this way produce no change in the body except minute petechiæ, and it is doubtful if these are not some indirect or secondary consequence of the current. The results of the microscopical examination of the two remaining subjects—Loppy and McElvaine—are corroborative in every way of this examination.

It seems proper to add that the central nervous system of only one of these four cases was removed, because nothing was

<sup>\*</sup> The plates are from drawings by Dr. Van Gieson.

found in it which would receive any further elucidation from the examination of the other three cases.

#### METHODS OF THE PREPARATION OF THE SPECIMENS.

*The Blood.*—Two drops from a glass rod dipped in the freshly cut right ventricle were received in a one-per-cent. aqueous osmic-acid solution.

The sciatic nerves were prepared in the same medium by gently pulling short fasciculi out of their lamellar sheaths, allowing the acid to penetrate.

*The Central Nervous System.*—Thin shavings of the convolutions and of the cervical spinal cord were placed in alcoholic and aqueous solutions of corrosive sublimate of different strength for periods of time varying from an hour to several days. Exceedingly small portions of the gray matter were also hardened in Fleining's osmic-acid mixture and in one-per-cent. osmic-acid solution for half an hour. All of the specimens were subsequently hardened in eighty per cent., and then in strong alcohol.

Still other portions of the convolutions were scraped gently with a sharp razor, so that the gray matter was reduced to a thick pulpy broth on the edge of the razor. This pulp was then shaken into exceedingly fine fragments in osmic acid and sublimate solutions, so that the fixation of the ganglion cells would be as nearly as possible uniform and instantaneous. (Incidentally, attention may be called to this method as giving very good results for ganglion cells, and being much better than the ordinary methods of hardening the cortex in blocks, no matter how small.)

The medulla and portions of the cord were also hardened in Müller's fluid in the usual way. The *trachea*, *thoracic* and *abdominal* viscera were prepared in sublimate solution, and also with strong alcohol in the ordinary way. Portions of the *spleen*, *pancreas*, and *liver* were also injected interstitially with osmic-acid solution. The eyeball, *eyelid*, and *singed portions* of the *integument* beneath the electrodes, were prepared with Müller's fluid.

All of these variously hardened portions of the tissues were imbedded in celluloid and sections stained appropriately with several different methods, such as Weigert's method, double staining with hæmatoxylin and eosin, and also with the picro-acid fuchsin method.

*Martin D. Lippy.*—Autopsy held as soon as practicable after breaking of the last current. Subject somewhat below the medium stature. Body well nourished. Muscular system well developed. Rigor mortis almost completely, if not entirely, absent, except in the right leg, where there is sufficient muscular rigidity to hold the leg slightly adducted and flexed at the knee joint. The mouth and nostrils are perfectly natural, and show no traces of the extrusion of fluids or frothy material. About a drachm of viscid fluid, wetting the skin of the pubic region, has escaped from the urethra.

There are no discolorations, contusions, or other marks on the skin, except in two places—viz., (1) at the flexure of the right knee, where the lower electrode was applied, and (2) upon the cheeks, corresponding to the position of one of the restraining straps. The unexposed surfaces of the skin are everywhere else smooth, white, rather thin, and delicate in structure, and show no settling of blood in the dependent portions of the body.

At the flexure (or back part of the knee joint), where the *lower electrode* was applied, there is a diffuse reddish discoloration of the skin about three inches and a half by five inches in diameter. This region of the skin shows a very moderate, superficial, irregular separation of the thin outer scarf skin or

epidermis from the true and thicker skin beneath. The epidermis or scarf skin in this region is raised up and corrugated, and it can be easily rubbed off with slight force. When the whole thickness of the skin is cut through with a knife, it can be seen that this change is quite superficial, affecting the outer scarf skin only, and does not damage the corium or true skin beneath to any appreciable extent.

The corium or true thicker skin underlying the electrode region is soft, pliable, not desiccated, and seems to be normal in every way, except that it is somewhat congested, which produces the reddish discoloration in this region.

The layer of fat beneath the skin in the electrode region is in no way changed or damaged.

The *head electrode* has left no traces upon the skin. The forehead and scalp beneath the electrode are perfectly white and natural, and there are absolutely none of the superficial alterations referred to above at the knee joint.

There is redness and swelling of both cheeks just beneath the eyes, which is very moderate in extent and not enough to make any distortion of the face. This was occasioned by pressure against one of the leather restraining straps during the periods of muscular activity when the current was applied.

The right eye had been lost some time previously during life. The eyelids are closed; skin of eyelids intact. Anterior corneal epithelium of the left eye cloudy, but not detached. The eyeball is perfectly natural; it has the proper tension and contour.

The interior of the mouth is normal. The tongue and the teeth show no signs whatsoever of injury.

The body was opened in the usual way. The abdominal organs were critically examined first, then the thoracic viscera, and finally the brain and upper portion of the spinal cord.

The *stomach* is normal; it is much contracted, rather small; mucosa pallid; fundus smooth; pyloric extremity folded.

The *small intestine* is normal, contracted, upper portion nearly empty, lower portion partially filled with semi-fluid faecal matter.

The *spleen* contains, just beneath the normal capsule, several larger and smaller hæmorrhagic spots, from one millimetre to three millimetres in diameter, such as are not infrequently found after death from a variety of causes. The substance of the spleen is normal.

The *pancreas* is normal in size and texture.

The *liver* is normal in size, and uniformly filled with blood; cut surface smooth, stroma and parenchyma unchanged. *Gall-bladder* normal; partially filled with bile.

The *kidneys* are of medium size; capsules non-adherent; vessels well filled; the cortex is normal in thickness, and has its constituent elements properly arranged.

The *suprarenal capsules* are unchanged.

The *urinary bladder* shows no abnormalities; it is much contracted and its mucosa pallid.

*Heart.*—The left ventricle is firmly contracted and empty; both auricles and the left ventricle are flaccid. The right ventricle contains a little fluid blood. Two small thickened patches of old endocarditis are at the base of the aortic valve. The heart muscle is firm and normal.

The *diaphragm* stands at the level of the sixth intercostal space on the left side, and at the sixth rib on the right side.

The *lungs* are non-adherent, pale, normal in size, texture, and consistence.

The *trachea*, *oesophagus*, and *aorta* are normal.

The *vocal cords* are in cadaveric position.

*Brain and Spinal Cord.*—The brain was removed in the ordinarily practiced method, and the scalp, pericranium, and skull show no effects of the head electrode. Skull brachycephalic.

Dura mater of convexity normal. Longitudinal sinus normal; contains a little fluid blood. Pia mater not thickened, but contains a number of nebulous striæ and opacities uniformly scattered over the whole convexity. There was considerable subpial fluid. Both this change in the pia mater and the increased subpial fluid are referable to some pre-existing condition, and are such as are not infrequently found in persons having the age and intemperate habits of this subject.

Convolutions of the brain have the normal topographical distribution; substance of brain normal, both as to the conditions of the blood-vessels and the character of both the gray and white matter. Vessels at base normal. Lateral ventricles contain a slight amount of clear fluid. Ependyma of all ventricles unchanged. Floor of fourth ventricle normal.

The right optic nerve—corresponding to the lost eye—is atrophied, having about half of its ordinary thickness. The medulla, pons, and basal ganglia show no abnormalities. (These were referred to Dr. Brill for microscopical examination.)

There is an old healed fracture extending across the right orbital process of the frontal bone, one centimetre from the median line, which extends backward and outward nearly to the apex of the petrous portion of the temporal bone for a distance of about five centimetres. The dura mater along the track of this old fracture is slightly thickened (to the extent of three millimetres) and adherent to the bone.

The superior portion of the *spinal cord* shows no changes in its coverings, vessels, or substance.

The muscles were critically examined to determine if there were any signs of violence induced by the current or the contraction it caused, and with a negative result. The muscles of the chest, abdomen, and calf were normal, bright red, firm, and show not the slightest tearing or rupture.

*Remarks.*—In looking carefully over the details of this autopsy and comparing this report with that of the four previous cases of infliction of the death penalty by electricity, the following points may be noted:

1. The passage of an electrical current of the pressure employed in these cases (of approximately from 1,400 to 1,700 volts) and in this manner does not do any damage to any of the internal organs, tissues, or muscles. None of these parts are lacerated or changed in volume; neither are there any gross chemical or morphological changes or alteration of their finer structural features.

2. The local thermic effects of the electrodes are limited to the outer scarf skin. The true skin beneath is not damaged to any appreciable extent. The epidermis or scarf skin may be separated from the deeper skin, and resembles in this way an ordinary blister from which the fluid has escaped. The blisters about the knee in this case are like the ordinary familiar water blisters on the hands from friction, or the blisters which physicians often have occasion to produce in their treatment of disease. Where the skin has been exposed to the weather, and is tougher and more resistant, as on the forehead and scalp, the blistering does not take place, whereas in the more sensitive delicate skin of unexposed surfaces, as at the fold of the knee joint or the calf, the superficial blistering is more readily induced. Compared with the four previous executions, the changes in the skin induced by the local thermic action of the electrode are even still less in degree in this case, and may be pronounced altogether trivial.

3. The occurrence and distribution of the minute hæmorrhagic spots (described more completely in the previous cases) are not a uniform or constant feature in these cases, and as they are found after death from the greatest variety of causes, they can not properly be regarded as positively characteristic of death by this method.

4. The attitude of the body on the autopsy table is peculiar and very uniform. When the electrodes are applied at the knee flexure, the leg is invariably slightly flexed at the knee and a trifle adducted.

*Charles McElraïne.*—Approximately two to three minutes after the breaking of the last current the reflex action of the voluntary muscles was tested as follows:

1. The patellar reflex was tried in the usual way without any response from the muscles either in the knee of the electrode side, which was rigid, or the knee of the other side, which was relaxed.

2. The cornea was touched with the finger without eliciting any exertion from the muscles of the eyelids.

3. The nipples were pinched with a forceps, and the surrounding skin was scratched and lightly scarified with fine scissors; but this did not induce any motion of the muscle groups, or even any fine fibrillary twitching of the individual fibers of the subjacent muscles.

4. One of the muscles of the abdomen (the rectus) was exposed, but showed no activity when cut or irritated with the knife. Voluntary muscle reflexes to ordinary stimuli were absent. The activity of smooth or involuntary muscle was *not* interfered with; thus peristalsis of the intestines and the cremasteric reflex could be excited.

After these tests the autopsy was made immediately.

I. *External Appearances of the Body.*—The subject is a trifle below the medium stature, well nourished, has no deformities, and has well-developed muscular system. The lips are pallid, but the nostrils and interior of the mouth are perfectly natural. The left eyelid is quite firmly closed, while the other lid is partly open. The delicate membrane coating the front of the cornea has not been disturbed by the head electrode. The pupils are about midway open, nearly uniform, and measure about two millimetres and a half in diameter. The eyeballs are natural. There is no distortion of the face, such as muscular contractions or marks of violence, to mar the countenance.

*Rigor mortis* is marked only where the current was applied; the electrode leg is flexed at the knee joint at an angle of about 90°, and is a trifle adducted. The arms, which received the first contact, are less flexed than the knee joint, and the fingers are almost completely closed in the palm of the hand.

There are no evidences of a seminal emission.

The skin is everywhere perfectly natural, except at the points of application of the electrodes, and here there are some superficial changes in the outer layers of the skin. In these places, at the back part of the right knee joint and on the upper surface of the wrists (where the first contact was made), the thin outer scarf skin is wrinkled and raised up or partially detached from the true or deeper skin beneath.

These superficial patches on the skin in the electrode regions are not extensive and do not measure more than two to two inches and a half in diameter. In order to see if these patches involved the skin beyond the outer layers, the whole skin was cut through with the knife and looked at critically. It was then seen that the deeper layers of the skin were but very little involved. The deeper or true skin is in places in these patches a little drier than it ought to be, and this is all. The layer of fat beneath the slightly superficially damaged patches on the skin is perfectly normal in every way.

II. *Examination of the Thoracic and Abdominal Organs.*—There is very little to be said about the examination of these organs other than that they were subjected to a thoroughly detailed systematic scrutiny, and nothing abnormal was found either about their shape, consistency, or texture, except the left ventricle of the heart was firmly contracted, while the right ventricle was flaccid. Valves and heart muscle normal.

The left kidney (measuring 6 × 13 centimetres in diameter) contained a number of larger and smaller cavities (the largest one centimetre and a half in diameter) near the region of the pelvis, some of which contain calculi. Such a condition of the kidney is due to an old chronic previous process, and is to be expected in persons who develop calculi in the kidney.

All of the viscera and organs of the thorax and abdomen were examined.

III. *The Central Nervous System.*—The brain is brachycephalic and is perfectly normal as to its coverings, in the disposition and structure of its blood-vessels, in the arrangement of the convolutions, fissures, and sulci, and in the texture and relative distribution of the gray and white matter. The fourth ventricle and its floor are normal. The superior portion of the spinal cord is normal. (The brain was not completely dissected, in order that it might be transported to Professor Donaldson, of Clarke University.) The brain with the pia weighed, on scales weighing to half a gramme, 1,442 grammes. The dura mater weighed 52 grammes.

IV. *The Muscular System.*—The muscles are red and firm and show no signs of tearing, rupture, or hæmorrhage.

*Conclusion.*—As might naturally have been expected, the adoption and successful inauguration of this new method of capital punishment has not been accomplished without encountering vigorous opposition, amounting in some instances to violent and apparently malicious denunciation of the acts and motives of those who were called upon to act as principals in carrying out a law the establishment of which must eventually be regarded as an important advance in criminal jurisprudence in the direction of a higher civilization. But even to-day, despite the wide publication of unofficial reports, proclaiming the method a failure and apparently designed to invest it with an air of repulsion, brutality, and horror, it is conceded by substantially all unprejudiced individuals who have witnessed these executions, or who are reliably informed as to the facts relating thereto, as well as by a large and increasing proportion of the daily press, that the intent of the law to effect sudden and painless death has been fully attained in each instance. That a method of judicially inflicting the penalty of death in punishment of the crime of murder will ever be devised which in its operation shall be divested of that sense of awe and dread usually experienced, especially by laymen, when in the presence of death, is not to be expected; and even were it possible, the wisdom of such a method might well be questioned, so long as the welfare and protection of society require the infliction of such a penalty to deter men from committing murder.

It should be borne in mind that up to the time of Kemmler's execution there was no recorded instance of death having been deliberately effected on the human subject by this method, the only knowledge on the subject being derived from experiments on lower animals and from observations in cases of death from accidental contact with live electric wires and from such deductions as could logically be made from technical knowledge of electro-motive force; hence the first execution by electricity was necessarily to some extent experimental and attended with possible elements of uncertainty, owing in part to crudeness in the law and in part to certain minor defects in the arrangement and operation of the apparatus and to the inexperience

of those in charge. In spite of these defects, however, the important fact remains that the prisoner was instantly rendered unconscious and death was painless.

Of the nearly one hundred physicians, many of whom are eminent members of their profession, who have witnessed one or more of these executions, only two have dissented in any essential particular from the conclusion that this mode of inflicting the death penalty destroys conscious and organic life, both aggregate and segregate, with a suddenness and thoroughness that is not attained by any other known method. One of these gentlemen, a distinguished surgeon and an ardent opponent of capital punishment in any form, witnessed the Kemmler execution, and while concurring in the general opinion that unconsciousness was instantly produced by the first contact, still thought there was a possibility that resuscitation might have been accomplished by means of hypodermic injections of brandy—that is, after the first contact. The other dissenting physician, who is an advocate of the execution of criminals by means of suffocation with toxic gases, witnessed the execution of McElvaine. He also agreed that unconsciousness was instantly produced by the first contact, but thought that the second shock was required to effect absolute death. There is no reason to doubt the sincerity of either of these gentlemen.

Dr. Van Gieson, in his official report of the McElvaine autopsy, in speaking of the rapid abolition of reflex action of the voluntary muscles, says:

This tends to show how superlatively complete and far-reaching the effects of the currents are in abolishing life, not only in the concrete form, but also in the integral activities of the body which in other forms of sudden and violent death is liable to persist for a time after life is extinct. From observations at this execution, as well as at the subsequent examination of the body, the current appears at first not only to extinguish life in the ordinary sense of the word, so far as consciousness, feeling, and volition are concerned, with overwhelming suddenness, but reaches beyond this and destroys the energies of the individual component parts of the body so that they can not be raised into activity by artificial mechanical stimulation, as is usually the case in sudden violent death.

The experience thus far had has demonstrated that the only reasonable objection to so-called "electrocution"—at least so far as the individual is concerned—as compared with other modes of inflicting the death penalty, lies in the fact that the application of a current of lethal energy results in the generation of heat at the point of contact, and, if sufficiently prolonged, is attended with vesication of the skin at that point, owing to the temperature of the moisture on the electrodes becoming elevated to the boiling point, while if the sponges are allowed to dry out, local burning may occur. This occurs, however, if at all, toward the end of the contact and long, comparatively, after conscious life is extinct; hence the objection is, after all, merely a sentimental one. Furthermore, it may reasonably be assumed that a method of avoiding this local thermal effect will soon be determined.

Finally, as compared with hanging, in which death is frequently produced by strangulation, with every indication of conscious suffering for an appreciable time on the part

of the victim, execution by electricity is infinitely preferable, both as regards the suddenness with which death is effected and the expedition with which all the immediate preliminary details may be arranged. By the latter method the fatal stroke renders the subject unconscious in an infinitesimal fraction of a second—so small as to be beyond the power of the human mind to estimate it—while, at the same time, it destroys both conscious and organic life in a shorter space of time than is possible by any other known method. In other words, it is the surest, quickest, most efficient, and least painful method of inflicting the death penalty that has yet been devised.

334 FIFTH AVENUE.

## ELECTRICAL EXECUTION.\*

By W. J. JENKS.

PROFESSOR LAUDY has expressed the feeling which I experienced regarding the possibility of accidental interruption of the current at a critical moment during an electrical execution, and I think it important that any such possibility should be guarded against as further experience may dictate, principally in two ways—first, by making the apparatus, engine, belting, dynamo, and circuit of ample capacity, and partially loading it by operating a considerable number of lamps or otherwise, so that when the sudden strain is put upon it by the completion of the circuit through the body, the additional load may be a small percentage of the total output at that moment or of the total capacity; second, by reducing, as far as is feasible, the energy applied.

Dr. Morton's remarks have very greatly instructed and interested me. If he will permit me, however, I should like to call the attention of the gentlemen present to a few considerations and a few methods of expression which may point the way to a clearer appreciation of just what occurs to the body of the man upon whom the hand of justice is laid in the application of the extreme penalty which human power can inflict, in the form of instantaneous electrical death.

Dr. Morton has to-night truly said that it is not the mere voltage that kills. Perhaps a desirable form of expression is that it is the expenditure of that voltage at a certain rate for a certain time.

But the indefinite ideas that prevail on this subject are well illustrated by an incident which is a matter of public record. Not long ago a gentleman who has a wide reputation as an instructor and a man of science made some remarks on this point in testimony before the Board of Aldermen of the city of Boston. In the course of his examination the following record was made by the stenographer:

"Q. Now, when such a current (alternating) is applied to the human body, it has a tendency to disintegrate all of the tissues of the human body, and is necessarily fatal?"

"A. It depends on how much there is of it. I have taken alternating currents, and every one knows that they are used in connection with medical treatment.

"Q. What voltage?"

"A. Oh, millions of volts. I have taken the current from an ordinary little medical machine—well, I will be very conservative and say, to the extent of half a million volts.

"Q. But a small quantity of electricity?"

"A. Small in quantity; yes, sir.

"Q. It would be like taking a stream of water so small that you could hardly see it, and projecting it with great force?"

"A. It would be projecting it backward and forward; it is really vibration."

Now, while at a first reading of these expressions they may appear to agree with Dr. Morton's proposition, it is difficult to imagine more misleading statements. If there is any medical electrical machine in existence that will resist the pressure of 500,000 volts tending to break down its insulation, the fact that it could produce that electro-motive force would by no means prove that any such pressure was expended in the body of a person who might use it. It does not require much power to produce a difference of potential of 500,000 volts, but it would require an enormous power to *maintain* that pressure if given an opportunity to expend itself in a human body, for, assuming a resistance of 200 ohms, we should find a fall of potential of 2,500 volts for every ohm, or, as we usually express it, a current of 2,500 ampères.

To apply a pressure of 1,000 volts, alternating from two hundred to three hundred times a second, and *maintain* that pressure for an appreciable time against the resistance of the human body, does not probably greatly increase that resistance at the instant of contact. Or, if it has such an effect, the *maintenance* of the so-called current reduces the effective resistance so speedily that we get the expenditure, from 1,000 volts (to say nothing of 500,000 volts), of such tremendous energy as snuffs out the life of the criminal more quickly, as the graphic language of Dr. MacDonald's paper has explained, than neural impression can be carried from the point of contact to the seat of sensation in the brain.

The energy that kills is therefore the product of three factors—(1) the electrical pressure or electro-motive force that is applied to the surfaces of the body, or, in more accurate technical language, the effective difference of potential (in volts) between the electrodes, shown by the Cardew voltmeter; (2) the rate of expenditure of this potential in each unit of resistance in the body, or the number of volts fall of potential to the ohm (ampères) shown by the ammeter; (3) the time (seconds) shown by the stop-watch. The volt-ampères (watts) give the rate at which the work of destruction is going on; the volt-ampère-seconds (joules) are the measure of energy expended or heat developed in the body during the time of contact.

None of these factors are well settled as yet in their relation to the energy actually required to cause instant and painless death. By "death" I mean now, not alone cessation of consciousness of a perfectly healthy human being in an interval too brief for thought to measure, and the establishment of conditions which produce gradual and final expenditure of the stored nervous energy of the brain and the subordinate centers of distribution of vital force—such as the pneumogastric nerve and the spinal column—I mean,

\* Remarks made, by invitation, in the discussion of Dr. MacDonald's paper.

DR. MACDONALD'S ARTICLE ON  
THE INFLICTION OF THE DEATH PENALTY BY MEANS OF ELECTRICITY.



FIG. 1.

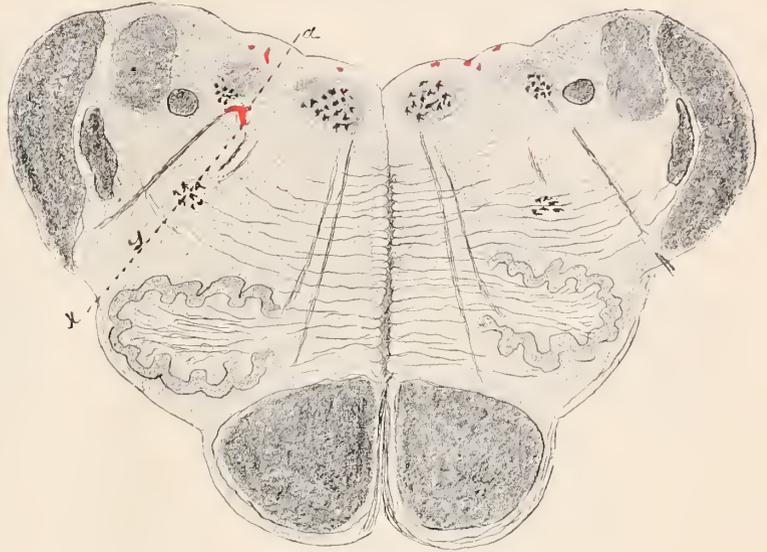


FIG. 3.

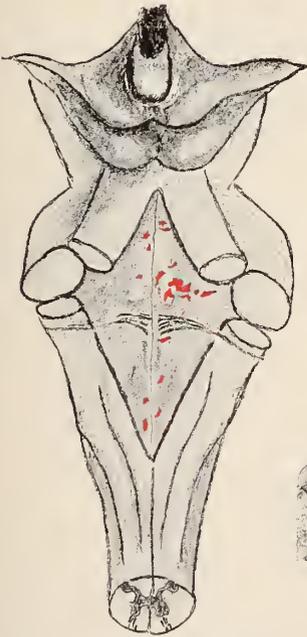


FIG. 2.

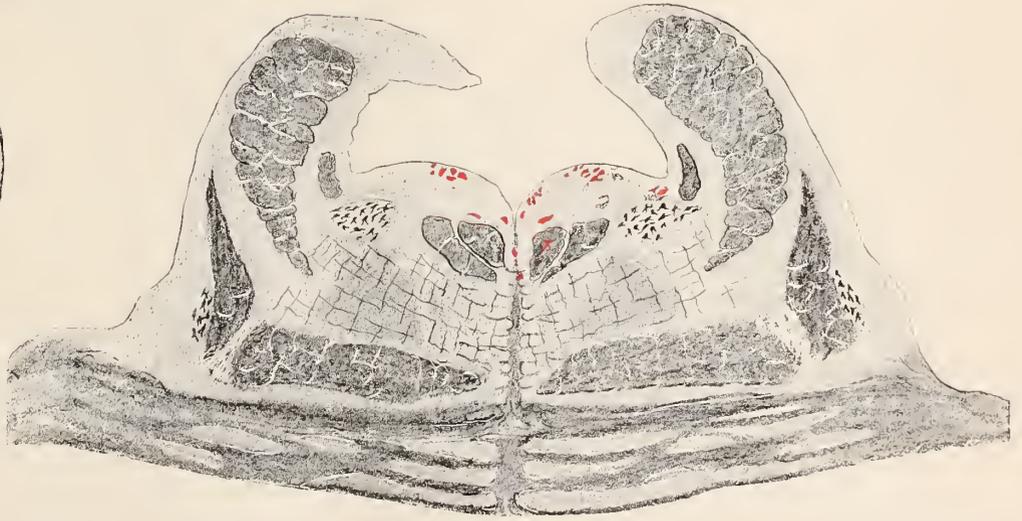


FIG. 4.

FIG. 1 shows the construction of the "death chair," the method of applying the current through the hands in the case of McElvaine, and the attitude of the subject before receiving the contact.

FIGS. 2, 3, and 4 show the character and distribution of the petechial spots in the floor of the fourth ventricle in the case of Schichiok Jugigo.

MR. JENKS'S ARTICLE ON ELECTRICAL EXECUTION.

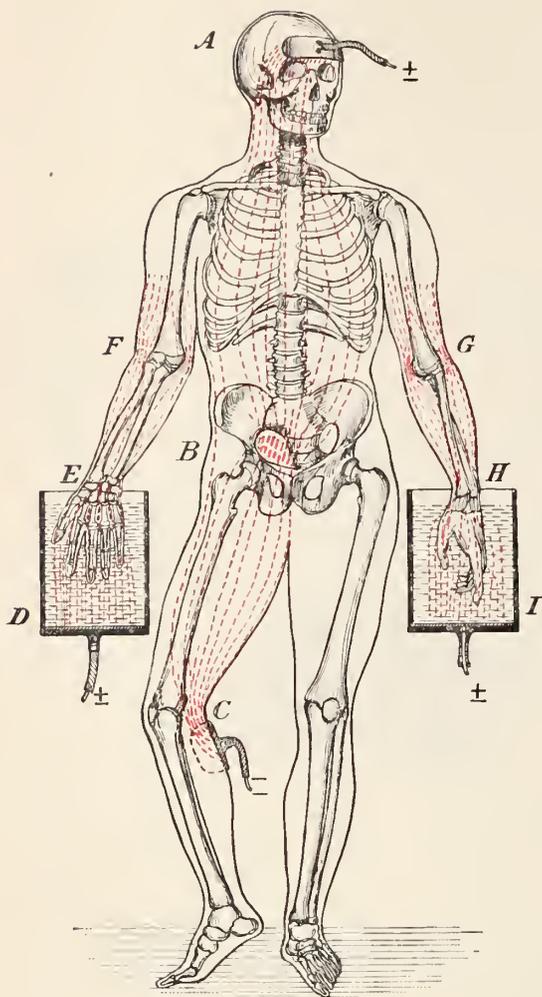


FIG. 1.

FIGURE 1.

Assumed distribution of resistance, and expenditure of energy which would result from such distribution, illustrative of possible conditions of second contact in McElvaine's electrocution. Total potential, 1,500 volts; average current, 7 ampères. Total resistance indicated by volt and ampère readings, 215 ohms. Width of channel through the body illustrates assumed comparative conductivity. Total watts expended  $(1,500 \times 7) = 10,500 = 14$  H. P. Only

$\frac{490}{10,500} = 4\frac{2}{3}$  per cent. of total energy is by this assumption expended upon the large channels of blood, the heart and lungs, and the nerves between the neck and hips.

C.—Surface contact and adjacent tissues say within six inches of electrode on the leg: 80 ohms, 560 volts drop, 3,920 watts.

C to B.—Knee to trunk: 45 ohms, 315 volts drop, 2,205 watts.

B to A.—Heart and trunk generally: 10 ohms, 70 volts drop, 490 watts.

A.—Surface contact of head electrode and adjacent tissues: 80 ohms, 560 volts drop, 3,920 watts.

FIGURE 2.

Assumed distribution of resistance and expenditure of energy illustrative of possible conditions of first contact in McElvaine's electrocution. Total potential, 1,600 volts; average current, 2.5 ampères. Total resistance, 640 ohms. Width of channel through body illustrates comparative conductivity. Total watts expended  $(1,600 \times 2.5) = 4,000 = 5\frac{1}{3}$  H. P. Only  $\frac{135}{4,000} = \frac{1}{32} = 3$  per cent. of

total energy is here expended upon the large channels of blood and the nerves between the shoulders and the heart and lungs.

D to E.—Heart and trunk generally: 20 ohms, 50 volts drop, 125 watts.

C to D.—Elbow to shoulder: 50 ohms, 125 volts drop, 312 watts.

B to C.—Wrist to elbow: 250 ohms, 625 volts drop, 1,562 watts.

A.—Salt-water contact: 10 ohms, 25 volts drop, 62 watts.

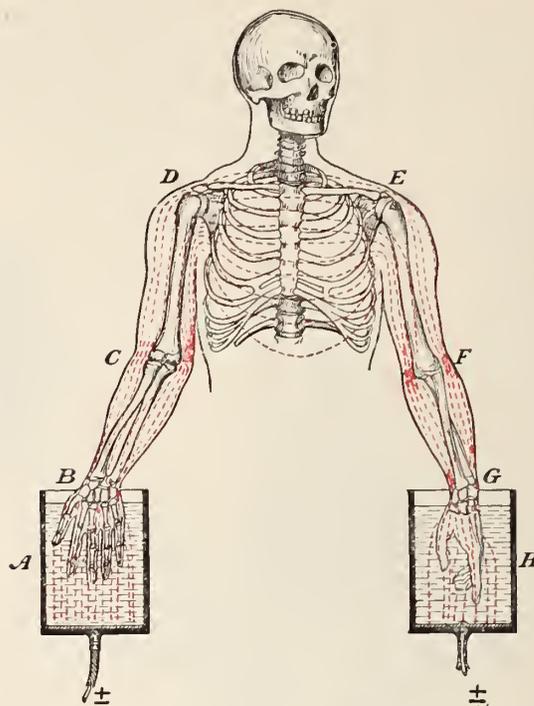


FIG. 2.

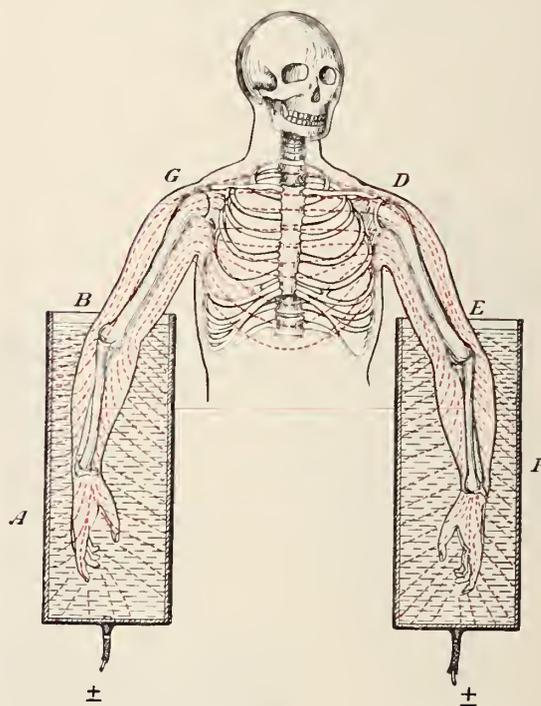


FIG. 3.

FIGURE 3.

Assumed distribution of resistance and expenditure of energy illustrative of possible conditions of a contact from arm to arm, immersed to the elbow, the total potential remaining as before, but the current, of course, increasing and the distribution of fall of potential entirely changed. Width of channel illustrates comparative conductivity; current, 11.43 ampères. Total resistance, 140 ohms. Total watts expended  $(1,600 \times 11.43) = 18,288$  watts, or  $24\frac{1}{2}$  H. P.  $\frac{2,613}{18,288} = 14$  per cent. of total energy is here expended upon the blood channels, nerves, and lungs.

A.—Salt-water contact: (say) 10 ohms, 114 volts drop, 1,303 watts.

B to G.—Elbow to shoulder: 50 ohms, 571 volts drop, 6,532 watts.

G to D.—Heart and trunk generally: 20 ohms, 228 volts drop, 2,613 watts.

also, total paralysis of all the vital organs and of the nervous centers by which they are directly or indirectly vitalized, and by which the muscles of the extremities are actuated, so that when the current is broken there can be no reflex action of the muscles, such as would indicate the presence of residual life energy, or a possibility of its resuscitation.

I think none of these factors are settled, because it is not yet known how small a resistance may be found when only those parts of the body which must be paralyzed, and the surface tissues which most readily lead the current to those parts, are included in the circuit. That the contact surfaces are excellent (and satisfactory) no intelligent witness of one of the later executions will deny. The peculiar scalding effects of the current at the edges of each of the electrodes nearest to the electrode of opposite polarity, and for some distance along the track most readily followed by the greatest density of the current, has been attributed—erroneously, I think—to the contacts themselves, and to the idea that accidental surface moisture has been followed by the current and heated till dissipated in vapor.

The rough sketch (Fig. 1) will illustrate what I believe to be the correct idea. Near each electrode the area of comparatively good conducting material (moisture-filled tissues) which lies in the line of least resistance is limited, and a high degree of current density results, until in its course from one electrode toward the other the current finds an expanded path and can spread itself over a larger area without departing very much from a direct line, or at any rate without encountering largely increased resistance. Within this area of great current density or large expenditure of volts to the unit of cross-section of the conducting tissues the few blood-vessels, nerve channels, and moisture ducts oppose so great a resistance to the rush of energy as to occasion a great drop of potential and thus great heat, and the moisture is quickly raised in temperature to the scalding point. Much of it must have been turned to steam under the epidermis and perhaps in the minute blood-vessels, and those portions of the body close to the electrodes are parboiled if a large current is maintained.

How useless this great expenditure of potential is, I have tried to show by the calculations attached to Figs. 1, 2, and 3. The correctness of this general analysis was demonstrated by the intensity of the heat observed in the fore-arms and near the head and leg electrodes in the case of McElvaine, and the fact that the bony structure of these parts of the body contributed materially to the resistance was evident from the high temperature (120° F. or more) which was noted for nearly two hours after death.

It is also evident that a fall of potential, under the conditions of Fig. 2, between the hands and the shoulders is not useful in producing instant death. Hence it appears that the energy expended outside the vital centers (on the assumptions of these rough sketches) is greater by far than that which actually accomplishes the paralysis desired. Hence, probably three quarters or more of the total horsepower applied to the body is of no substantial effect. If a current of the same number of ampères could be expended exclusively at the life centers, it might be found that only

a low voltage (perhaps 100) would be ample, and that the concentration of 10 ampères or less in these centers of nervous activity might allow of the reduction of the time also to a fraction of what has thus far been considered necessary or desirable.

For example, in the case of McElvaine, the heat energy expended was approximately, in the first contact, 1,600 (volts)  $\times$  2.5 (ampères)  $\times$  50 (seconds) = 200,000 (joules); in the second contact, 1,500  $\times$  7  $\times$  36 = 378,000; total, 578,000 joules.

Suppose it should be found that proper application of the electrodes would reduce the voltage to 200, the ampères to 5, and the time to 10 seconds. We should then have an expenditure of only 10,000 joules of energy, and may it not be found in the future practice of this method that thus no disfigurement of the body need be produced, and absolute animal death may occur more quickly than that of any of the seven victims of whom Dr. MacDonald has spoken? Thus the "forty-horse-power death" desired by Dr. Morton may not be necessary. May it not often be the case that death by the thunderbolt is caused by the expenditure in the body of 10,000 volt-ampères or even less for  $\frac{1}{100000}$  of a second, or even a shorter time?

As an aid to a settlement of these questions of how many volts, ampères, and seconds are necessary, or rather how few of each can be relied upon to do the work with absolute certainty, it would be important to determine the relative resistance of various portions of the body, because when we apply a deadly current, the fall of potential and the work done at every point are in exact proportion to the percentage which the resistance of that point bears to the resistance of the whole.

I regret that Mr. A. E. Kennelly, consulting electrician at the Edison Laboratory, with whom I attended McElvaine's execution, is not present. In his absence I will take the liberty to read extracts bearing upon this point from a letter which he wrote me under date of March 14th, in answer to the suggestion I have just expressed.

"I think that a high pressure brought to bear upon a man's body between any two points, say hand to hand, finds the resistance initially just what we measure it by the bridge, but that it breaks down at a rate rather difficult to foresee. Also that valuable experimental measurements could be made (as you suggest) of the resistance in different parts of a man's body, thus—[drawing] "A B represents (diagrammatically, I should mention) a man lying on his back in a semi-nude condition. A battery or dynamo current (direct or alternating) is applied of the right and readily supported strength at convenient points, say the extremities C and D, by means of wet bandages. Sponge-faced electrodes E, F, connected with an electrometer, are then moved from point to point by various distances apart and the fall of potential studied. I suspect—without pretending to know—that the resistance of the body and its distribution from point to point mapped out by this method, would be maintained in ratio or relative proportion under fatal pressures, even though the absolute resistance fell everywhere.

"I confess that, while the hand method is the simple and practical method with or without deep immersion as you outline it, the head method is the true way for rapid and complete nerve destruction. I give that point to the doctors. I do not think that the difference between three and seven ampères ac-

counts for the difference we saw in the after-effects and reflex sensibilities.

"I think that an accurate knowledge of the resistance from point to point of an average human body might assist occasionally in the diagnosis of disease, and the comparison with the resistances of a corpse might have useful results to show."

I am not a believer in capital punishment. The idea is to me revolting and inconsistent with the theory of a high civilization. It has never seemed to me that the deliberate destruction of human life ought to be necessary to the well-being of society. The same safety might, I think, be secured by a law which would doom the murderer to life imprisonment beyond any possibility of escape save the one chance of proving that he had been wrongfully convicted.

But if "life for life" is in the future to be the law of the land, electricity is an agent by which we may take life swiftly, surely, and mercifully. The dignity which has marked the electrical executions thus far has been as noteworthy as the previously unattained rapidity of every movement by which the result has been secured.

## INFLUENZA IN NORTHERN NEW ENGLAND.

BY S. B. OVERLOCK, M. D.,

STEBEN, MAINE.

As to the articles that have been written on *la grippe* since it has become a prevalent epidemic disease in this country their names are legion, and my only excuse for offering anything additional to the medical profession is that my experience with the disease has been confined to a section of country different from that of any author's whose article has come to my notice. Also, that while the mortality has been high in towns but a few miles distant from this, out of over three hundred cases to date no one of them has ended fatally here.

The outbreak of this disease during the present winter has been more severe than that of last winter or of two years ago, a much larger number of cases terminating in pneumonia. During the latter part of December and the whole of January the epidemic was confined to the outlying districts east of the town and along the sea-board, not a single case appearing in the town proper, or in the outlying farming and lumbering sections to the westward. After nearly every person, and at times whole families, had been prostrated and recovered in the first-mentioned sections, cases began to appear in town, which rapidly spread into the outlying districts westward. Every age and condition were alike seized—hardy fishermen and lumbermen, exposed to every change in weather, and the merchant and artisan, who had hardly been out of doors for the winter—showing conclusively that "colds" had little or nothing to do with the spread of the disease.

Clinical features have varied according to age and physical condition of the patient, but all have had enough in common to furnish a chain of symptoms highly characteristic of the disease. In children under ten or twelve years of age vomiting has been an almost constant symptom.

Constipation has prevailed in a large majority of cases; in a few the reverse has been present—diarrhœa. In adults rapidity of pulse, marked rise in temperature, cephalalgia, and pain in limbs have been constant symptoms for the first twenty-four hours. At the end of this time a cough and acute bronchitis are prominent features. In aged people there is always a sense of fatigue, nervous depression, and sometimes somnolence.

In the epidemic of two years ago an attempt was made to formulate some regular plan of treatment, but without satisfactory results. In the present epidemic a general plan of treatment has been followed, varying, of course, with the age and general physical condition of different patients. In sthenic subjects with high arterial tension, marked rise of temperature, cephalalgia, pain in limbs, if there has been no movement of the bowels for the previous twenty-four hours or longer, a full dose of calomel was usually given, and if this failed to produce an evacuation in twelve hours, it was followed by a saline. In one hour ten grains sulphate of quinine with Dover's powder was given. In a short time the skin became moist, arterial tension began to lower, cephalalgia and pain in the limbs to abate. Tincture of aconite in small doses frequently repeated was given, watching meanwhile respiratory movements. The aconite seemed to lessen the amount of work done by the organs of respiration, and by blunting sensibility of the sensory nerves relieves the neuralgic pains to a greater extent than any other antipyretic. Usually after twenty-four hours' treatment arterial tension has become nearly normal, temperature is reduced in a marked degree, and there is little or no pain in head or limbs. When bronchitis was present, as it may be said to have been in every case, an expectorant mixture consisting of fluid extract of ipecac, chloroform, and syrup of squill or Tolu syrup was given every two, three, or four hours, according to indications. If the expectorated matter was particularly viscid or took on the peculiarly bluish tint seen in many instances, carbonate of ammonium and iodide of potassium or iodide of ammonium was added to the cough mixture. If a marked sore throat was present, chlorate of potassium was used with good results, combined either with the expectorant mixture or with tincture of the chloride of iron, and applied to the throat with a swab. Pneumonia, as a complication, received the usual treatment. Alcoholic support was used earlier than in a pneumonia not preceded by *la grippe*. With children the principal antipyretic used was the liquor ammonii acetatis. This with a simple cough mixture usually brought the attack under full control in from eighteen to twenty-four hours. In old and feeble subjects alcoholic stimulants and an expectorant were administered at once, and this was the principal treatment adopted.

In a few cases the newer analgesic, antikanina, was used with good results, so far as relief of pain was concerned. Acetanilide and antipyrine do not fulfill the indications or meet the wants of the patient in the symptomatic fever accompanying the disease. Physicians who use acetanilide, especially in case of the weak, irritable heart of brain-workers, will be obliged to write "heart failure" frequently in their death certificates.

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THE THYREOID GLAND AS A CAUSATIVE AND CURATIVE  
AGENT IN MYXÆDEMA.

In an interesting paper on the function of the thyreoid gland, published in the *British Medical Journal* for January 30th and February 6th, Mr. Victor Horsley concludes that this gland, is a structure essentially connected with the metabolism of the blood and tissues, being both directly and indirectly hæmatopoietic in fulfillment of its functions, secreting from the blood a colloidal substance that is transmitted by means of the lymphatics from the acini of the gland to the circulation. This position seems to be sustained by the general results of experimental thyreoidectomy, and they seem also to favor the view that the gland is an important origin of metabolic influence. As a consequence of experimental researches, he believes that the symptoms of disease or obliteration of the gland may be divided into a first, or neurotic; a second, or myxædematous; and a third, or cretinic stage. Death may occur in any of these stages, according to the virulence of the cachexia. The indispensability of the gland seems to be demonstrated by the hypertrophy of its tissue when a portion of it is lost; and a certain proportion of its tissue must be maintained for the purpose of health, though its importance varies with the activity of the vital processes, being greatest in early life and diminishing with age.

The constant additions that experimental physiology has made to our knowledge of the functions of this gland have been a stimulus to further research regarding the means of alleviating the conditions consequent upon its disease or removal. Among the first experiments were those made in grafting a portion of an animal's thyreoid into the peritoneal cavity or on to some other structure of an individual afflicted with the "cachexia strumipriva." But such an operation is open to many objections.

Recently experiment and practice have essayed another method. Mr. George Murray presented a paper at the last meeting of the British Medical Association (*British Medical Journal*, Oct. 10, 1891) in which he stated that, if we considered that myxædema and cachexia strumipriva were due to the absence from the body of some substance which was present in the normal thyreoid gland, and which was necessary to maintain the body in health, it was at least rational treatment to supply that deficiency as far as possible by injecting the extract of a healthy gland. Vessale's experiments with intravenous injections of an extract of that gland in dogs after thyreoidectomy suggested the beneficial results that would follow similar injections, and in his paper the author reported the case of a lady, aged forty-six, who had suffered with myxædema for five

years, in which sterilized extract of sheep's thyreoid was injected hypodermically with resulting improvement in all the symptoms of the disease.

Recently Dr. W. Beatty (*British Medical Journal*, March 12, 1892) has reported a case of this disease in a lady, aged forty-five, who had had gradually progressive symptoms for four years, in which he first tried massage for five weeks with very moderate benefit. Then injections of the extract of sheep's thyreoid were given at intervals of from four to ten days with rapid and marked improvement in the patient's condition.

In a communication to the same journal for October 10, 1891, Mr. E. Hurry Fenwick reported a case of myxædema in which he had grafted a sheep's thyreoid, and on the following day the temperature had risen from its usual subnormal level to normal, while the urinary excretion increased from twenty to fifty ounces per diem. In a subsequent case of the disease in which he injected thyreoid juice hypodermically similar results were obtained, persisting for twenty-one days and occurring more rapidly. So it seems from this latter report that the action of the juice when injected is quite rapid and, as compared with the operation, quite as efficacious.

It has not yet been demonstrated that the thyreoid tissue will persist as such after transplantation, and, while the beneficial results of injections of the juice may be limited to the time during which their use is continued, still the excellent results obtained in an amelioration of the symptoms of what has been considered an incurable disease would warrant their administration with the precautions the originator has prescribed.

A MUSICAL ANUS.

SOME four or five years ago M. Verneuil exhibited to his class in Paris a case of what he facetiously denominated "musical anus." The patient was able at times, when sufficient flatus had accumulated in his colon, to evacuate it with some force, thereby producing a high-pitched musical note resembling that of a violin. On close examination, he was found to have, in the cellular tissue about the lower end of the rectum, a pneumatocele, with an opening into it from the rectum, formed by a narrow slit between two thin folds of mucous membrane, which, acting like a reed, produced the sound when the air was expelled from the tumor by forcible pressure from above. Numerous cases of fistula and other deformities of the anus have been seen in which the expulsion of gas from the bowel was accompanied by peculiar sounds, some perhaps musical to the enthusiastic observers. But in all these cases there has been some deformity or malformation of the rectum or anus.

Dr. Baudouin, however, has lately reported in the *Semaine médicale* a case that may with justice be called one of musical anus, and one that is of much interest from a physiological point of view. The patient, or rather the exhibitor, is a man aged thirty, well developed, but without muscular excesses, tall, of full weight, and, so far as can be made out, entirely free from any disease or deformity. His digestion is good and he does not develop an unusual quantity of gas in the bowel after

eating. There is no pyrosis or abdominal tympanites. His fæcal passages are normal, regular, and well molded. The anus and rectum, in a state of repose, present nothing abnormal. The sphincter is moderately strong, but quite distensible, notwithstanding its daily exercise. The rectum is normal and not dilated. The remarkable feature of the case is that the lower bowel, at least, seems to be absolutely under the control of the man's will. He can empty it completely whenever he desires, a very fortunate accomplishment for his clothing and for the olfactories of his audiences. He was reared on the shores of the Mediterranean, and it was here that he first noticed his remarkable power. While bathing one day he observed upon strong inspiration the sensation of cold in his pelvis and abdomen, and at the same time felt the sea water entering his rectum. In a short time he was compelled to empty his bowel, and noticed that he had taken in a much larger quantity than he had supposed. By practice in the ordinary bath and in the sea, he became able to store a considerable quantity of water, to retain it for some time, and to eject it with much greater force than at first. Later on he noticed that he could accumulate air in his bowel, as well as water, and by its expulsion could give rise to certain variations of sound. Applauded by his associates, who acknowledged his superiority in this class of exercise, he eventually developed the faculty beyond measure, and frequently gave exhibitions of his art before a select circle of his friends. From these reunions he began to exhibit his powers in the clubs and cafés until he became the best-known and greatest curiosity of the place. As his reputation spread he made journeys to the surrounding towns and villages, Bezin, Nîmes, Toulouse, and Bordeaux. At the latter place he was examined by many of the medical faculty, and a discussion of the case was reported in the *Gazette hebdomadaire des sciences médicales de Bordeaux* for March, 1892, in which Dr. Ferron and Dr. Boursier said they had each seen men possessing the power of storing and expelling considerable quantities of water from the rectum, but had never seen one able to draw in and expel air. In addition to this power, however, this individual has a peculiar control over the external sphincter, by which he is able not only to control the escape of air but also to imitate the sounds of a violin, a trombone, and other instruments, and to reproduce melodies thereby which may be distinctly recognized. To do this he stands with his legs straight, his body flexed upon his thighs, and his head bent first to one side and then to the other. During the performance he moves his buttocks in all directions, seeming thus in some way to be able to govern the conformation of the anus and to produce the different sounds and tones. There is said to be no disagreeable odor to the expelled air, as he clears the ground well before beginning operations. The process consists of two acts, inspiration and expiration, the former taking only one or two seconds, and the latter being capable of being prolonged from ten to fifteen seconds.

These facts have been verified by Professor Richet and Professor Poirier, who have made a prolonged study of the case, as well as by many others of the faculty of Paris. From a

physiological point of view the case is very interesting, opening up the field for discussion and study as to how far the colon can be made to supplant or supplement the lung in voluntary respiration, and the sphincter of the anus to take the place of the lips in playing on wind instruments.

## MINOR PARAGRAPHS.

### ALBUMOSURIA.

DR. LEE DICKINSON, as reported in the *Medical Press and Circular* for December 2, 1891, has presented before the Clinical Society of London twenty cases of pneumonia and other affections in which the urine contained albumose. These cases, or some of them, are probably the same essentially as those that have in times past been designated peptonuria. Neither by Dr. Dickinson nor by Dr. Fyffe, his collaborator, was true peptone found, but whenever the biuret, or purplish-red, reaction was obtained, albumose was its cause. This is a point of importance because many albumoses are poisonous, and the ordinary albumoses of peptic digestion have a much more powerful action than true peptones when injected into the circulation of animals. From the effects of injections in animals it seems probable that the diarrhœal complications from which many of these patients suffered may have been due to the passage of albumose through their blood. The noteworthy point in these cases was their high mortality; they also were marked by serious sequelæ, apart from the development of empyema. Again, it was noted that albumosuria was absent throughout some of the cases that were accompanied by extensive hepatization of lung and had a virulent course and fatal termination; and it is judged probable that, *ceteris paribus*, a favorable prognostic sign in severe pneumonia may be based on the existence of albumosuria. The origin of the albumose is pus, or at least inflammatory exudation, especially that of pneumonia; and it is probable that it is the product of the pyogenic micro-organisms. Albumosuria has been observed in acute rheumatism. Ovarian cysts when ruptured have been recognized by the presence of albumose in the urine. This substance is clinically related with intercurrent diarrhœas, but it seems to have no special relation with organic renal disease.

### PHYSICAL INSTRUCTION IN THE PUBLIC SCHOOLS.

THE superintendent of the public schools has prepared a scheme of instructions in physical exercise, to be the guide of the principals of the various schools in teaching gymnastics to their pupils. At present there is more or less of drill in calisthenics in most of the schools, but there are special appliances in five schools only. Next year the number in which appliances will have been introduced will probably be quadrupled. A regularly educated physician has been appointed to have oversight of the physical instruction in the schools, under the control of the Board of Education.

### THE RED BLOOD-CORPUSCLES AS A SOURCE OF ANIMAL HEAT.

THE *Lancet's* Paris correspondent states that Professor Mosso, of Turin, has recently communicated to the *Société de biologie* an account of certain experiments of his going to show that the red blood-corpuscles have something to do with the thermogenic function. Having curarized a dog, Professor Mosso practiced artificial respiration with hydrogen, so as to remove every trace of carbon dioxide. Sensitive thermometers were then inserted,

one into the carotid artery, and others into various viscera; whereupon, as soon as artificial respiration with ordinary air had been begun, the mercury in the carotid thermometer suddenly rose, while in the others it did not.

#### THE NEW YORK EYE AND EAR INFIRMARY.

THE family of the late Dr. Abram Dubois, who for many years was one of the surgeons of the infirmary, are, it is announced, about to add to it a pavilion in his memory. As this will require the destruction of a portion of the old building and the erection of another new one, the trustees will appeal to the public for contributions to the necessary fund. These they ought to have no difficulty in obtaining to any requisite extent, for the institution has served the community most solidly for well-nigh three quarters of a century, and has been remarkably well managed.

#### THE "KAISERQUELLE" AT TÖLZ.

THE *Medical Press and Circular* for January 20th comments on an apparently intentional deception in the matter of an alleged mineral water. The Kaiserquelle spring has been lauded as the richest "iodine spring" in the world since the time of its so-called discovery in 1890. It has been shown in a court of law that it was a manufactured and not a natural product. The "discoverer" of the spring, named Bertsch, caused a small stream of water to pass through a milk-can filled with a lot of chemicals suitable to yield the kind of water he thought he could sell to sick people. All might have gone well if the owner of the spring could have kept his secret a year or two longer.

#### FEVER AT FLORIDA RESORTS.

SOME of our citizens are said to have made a speedy exodus from Florida recently, under the belief that a fever, typhoidal in nature, had appeared at two or more of the best hotels frequented by Northern people. There have been some serious cases of sickness brought home from the South, but no deaths have been reported.

#### ITEMS, ETC.

**The American Surgical Association** will meet in Boston, in the hall of the Natural History Society, on Berkeley Street, on Tuesday, Wednesday, and Thursday, May 31st and June 1st and 2d, under the presidency of Dr. Phineas S. Connor. The preliminary programme gives the following titles: The Treatment of Uncomplicated Fractures of the Lower End of the Humerus and of the Base of the Radius, by Dr. John B. Roberts, of Philadelphia; Fibroid Tumors of the Uterus, by Dr. John Homans, of Boston; Surgical Operations on Persons suffering from Diseases not connected with that necessitating the Operation, such as Chronic Malarial Poisoning, Diabetes, Organic Heart Disease, etc., by Dr. W. T. Briggs, of Nashville, Tenn.; The Surgery of the Tongue, by Dr. N. P. Dandridge, of Cincinnati; Conditions demanding Excision of the Globe of the Eye, by Dr. W. H. Carmalt, of New Haven, Conn.; Ancient Contractures of the Hip and Knee Joints, by Dr. T. F. Prewitt, of St. Louis; and A Report of Operations upon Spina Bifida and Encephalocoele, with remarks, by Dr. A. T. Cabot, of Boston.

**The Death of Dr. Charles Fremont Clark, of Brooklyn**, occurred on April 21st. He was born at Wheeling, West Virginia, in 1856. He obtained his education in letters at the Washington and Jefferson College, and was there graduated in 1878. The College of Physicians and Surgeons gave him his medical degree in 1883. After a year spent as interne at the Brooklyn City Hospital, he was for several years in private practice in Brooklyn. His final illness was apparently of the nature of an obscure typho-malarial fever. He had for seven or eight years past supposed himself to be the victim of malarial poisoning, and

he had treated himself for that condition until about a week before his death. He then had alarming elevations of temperature, as high as 107° F., also a great increase of abdominal pain. Consultations were called, but the unusual elements of Dr. Clark's malady could not be satisfactorily accounted for, and its untoward progress could not be stayed. An autopsy revealed the true cause of this painful attack and untimely death to have been a chronic inflammation of the vermiform appendix, on which an acute attack had supervened, with multiple metastatic supuration in liver, lungs, and kidneys. He was found also to have been the subject of an abnormally free, or "floating," caput oeli. The mesentery on the right side was faultily developed and permitted the caecum and appendix to swing out to the left side in such a way as to keep alive and to aggravate the trouble that had probably begun years before in the appendix. The latter organ contained a foreign body, which had evidently been the source of a chronic and sub-acute irritation, and given rise to the belief that malarial influences were at work to undermine the sufferer's health. Dr. Clark's life appeared not to have been in imminent peril, except for the added burden of this anatomical abnormality, the floating caecum, which masked the ordinary indications for surgical interference until the time had passed for that plan of treatment.

**The Death of Dr. Lorenzo W. Elder, of Hoboken, N. J.**, took place on Wednesday, the 11th inst. The deceased, who was in his seventy-third year, had for many years been a much respected practitioner in Hoboken.

**The Buffalo Medical and Surgical Association.**—The special order for the meeting of Tuesday evening, the 10th inst., was the reading of a paper on Some Sources of Error in Obstetric Diagnosis, by Dr. P. W. Van Peyma.

**The Medical Association of Central New York** will hold its twenty-fifth annual meeting in Syracuse, at the Empire House, on Tuesday, the 31st inst.

**Thymacetin.**—"Hofmann, of Leipzig, applies this name to a derivative of thymol bearing the same relation to the latter which phenacetin does to phenol. Its chemical composition is represented by the formula  $C_{16}H_{21}NO_2$ . It is a white, crystalline powder, difficultly soluble in alcohol. It has hypnotic properties."—*Druggists' Circular and Chemical Gazette*.

**Changes of Address.**—Dr. Austin Flint and Dr. Austin Flint, Jr. to No. 60 East Thirty-fourth Street; Dr. James A. Nichols, to No. 143 West Thirty-fourth Street.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from May 1 to May 7, 1892:*

WOLVERTON, WILLIAM D., Lieutenant-Colonel and Assistant Medical Purveyor, is granted leave of absence until July 10, 1892.

APPEL, AARON H., Captain and Assistant Surgeon, is relieved from duty at Fort D. A. Russell, Wyoming, and will report in person for duty to the commanding officer, Fort Buford, North Dakota, relieving CABELL, JULIAN M., Captain and Assistant Surgeon, who will then report in person for duty to the commanding officer, Fort D. A. Russell, Wyoming.

CRAMPTON, LOUIS W., Captain and Assistant Surgeon, is relieved from further duty at Fort Townsend, Washington, and will report in person to the commanding officer, Fort Spokane, Washington, for duty at that station.

BALL, ROBERT R., Captain and Assistant Surgeon, is relieved from further duty at Fort Spokane, Washington, and will report in person to the commanding officer, Fort Townsend, Washington, for duty at that station.

BRADLEY, ALFRED E., First Lieutenant and Assistant Surgeon, will, upon the arrival of Acting Assistant Surgeon GEORGE D. DESHON at Columbus Barracks, Ohio, return to his proper station (Omaha, Nebraska).

MC CREERY, GEORGE, Captain and Assistant Surgeon. The leave of absence granted for seven days is extended fifteen days.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending April 30, 1892:*

HENEBERGER, L. G., Surgeon. Detached from the U. S. Steamer Iroquois and granted three months' leave of absence.

PAGE, J. E., Assistant Surgeon. Detached from the U. S. Steamer Iroquois and ordered to the Receiving-ship Independence at Navy Yard, Mare Island, California.

WAGGENER, J. R., Surgeon. Detached from the U. S. Steamer Kearsarge and Naval Hospital, New York, and placed on waiting orders.

**Marine-Hospital Service.**—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the three weeks ending May 7, 1892:*

BAILHACHE, P. H., Surgeon. Detailed as chairman of boards for physical examination of candidates for promotion and appointment, Revenue-Marine Service. April 26 and May 3, 1892.

MEAD, F. W., Surgeon. Detailed as chairman of board for physical examination of candidates for appointment, Revenue-Marine Service. May 5, 1892.

KALLOCH, P. C., Passed Assistant Surgeon. To proceed to Providence, R. I., on special duty. April 29, 1892.

KINYOEN, J. J., Passed Assistant Surgeon. Detailed as recorder of board for physical examination of candidates for appointment, Revenue-Marine Service. May 5, 1892.

STONER, J. B., Assistant Surgeon. Ordered to examination for promotion. April 20, 1892.

DECKER, C. E., Assistant Surgeon. Detailed as recorder of boards for physical examination of candidates for promotion and appointment, Revenue-Marine Service. April 26 and May 3, 1892.

GARDNER, C. H., Assistant Surgeon. To report to Commanding Officer, Revenue Steamer Rush, for duty. April 18, 1892.

*Promotion.*

WHEELER, W. A., Surgeon. Commissioned as Surgeon by the President. April 20, 1892.

**Society Meetings for the Coming Week:**

MONDAY, *May 16th*: New York Academy of Medicine (Section in Ophthalmology and Otolaryngology); New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, *May 17th*: Missouri State Medical Association (first day—Pertle Springs); Illinois State Medical Society (first day—Vandalia); Pennsylvania State Medical Society (first day—Harrisburg); New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Medical Societies of the Counties of Kings and St. Lawrence (annual), N. Y.; Ogdensburgh, N. Y., Medical Association; Hampden, Mass., District Medical Society (annual—Springfield); Baltimore Academy of Medicine; North Carolina State Medical Society (first day—Wilmington).

WEDNESDAY, *May 18th*: Iowa State Medical Society (first day—Des Moines); Missouri State Medical Association (second day); Illinois State Medical Society (second day); Pennsylvania State Medical Society (second day); New York Academy of Medicine (Section in Public Health and Hygiene); Northwestern Medical and Surgical Society of New York (private); Medico-legal Society, New York; Harlem Medical Association of the City of New York; New Jersey Academy of Medicine (Newark); North Carolina State Medical Society (second day).

THURSDAY, *May 19th*: Iowa State Medical Society (second day); Missouri State Medical Association (third day); Illinois State Medical Society (third day); Pennsylvania State Medical Society (third day); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private); North Carolina State Medical Society (third day).

FRIDAY, *May 20th*: Iowa State Medical Society (third day); Pennsylvania State Medical Society (fourth day); New York Academy of Medicine (Section in Orthopaedic Surgery); Baltimore Clinical Society; Chicago Gynaecological Society; North Carolina State Medical Society (fourth day).

SATURDAY, *May 21st*: Clinical Society of the New York Post-graduate Medical School and Hospital.

**Letters to the Editor.**

## THE LONDON TEMPERANCE HOSPITAL.

LONDON TEMPERANCE HOSPITAL, HAMPSTEAD ROAD, N. W., }  
LONDON, April 12, 1892. }

To the Editor of the *New York Medical Journal*:

SIR: In your issue of April 2d I see a paragraph under the title of Ether as a Stimulant, in which reference is made to the *Lancet* as the authority for stating that in "a certain English temperance hospital" ether is used instead of alcohol.

As this institution is the one referred to, I am sure I can rely upon your sense of justice for the insertion of these lines, in which I wish to give the strongest denial to the charge implied in the words of the *Lancet*—a charge resting entirely on the report of an anonymous correspondent of a London evening paper.

In this hospital there is no need to substitute ether for alcohol, as the latter can be used by the medical staff when they so decide.

Ample evidence has been laid before the *Lancet* of the falsity of the statement to which it so erroneously gave credit, and an editorial *amende* has appeared in its pages.

DAWSON BURRS, D. D.,

Hon. Secretary, London Temperance Hospital.

**Proceedings of Societies.**

## NEW YORK ACADEMY OF MEDICINE.

SECTION IN PUBLIC HEALTH, LEGAL MEDICINE, AND MEDICAL AND VITAL STATISTICS.

Meeting of March 16, 1892.

Dr. HENRY D. CHAPIN in the Chair.

**The Infliction of the Death Penalty by Electricity.**—

Dr. CARLOS F. MACDONALD read a paper on this subject. (See pages 505 and 535.)

Dr. A. D. ROOKWELL said that electricity was, in its management, a capricious agent. It might sometimes, through causes unforeseen, fail at the critical moment. He had seen an illustration of this in some experiments at Clinton Prison last year. A bull was about to receive the impact of 1,000 volts, but, through a defect (entirely preventable, it was true), the pressure instantly fell to half the original voltage. If this had occurred during an execution the criminal not only would not have been killed, but might not have been rendered unconscious even. But, as compared with hanging, the use of electricity was, in the interest of humanity, a step in advance. Suppose, for example, that it had always been customary to execute by electricity instead of by hanging, and some one had suggested that the former method be abolished and the latter substituted; that a method practically instantaneous, painless, without mutilation, and unattended by convulsions or any distressing outward manifestations of pain, be replaced by one that failed to extinguish life in less than ten or fifteen minutes, which in many cases was possibly attended with torture, and where the convulsive manifestations were horrible to witness—such a suggestion could not have the slightest title to serious consideration; as a matter of fact, it would never be offered. In connection with Dr. MacDonald and Professor Laudy, the speaker visited the different prisons of the State and experimented upon a large number of animals, to determine the best methods of carrying out the provisions of the law. They had found that a thousand volts was sufficient to kill the largest animal, and they had therefore thought it certain that no hu-

man being could resist that strength of current. Subsequently, to their surprise, it had been demonstrated that a greater pressure was necessary to destroy vitality in a man weighing one hundred and fifty pounds than in one of the lower animals weighing a thousand pounds or more. This, it seemed to him, should be attributed to causes both physical and psychical. The body conducted electricity by virtue of its saline solutions. Fright drove the blood away from the surface to the central portions of the body. When a man was placed in the chair he was necessarily terribly frightened, and the result was that the surface tissues were unnaturally dry, and therefore inferior conductors. He also knew what was coming, and every nerve and muscle was tense with involuntary resistance. It seemed reasonable to believe that this nervous tension operated directly to impede the action of the electricity. A suggestive confirmation of this statement was afforded by the greater readiness with which men were killed when accidentally receiving the electric current. Being in an entirely normal condition as to both mind and body, they succumbed to the shock almost as readily as the lower animals. When a man was executed by electricity he became entirely motionless; there was not even the outward appearance of suffering, and, aside from the fact that a human life was being taken, there was little that was revolting in this method of execution. It was to be hoped that in time electricity would replace the rope in all the States.

Dr. W. J. MORRISON said that, unlike the reader of the paper of the evening and many of those who were to discuss it, he had not had the advantage, if advantage it might be, of witnessing the infliction of death by electricity; and he had not been aware of the points to be touched upon until after he had listened to the paper. Regarding the objection that had been made to physicians' discussing the question of how to kill human beings, it seemed to him that this discussion might be considered analogous to a discussion on the best method of performing a justifiable fœticide—a subject that would not be out of place in any medical society. Regarding the present topic, that electricity killed the subject was beyond question. The question of prime importance was, Did it kill humanely? for it was upon this ground, if he recollected, that this bill had been passed and that the continuance of the method was demanded. From this point of view they were justified in examining critically the methods employed to kill. Such an inquiry also naturally involved the question of how electricity killed and why. To kill human beings would seem to require a due adjustment of the relations between voltage and ampèreage—viz., a relation translatable into the largest possible horse power. It was not voltage alone that killed, for we might receive with impunity a current of 100,000 or many more volts from a Holtz machine, if the current was uninterrupted. And ampèreage alone did not kill, for a continuous current gradually increased from a minimum might be readily endured which, if interrupted, would cause violent shock to nerve and muscle and probably death. Neither did alternations alone kill, for a Tesla dynamo gave 20,000 alternations a second (the voltage also running up to 50,000); and yet no shock was felt from this current when it was passed through a human being. But it was a proper adjustment of voltage, of ampèreage, and of alternations that killed, and it certainly did not appear that this adjustment had yet been reached. If it had been, death would be instantaneous and not, as now, prolonged through several applications, or even through a prolonged single application. Take, for instance, the application in the case of McElvaine; it had been one of 1,600 volts, giving from two to three ampères, during fifty seconds. From a humane point of view, fifty seconds was an age to die in, if the subject could be killed in one fiftieth of a second; and the speaker had no doubt that he could be.

It was undoubtedly the watts—i. e., the horse power—that killed. Electric power was the product of the volts multiplied by the ampères. The watt was the name of the unit employed to express this product, and it was equivalent to  $\frac{1}{746}$  of a horse power—in other words, 746 watts were equal to one horse power. Referring to the example of 1,600 volts and 2 ampères, and taking the formula  $H. P. = \frac{\text{volts} \times \text{ampères}}{746}$ ,  $H. P. = \frac{1,600 \times 2}{746}$

= about 4 horse power. The question, then, was, if 1,600 volts and 2 ampères took 50 seconds to kill the criminal beyond doubt, why not employ a horse power that would kill him in one fiftieth of a second or less? This would simply require a readjustment of the parts of the electrical outfit used to kill with—viz., an increase of voltage obtained by strongly exciting the field of the dynamo, by increasing the number of revolutions, and by decreasing the resistance (by enlarging the electrodes and preparing the surface of the skin by removing the oils). The electrodes now used presented only about one hundred square centimetres of surface, or about three inches and three quarters. An example of what might easily be done would be to use a voltage of 3,000 instead of 1,600, to increase the size of the electrodes, and to produce 10 instead of 2 ampères. This was a very moderate estimate. Again, using the formula

$$H. P. = \frac{\text{volts} \times \text{ampères}}{746}, \text{ we should have } H. P. = \frac{3,000 \times 10}{746}$$

= 40 horse powers—in other words, 40-horse-power death instead of 4-horse-power death. There could be no question as to which would be the more nearly instantaneous, and therefore the more humane. The 40-horse-power current would kill in a fraction of a second, as against the possible agonizing seconds of the prolonged application. But, granting the most absolute perfection of electrical machinery for killing the criminal, the question might properly arise, *Was death by electricity instantaneous?* This involved the question of *how electricity killed*. Did it kill by electrolysis, by molecular disintegration; or physiologically, by producing functional death of the part? The current that killed could only be conveyed through the fluids of the body by electrolytic conduction, which meant a decomposition of molecules. But since there was no discoverable evidence of this decomposition, he was obliged to say that recombination took place as fast as decomposition, and that by this change of partners of the atoms of the molecule the current was conveyed with no loss of integrity to the fluid and the tissue except immediately at the surface of the electrodes, where free electrolysis occurred. Since, then, microscopically, no actual decomposition of fluids and tissues could be proved to have taken place, and since, electro-chemically, no such decomposition need be expected, he could hardly see how it could be maintained that death was caused by electrolysis. There was, however, one point of view that might warrant one in attaching importance to electrolysis. In tissues the current was carried mainly by the salts: the tissue acted like a solution of its salts. There was, therefore, a constant decomposition of the salts, with an accumulation of the products of the decomposition at the electrodes. This meant a diminution of the salts in the intrapolar region. How much robbery of its salts would a tissue stand before it became a dead tissue? The salts varied from one to two per cent., but this amount was in intimate union with the proteid constituents of the tissue and was essential to their life. Electrolysis might, therefore, kill without exhibiting any signs of decomposition to the eye, even aided by the microscope, by removing the inorganic constituents to such a degree that functional life ceased. An interesting point in resistance was to carefully wash the oil out of the skin. He made a suggestion as to a change in the position of the electrodes. A point made by the microscopist in searching in ganglionic cells for evidence of

fatigue or exhaustion was that the nucleus lost bulk. If death was due to the sudden arrest of physiological function, there would be no time to produce these changes in the nerve cells. These latter had the usual functions of all cells; slowly irritate them, as in Hodge's experiments, and they would change, but act on them with an electric current, and the change was imperceptible. While this method was in the line of progress, he thought that we might as well go further and give chloroform, as Wilder had suggested.

Professor LAUDY, of Columbia College, had been called to measure the machines previous to their acceptance from the contractors. With one exception, the motive power had been perfect. The failure of the Kemmler execution had been no surprise to him, as the plant at the Auburn State Prison had been condemned, and he had remarked that failure would result there from the sudden drop of potential in the dynamo. Electro-motive force was not under complete control, and one could not raise or lower it; the prison machines had been designed for 1,000 volts, and they had increased them to 1,800—as high as was judicious. The engine motion was conveyed by belting, and there were the dynamo, wires, switchboard, etc., each time there was a new contact, increasing the chance of failure.

Mr. W. J. JENKS was the next speaker. (See page 542.)

Dr. ANDREW H. SMITH said that, while it was, of course, highly desirable that at the points of contact the resistance should be reduced to a minimum, yet, when the current was once within the body, its lethal effect would be in direct, not reverse, proportion to the resistance it encountered. If the vital organs were perfect conductors, offering no resistance, there would be no effect from the passage of the current. In this respect the lethal resembled the mechanical, the electrolytic, and the thermal actions of electricity. The result in each case would be in proportion to the detention of the fluid in the substance acted upon. The speaker said that, in his judgment, the deadly effect of the briefest possible contact in accidental cases, in which also the voltage was often comparatively low, was due to the concentration of the current in a very narrow path. Enlarging the surface of the electrodes, therefore, would, he believed, be a mistake, unless the volume of the current was proportionately increased. As to the humanity of this method, it had been his lot to witness six executions—one by the guillotine, one by shooting, and a triple military execution by hanging, in which the drop was used, and one other by hanging where the culprit was jerked up by the falling of a weight. At four of these he had been present in the performance of military duty. All had been horrible and revolting beyond description, and the contrast with what Dr. MacDonald had described convinced him of the enormous advance that had been made by the introduction of the new method.

Dr. A. JACOBI said that Dr. MacDonald had dealt with this disgusting topic in a better manner than he had thought it could be done; but it should not be considered by any medical society, for the purpose of medicine was to save, not to take life. Physicians had always been condemned for experiments on the human body. Only a few years ago a well-known physician had been condemned for making some localization experiments on an exposed brain.

Dr. ROCKWELL said that the criticism seemed severe; in obstetrics sometimes life was taken to save life.

The CHAIRMAN did not consider that he had admitted a paper that was not entitled to a hearing in his Section. The laws of the State provided not only for that method of execution, but also for the presence of physicians. Dr. MacDonald had pursued this work as a State official in a department that had certainly to do with legal medicine, and so long as such provisions were on the statute books of the State they would—while the

present incumbent was chairman—have a hearing in this Section.

Dr. MACDONALD said that he agreed with Dr. Morton that death should be produced as rapidly as possible. The present apparatus was crude, and he had recommended that the central prison be supplied with a proper dynamo, if the use of this method was to be continued. Regarding the employment of chloroform as less offensive, he would simply recall the familiar struggles of the persons to whom that drug had been administered. He had no apology to offer for his work, as it was in the nature of humanity. The subject had been an unpleasant one to him, one that he had had to take up by request of his official superiors, and his paper was a farewell to the subject, as his further aid was not needed.

## Book Notices.

*Manual of Operative Surgery.* By FREDERICK TREVES, F. R. C. S., Surgeon to, and Lecturer on Anatomy at, the London Hospital, Member of the Board of Examiners at the Royal College of Surgeons. Two volumes, medium 8vo, with Four Hundred and Twenty-two Illustrations. London: Cassell & Co., 1891. Pp. 775, 775.

THE field of surgery has come to be so extensive, and the methods of operation have become so numerous, that it is impossible for a work on general surgery to contain even a comparatively full list of them from which the reader may make a choice, unless it runs into encyclopedic proportions. It has therefore become necessary that we should have special works on the art of operating. Jacobson, in his admirable work, has led the way more recently in this line of literature, and now comes this more pretentious effort of a noted English surgeon. Books of this class must of a necessity be more or less compilations, but the present one bristles with originality in almost every section. The author makes experience his guide in approving or disapproving of an operation, and does not allow himself to be led off by the favorable statistics of the originators of different procedures. Conscientiousness is exhibited in the very first chapter, *The Patient*, showing that he is first in the author's thoughts, and not the brilliancy or feasibility of the operation. Is he able to undergo the operation? Will he be truly benefited by it? and, Is there less risk from the operation than from the disease if left untreated—are questions which must all be answered in the affirmative before operating. After describing the different conditions which should influence one in determining whether to operate or not, and laying down rules for the necessary preparation of the patient for the operation, he turns to the second most important consideration—*The Operator*. Is he capable? Is he prepared? Is he in the proper frame of mind to do this particular operation? "A shakiness of the hand," he says, "may be some bar to the success of an operation, but he of shaky mind is hopeless." "Precision of knowledge, precision of judgment, precision of hand are all needed in a surgical operation." "In the handling of a sharp instrument in connection with the human body a confusion of the intellect is worse than chorea." These are expressions showing how carefully the author has thought over the personal element in an operator. In the succeeding chapter, on instruments, he deprecates the multiplication of them, saying: "Some of the least progressive periods in the development of the surgeon's art have been marked by the prolific production of instruments," and "among the very numerous names of designers of instruments, there are but few belonging to surgeons who are or have been eminent as first-

class operators." It is wonderful to see the immense catalogues of these aids to surgery, when so much can be done with a simple scalpel and forceps. The remarks upon the indiscriminate use of sharp retractors, thereby irritating and mutilating the tissues of a wound, and the suggestion of thread retractors, while not new, are certainly timely. We can not altogether agree with the author in what he calls the "barbarous procedure" of using "the sturdy and dangerous piece of steel," a grooved director. While a clean-cut wound is most desirable, and no doubt heals more rapidly, nevertheless in the hands of those who do not operate constantly, in vascular areas, or in operations involving the peritonæum and abdominal viscera, the director is a much safer instrument than the sharp point of a knife.

Very little is said on the subject of antiseptics in the work. Although advising the strictest adherence to the principles of antiseptic surgery, the author seems to consider the technique thereof a hackneyed theme, and lays down no rules or principles to guide one in these matters. After stating the aims upon which surgeons are agreed in the treatment of a wound, the author proceeds to say: "One surgeon accomplishes these ends in one way and another in another, and the results are equal. . . . New antiseptics appear from time to time upon the scene. They are vaunted as perfect, are diligently employed, and then not a few of them fade away, some very gradually, others with the suddenness of the South Sea Bubble." He shirks the responsibility of taking a stand upon this subject, and this is not in keeping with the rest of his work. He insists on the free access of air to surgical wounds, and never allows a part operated on to be kept in the hot, moist, and often foul atmosphere beneath the bed-clothes. He also uses sponges, instead of gauze or cotton, for dressing wounds, arguing that they do not lose their elasticity when saturated, and thus they persistently hold the parts in close apposition during the whole period of healing. We believe the point to be well taken.

Space will forbid our taking up *seriatim* the different chapters of this interesting book, and could we do so we should find our opinions upon the different sections diverse enough. It is exceedingly irregular in its excellencies; the good far outweighs the bad, but still there is enough of the latter to make a revision and second edition desirable.

The sections on ligations and amputations are perhaps the best in the book, and, without disparagement to others, deserve special notice. In the latter we find an excellent description of, and very just conclusion upon, that remarkable osteoplastic resection known as Wladimiroff's. To save all we can of a limb is a good principle, but to preserve a part which will not only be useless but absolutely in the way of its possessor is certainly unwise if not bad surgery. To us this operation seems to be simply an illustration of surgical gymnastics unjustifiable by its results.

The sections on the surgery of the nerves, and that on tenotomy, are disappointing indeed, as is also that on the surgery of the rectum and anus. This latter may, in fact, be called the poorest part of the book. The author seems to have confined himself to the British works upon these subjects in working up this portion of his book. The methods of Kraske, Bardenhauer, and Levy for excision, the method of Van Buren for proidentia, and the American method of transfixion for hæmorrhoids, are left unnoticed. The great interest and advance in these subjects of late demand that closer attention and more space should be given them in a work of this character.

The second volume of this valuable work begins with a chapter on plastic surgery, and in it we find one of the best accounts of rhinoplasty that it has been our fortune to see. Beginning with the Indian operation, as modified by the German surgeons, which he thinks is the best, the author describes minutely all

the principal operations of this class, including Keegan's, von Langenbeck's, Dieffenbach's, Weir's, the Italian, the French, and other methods. One can not want for a choice of operations or a clearer description of their technique than is here found for complete or partial rhinoplasty. As much may be said for the chapter on operations for cleft palate. The chapter on plastic operations for diseases and deformities of the lips does not compare favorably with the last two mentioned. We are surprised to find described only one each of Serre's and Szymanowski's operations, and that of Burow omitted altogether. A liberal reference to either one of two American works on surgery that we know would have made this section more complete. Readers of this portion of the work will be surprised to see the name Diday substituted for that of Didot as the author of the anterior-and-posterior-flap method for the cure of webbed fingers. This we thought at first an error, but, on investigation, find that the author is correct, and that whatever merit the operation has is due to Diday and not Didot.

In the section on abdominal surgery we have perhaps the fullest exposition of Treves's own personal experience and work, for he has long been prominent as an operator in this line. We can not go over his views *seriatim*, but mention one or two that seem a little out of line with the latest teachings on the subject. He thinks no special preparation of the patient necessary for abdominal section beyond that for any ordinary surgical operation; he believes in the intraperitoneal treatment of the stump in hysterectomy and in the superiority of lumbar over inguinal colotomy. On all these points we dare say he will find many eminent surgeons taking decided issue with him. In this same chapter he uses the name Atloe for that of Atlee as a pioneer in abdominal surgery, but this may be a typographical error.

We have thus noticed at length this important addition to surgical literature, and, if we have criticised somewhat closely, it has been because we have been much interested in the work, and appreciate it very highly. It is, in our opinion, one of the best books in the English language on the subject of operative surgery, and does credit to the energy, conscientiousness, and liberality of its noted author.

#### BOOKS, ETC., RECEIVED.

Treatise on Gynæcology, Medical and Surgical. By S. Pozzi, M. D., Professeur agrégé à la Faculté de médecine, etc. Translated from the French Edition under the Supervision of and with Additions by Brooks H. Wells, M. D., Lecturer on Gynæcology at the New York Polyclinic, etc. Vol. II. With One Hundred and Seventy-four Wood Engravings and Nine Full-page Plates in Color. New York: William Wood & Co., 1892. Pp. xiv-583.

A System of Gynæcology. With Three Hundred and Fifty-nine Illustrations; based upon a Translation from the French of Samuel Pozzi. Revised by Curtis M. Beebe, M. D., Chicago. New York: J. B. Flint & Company, 1892. Pp. viii-17 to 604.

A Treatise on Bright's Disease of the Kidneys: its Pathology, Diagnosis, and Treatment. With Chapters on the Anatomy of the Kidney, Albuminuria, and the Urinary Secretion. By Henry B. Millard, M. A., M. D., Fellow of the Academy of Medicine of New York, etc. With Numerous Original Illustrations. Third Edition. Revised and enlarged. New York: William Wood & Company, 1892. Pp. xviii-322.

Yellow Fever: a Monograph. By James W. Martin, M. D. Edinburgh: E. & S. Livingstone, 1892. Pp. 9 to 56.

Diseases of the Nervous System. By Jerome K. Bauduy, M. D., LL. D., Professor of Diseases of the Mind and Nervous System and of Medical Jurisprudence, Missouri Medical College, St. Louis, etc. Second Edition. Philadelphia: J. B. Lippincott Co., 1892. Pp. 10-11 to 352. [Price, \$3.]

Miners' Nystagmus and its Relation to Position at Work and the Manner of Illumination. By Simeon Snell, F. R. C. S. Ed., etc. Bristol: John Wright & Co., 1892. Pp. x-143.

Transactions of the American Orthopædic Association. Fifth Session, held at Washington, D. C., September 22, 23, 24, and 25, 1891. Volume IV.

Recherches cliniques et thérapeutiques sur l'épilepsie, l'hystérie et l'idiotie. Compte rendu du service des enfants idiots, épileptiques et arriérés de Bicêtre pendant l'année 1890. Par Bourneville, médecin de Bicêtre, avec la collaboration de MM. Cameeasse, Isch-Wall, Morax, Raoult, Seglas et P. Sollier, internes et anciens internes du service. Volume XI. Avec 16 figures dans le texte et 10 planches. Paris: Vve. Babe et cie., 1891. [Publications du *Progrès médical.*] Pp. c-3 to 252.

Hospice de la Salpêtrière. Clinique des maladies du système nerveux. M. le Professeur Charcot. Leçons du professeur, mémoires, notes et observations. Parus pendant les années 1889-'90 et 1890-'91, et publiés sous la direction de Georges Guinon, chef de clinique. Avec la collaboration de MM. Gilles de la Tourette, Bloecq, Huet, Parmentier, Souques, Hallion, J. B. Chareot et Meige, anciens chef de clinique, internes et interne provisoire de la clinique. Avec 47 figures et 3 planches. Paris: Veuve Babe et cie., 1892. [Publications du *Progrès médical.*] Pp. iii-468.

Les nouvelles découvertes en électricité. Histoire d'un inventeur. Les moteurs électriques. Machine dynamo de démonstration. Bijoux électriques lumineux. Éclairage électrique, domestique, industriel et militaire par les lampes électriques. Électricité médicale. Photophores électriques. Micrographie et photomicrographie. Téléphones et microphones. Installation téléphonique domestique. Tricycle électrique. Applications de l'électricité à la navigation fluviale, maritime et aérienne. La navigation électrique, etc. Par G. Barral. Deuxième édition. Paris: J. Michelet, 1891. Pp. xvi-610.

Removal of Adenoid Growths from the Vault of the Pharynx. By H. Hoyle Butts, M. D., New York. [Reprinted from the *Medical News.*]

A Flying Trip by Rail from New York to California. By Stephen Smith Burt, M. D. [Reprinted from the *Post-Graduate.*]

The Care of Women in Pregnancy. By Charles M. Green, M. D. [Reprinted from the *Boston Medical and Surgical Journal.*]

A Case of Associated Streptococcus Infection of the Vermiform Appendix and Fallopian Tube. By Hunter Robb, M. D., Baltimore, Md. [Reprinted from the *Johns Hopkins Hospital Bulletin.*]

Amputation at the Hip Joint by Wyeth's Method, the Patient being Five Months Pregnant. A Clinical Lecture delivered at the Jefferson Medical College Hospital, February 3, 1892. By W. W. Keen, M. D., Philadelphia. [Reprinted from the *Medical News.*]

Two Cases of Removal of Laminae for Spinal Fracture. By De Forest Willard, M. D., Philadelphia. [Reprinted from the *Transactions of the College of Physicians of Philadelphia.*]

The Caustic Treatment of Cancer. By Daniel Lewis, M. D. [Reprinted from the *Medical Record.*]

Ataxia. A Clinical Lecture delivered at the Arapahoe County Hospital, Denver, Colorado. By J. T. Eskridge, M. D. [Reprinted from *International Clinics.*]

Ideality of Medical Science. The Evil Events of the Profession, and an Available Device for its Reformation. By Maurice J. Burstein, A. M., M. D., New York. [Reprinted from the *Doctor's Weekly.*]

Where Dentistry looks over into Oral Surgery. By Lenox Curtis, M. D., New York. [Reprinted from the *Dental Cosmos.*]

Errors in Ventilation. By William Henry Thayer, M. D., Brooklyn. Medical Orthopedy. By J. F. Oaks, M. D., Chicago. [Reprinted from the *Chicago Medical Recorder.*]

Nephrotomy for Calculous Pyelitis. Nephrectomy rightly decided against because of the Small Percentage of Urea; an apparently almost Destroyed and Useless Kidney found to secrete over Four and a Half Times as much Urine as the other Kidney; Death. By W. W. Keen, M. D., and David D. Stewart, M. D. [Reprinted from the *Therapeutic Gazette.*]

The Teachings of Experience and of Rational Therapeutics as to the Treatment of Pneumonia. By Boardman Reed, M. D., Atlantic City, N. J. [Reprinted from the *Therapeutic Gazette.*]

Ectopic Pregnancy. By C. A. Kirkley, M. D., Toledo, Ohio. [Reprinted from the *American Gynecological Journal.*]

Two Successful Cases of the Conservative Cæsarean Section. By

Charles Jewett, M. D. [Reprinted from the *New York Journal of Gynecology and Obstetrics.*]

Syphilitic Spondylitis in Children. By John Ridlon, M. D. [Reprinted from the *Medical News.*]

Congenital Malformation of the Genital Tract. Persistence of the Sinus Uro-genitalis as a Common Opening with the Urethra. Bicornate Uterus. By C. P. Strong, M. D., Boston. [Reprinted from the *Transactions of the American Gynecological Society.*]

Pelvimetry for the General Practitioner. By J. Whitridge Williams, M. D., Baltimore. [Reprinted from the *Medical News.*]

Contributions to the Normal and Pathological Histology of the Fallopian Tubes. By J. Whitridge Williams, M. D., Baltimore. [Reprinted from the *American Journal of the Medical Sciences.*]

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Two Cases of Hernia, both treated by Laparotomy: 1. A Properitoneal Hernia. 2. A Femoral Littre's Hernia. By W. W. Keen, M. D. [Reprinted from the *International Medical Magazine.*]

The Insane and the Asylums. By Horace G. Wetherell, M. D. Gastrotony. By N. Senn, M. D., Ph. D., Chicago. [Reprinted from the *Chicago Medical Recorder.*]

A Case of Associated Streptococcus Infection of the Vermiform Appendix and Fallopian Tube. By Hunter Robb, M. D., Baltimore. [Reprinted from the *Johns Hopkins Hospital Bulletin.*]

Athetosis, with Clinical Cases. By Archibald Church, M. D., Chicago.

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Gymnastic Exercise as a Prophylactic and Curative Remedy in Chest Diseases. By Edward O. Otis, M. D., Boston, Mass. [Reprinted from the *Climatologist.*]

Orthopædic Surgery as a Specialty. [Reprinted from the *North-western Lancet.*] Disease of the Hip Joint. [Reprinted from the *Medical News.*] By Arthur J. Gillette, M. D., St. Paul, Minn.

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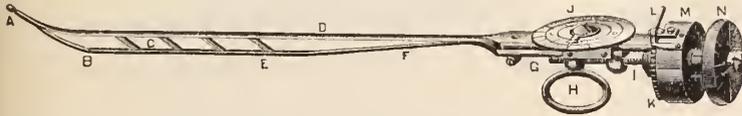
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## New Inventions, etc.

### AN INSTRUMENT FOR THE MEASUREMENT OF THE RESISTANCE IN A STRICTURE.

By E. W. SCRIPTURE,  
WORCESTER, MASS.

WHILE at the University of Leipzig I attended a clinic by Dr. Kollmann on diseases of the genito-urinary system. One point that specially struck me was, that although there was so much difference in the resistance to the dilatation exerted by strictures, yet we had hardly any knowledge of the variation in this respect and no means of measuring it. To attain the means of measuring the resistance I took a dilator of the Oberländer pattern and inserted a spring between the wheel turned by the fingers and the axle that communicates the movement to the dilat-



ing portion. The original form can be approximately seen from the illustration if all to the right of the letter I is covered up. When introduced into the urethra the instrument is closed, but in dilatation the screw I carries forward the bar E, which, being connected by C to the bar D, is obliged to move away from it. B is a joint connecting it to a small piece the other end of which slides in a groove back from A. The extent of the dilatation is indicated in bougie-numbers on the dial J. H is a means of holding the instrument. G is a very small wheel for holding the two flat portions together; a joint is introduced at each end of F. In the modification of the instrument which I have made, the screw I is not moved directly by a large milled head or wheel as in the original; on the contrary, it is prolonged in the form of an axle, and is seen projecting to the right through the wheel N, and carrying a small pointer. N and M are made in one piece; M contains a small clock-spring, which is attached at one end to the axle I, and at the other to the inner surface of M. K is a ratchet-wheel fixed to the axle I, and L is the catch fixed to M. Now suppose the instrument to be closed. Press the lever L so that M N may move freely to its resting place; the spring will then be in a condition of equilibrium, and the little pointer in front of the wheel N will indicate a point which we will call zero. Turn N gently to the right; the dilator will begin to open and the pointer will move over J. There is so little resistance from friction that there will be no noticeable strain on the spring (if of proper strength), and the little pointer will move around with N, always indicating zero, until the instrument begins to approach its maximum dilatation. If, however, at any moment we place an obstruction in the way of further opening—*e. g.*, by pressing the thumb and finger against the two bars D and E—the wheel N will continue to turn, but “I” will stop till the spring is sufficiently spanned to overcome the resistance. The resistance thus bears a definite relation to the tension of the spring; the latter, however, is indicated by the extent to which the wheel N has passed behind the little pointer before the tension was sufficient. The catch L keeps the spring at this tension. Let the face of N be graduated in degrees; then at any time we can find out, by proper application of weights, just how much resistance is necessary in order to have the pointer move over any given number of degrees. This can be done by the physician himself, but it is better for the maker of the instrument to provide a little table giving the various amounts of resistance overcome which correspond to the various positions of the pointer.

The application of the instrument would be in somewhat the following manner: It is introduced closed and without the usual rubber sack over it into the urethra. The rubber sack not only is unnecessary with a carefully made instrument, but it also introduces an insurmountable error into the measurements. N is slowly turned; the little pointer will at most move only a degree or two against its face. When the bars reach the extent of the stricture, the catch L will begin to click over the ratchet-wheel, the pointer J will stop, and N will move behind its pointer. Finally, the clicking stops and both the pointers begin to move; in other words, the spring has reached a tension equal to the resistance of the stricture. The positions of both pointers at this moment are noted. A glance at the table gives the resistance of the stricture.

## Miscellany.

**The Natural History of the Species Medicus.**—A German publication entitled *Zur Naturgeschichte des Medicus*, by “Dr. Risorius Santorini,” illustrated by “Dr. Corrugator Supercilii,” with the motto *Demus juckt, der kratze sich*, has been thus translated by “Famulus”:

CONTENTS.—Historical Introduction. Class I. Medici Academici. Order 1. Professor Ordinarius Consilarius Secretus. Order 2. Professor Extraordinarius. Order 3. Privat-Dozent.—Class II. Specialists. Order 1. The Neurologists. Order 2. The Gynaecologists. Order 3. The Charlatan.—Class III. Birds of Passage. Order 1. The Bath Physician. Order 2. The Clinic Fiend.—Class IV. Medicus Practicus. Order 1. The Lion of the Boudoir. Order 2. The Graduated Jackass. Order 3. The Honest Old Family Physician.

### HISTORICAL PREFACE.

Mankind, as Mr. Darwin states,  
Belongs to the class “Vertebrates.”  
The “Genus Homo” roamed the land  
With sea-horse, mammoth, elephant,  
Before the age diluvian,  
The so-called “prehistoric man.”

But many a learned antiquary  
Thinks these deposits tertiary.  
A miocene discovery  
Would strengthen Darwin’s theory:  
The fact of species-variation  
Would surely find its explanation  
In secrets geological  
Anthropomorphological.  
Then up, ye paleontologists!  
Grasp spade and hammer in your fists:  
Search the coal-measures carefully  
Until the long-sought spoor you see  
In cenozoic gloomy night  
Of our ancestral Troglodyte.

The law of natural selection  
Leads ever upward toward perfection.  
Mankind the effort never ceases  
To propagate the human species.

*Prasumptio est*, the man ideal  
Is slowly now becoming real;  
As each sire grants to son, unmerited  
Virtues he from his sire inherited.  
As type, *Te Deum Laudamus*,  
Is reckoned foremost Medicus.  
For it is known to every proctor  
That Father Adam was a doctor.  
And Henry Faust with equal ease  
Read Scripture and Hippocrates.

And the foul fiend, fresh from damnation,  
Oft aids in biblical translation ;  
Again appears with counsel wary  
As a physician literary.  
He would have penned the great creative process  
"In the beginning was the diagnosis."

Earliest history tells the story  
Of drugs and operations gory.  
And as we learn from Homer's *Iliad*,  
Wounds then were dressed with balm of Gilead ;  
And in Achilles's bold array  
The doctor was an attaché,  
Although *in puncto chirurgie*  
He had not much that's called *esprit*.  
How would our dapper surgeons feel  
Should a slight wound upon the heel,  
Such as befell this general,  
Prove to be instantly lethal ?

The ages crown with recognition  
Hippocrates as a clinician.  
His fame is dear to every heart  
As "Father of the healing art."  
But in his day we note this feature :  
He was empiric as a teacher.  
He had no inkling of dissection,  
Nor of arterial injection.  
Enough—'mid medical afflictions  
We're spared his "positive convictions."

But high above all mean disguises  
The learned Egyptian doctor rises—  
A privy councilor in condition,  
Herophilus, the court physician.  
His research took a new direction,  
He practiced bloody vivisection.  
In which, by Seleukos's permission  
(Physiology then had a mission),  
Material for researches loyal  
Was amply found in debtors royal.  
Peril surrounded noble clients,  
But 'twas a golden age for science.

When thus by royal favor fostered,  
Our colleagues and our calling prospered.  
The *ars curandi* made advance  
And worthy spirits joined its ranks.

This was the time when Galen wrote,  
Whom our own authors freely quote,  
Who, in the sixteenth century,  
Enjoyed infallibility.

In short, the medical profession  
Has proved the truth of evolution.  
Where one the grip has failed to keep,  
Two others are set on their feet.  
And with the multiple diseases  
The corps of specialists increases.

As Darwin's theory proved true,  
The species strong and stronger grew ;  
And from division of their labor  
Established races, each a neighbor.  
How these have thrived and propagated  
Will now in rhyme be briefly stated.

#### Class I.

When several separate generations  
Dwell in harmonious relations,

Though occupying different spheres,  
The species one to be appears.  
We speak of "heterogeny,"  
And call the whole a "colony."

As sample of instinct politic  
Observe the insect-republic  
Which the industrious *Formicide*  
Maintain for rich as well as needy.

Each member of the insect nation  
Pursues a certain occupation.  
A. guards the city from surprise ;  
B. furnishes the food supplies ;  
While C., with eager emulation,  
Devotes himself to copulation.  
That in the "struggle for existence"  
They may present a firm resistance.

In human arts the insect law persists,  
The "colony" as "faculty" exists.  
The "Adjunct" X. strives valiantly  
To guard scholastic dignity ;  
Professor Y., with cautious unction,  
As number C. performs his function ;  
The beast of burden least resistant  
Is the "Instructor" called "Assistant."

#### Order I. PROFESSOR ORDINARIUS CONSILIARIUS SECRETUS.

As chief official in this corps  
We see some hoary Councilor.  
Sometimes he's even "State Physician,"  
Which really is no mean position.  
Early and late, where'er he be,  
His eye is on the Faculty ;  
That the bald heads of fossils hoary  
May not be shorn of former glory ;  
And that no modern heretic  
Some middle-ages bubble prick.  
Because the "honored faculty"  
Presents infallibility.

The theory their wisdom utters  
Is therapeutics for the gutters.  
To keep the caste inviolate,  
Maintain ideas long out of date ;  
To keep youth well refrigerated—  
This is the mission of the aged.

And to prevent things getting mixed  
They like their own offspring well fixed.  
For, if his name be Gray,\*  
He looks around him every way,  
How he can plan that Number One  
May fall to his beloved son ;  
And all the members of the breed  
With pride their comrades supersede,  
So that the dynasty of Gray  
Grows more extensive every day  
By in-and-in maternity  
From now until eternity.

For this, important points appear  
As motives, salient and clear.  
Science takes secondary place  
In elevation of the race,  
When with a title like a steeple  
An old man hoodwinks "common people."

\* Any of the other indifferent colors may be selected, instead of the one here mentioned, according to the chromatic requirements of the reader.

The title "City Inspector"  
 In worth more than a newspaper,  
 To the proud conciliarium  
 With all the high-priced publicum.  
 For a prescription from *his* pen  
 Costs a gold eagle; but then—  
 Ten times the action surely follows  
 Than if the doctor charged three dollars.

Order 2. PROFESSOR EXTRAORDINARIUS.

*The Laboring Family Man.*

From instinct comes the aspiration  
 In mankind for official station.  
 A title renders great assistance  
 In the long struggle for existence.  
 When once he's reached the "Adjunct's" fame  
 He longs for the "Professor's" name.  
 And out of twelve, perhaps eleven  
 No greater boon could ask of Heaven.  
 But here, like as in Holy Writ,  
 Many are called, but few are fit.  
 So, *pour plaisir*, we read and hear  
 Things only which are popular.  
 Science attracts both him and her,  
 Thanks to the efforts of Pasteur.

The public reads with glad surprise  
 The effusions of this Solon wise  
 In every agricultural paper,  
 As well as in the *Gospel Taper*.  
 Which all declare his genius rising:  
 This is "judicious" advertising.

His various "researches" amount  
 Only to swell his bank account.

There's sometimes great utility  
 In fashionable charity.  
 But to all hearts he gains the key  
 By "Lectures on Emergency,"  
 Enhanced, if he possess the nickel  
 The editorial palm to tickle,  
 When great and small will surely read  
 That he is a "great man" indeed.

But genius her great triumph wins  
 When the Professor now begins  
 To bring his daughters under cover  
 By means of eligible lover:  
 Especially if *female* lambs  
 Be the sole product of his hams.\*

Order 3. THE ADJUNCT PROFESSOR.

Salute, my lay, with studied grace  
 The most imposing of the race.  
 As clouds soar o'er the city's pile,  
*He* towers above the "rank and file."  
 "Adjunct Professor" is the name  
 To which this animal lays claim.

A prototype of erudition,  
 It graciously grants recognition  
 To other works of God's creation;  
 But only like a "poor relation."  
 It poses as Hygeia's watchman  
 Upon the walls of learning's Zion.  
 It seizes Nature's blindest riddles,  
 Groups them in systems while it piddles;  
 Its eyes sometimes to mortals sink,  
 Because the beast must always think.

Anon it shows on forehead high  
 The wrinkles of philosophy;  
 And trims, in aping the Professor,  
 Its beard, designed by the hair-dresser.  
 The above is but the fœtal state  
 Of what develops soon or late,  
 According to the elements,  
 Into "Surgeon to Out-patients."  
 The earlier is the stage lateu;  
 This is the full development.

But meanwhile in his surgery  
 There is a cloak of mystery.  
 And mystery alone is able  
 To grant a halo round the Schaedel.

What virtue would the halo have  
 If every layman could perceive  
 The veil which hides the goddess-form?  
 That was the reason that in Rome  
 The Haruspices took their rise  
 To throw dust into prying eyes,  
 And pull the wires behind the curtain.

With the first blush of coming day,  
 Our Doctor starts upon his way.  
 The hospital first claims his skill,  
 Where the Interues with eager will  
 Pulse, respiration, temperature  
 Have taken with precision sure;  
 Have tried each patient's fragrant urine  
 To see if it contains hippurin;  
 Secured the auamnesia,  
 And booked the whole with pious care;  
 For it is far beneath Docents  
 To investigate the elements—  
 Charms for philosophers like these  
 Have only the "higher analyses."

"Clinical material" useless is,  
 Except to build hypotheses,  
 Which, comet-like, blaze one by one  
 Upon the clinic's horizon.  
 A novel remedy is found;  
 With great discretion handed round,  
 Quickly it everywhere is tried.  
 The special journals all describe  
 The clinical experiments;  
 Each one the other compliments,  
 Things thus four weeks at most remain;  
 We never hear of it again.

The discoverer smiles when'er alone  
 "By Jove! it's pleasant to be known!"

When this mild comedy is played,  
 Quickly another scene is laid:  
 Now thallin, next day pyridine,  
 And the day after urethane!  
 And even thou, potent cocaine,  
 Into what mischief hast thou been  
 That man should show thee such abuse,  
*Per os et anum* introduce?

Though we the fraud at length observe,  
 The plan shows method and shows nerve.  
 Hence people call this deviltry  
 The "only rational therapy."  
 But even the man of sense acutest  
 Can win no fame as therapist,  
 For just now Science her favor yields  
 Only in pathognostic fields.

\* *I. e.*, loins.

The claims of Science now demand  
 Quasi "researches" from his hand.  
 Therefore he pays his amorous court  
 To bacteriology; in short,  
 He tries by fine hypotheses  
 Thus to account for all disease.  
 And being "modern," "just announced,"  
 No "want" was ever more pronounced,  
 Each downy, newly-hatched Docent  
 Has need of "special experiment."

Each "Adjunct's" head presents a lump  
 Labeled, "Investigations-bump."  
 The suffering rabbit is infected,  
 All kinds of gurry are injected,  
 And soon "pure cultures" we may see.  
 Oh, Koeh! What do we owe to thee!

Nothing now aids the "cause eternal"  
 As does a "liberal medical journal,"  
 Which kindly tells the "rank and file"  
 What this great mind achieves meanwhile.  
 Often we slumber o'er the letter—  
 His motto is, "The more the better."  
 Twelve columns upon *Gonococcus!*  
 What need in hospitals to look us?

It also causes him no sorrow  
 If in the same review to-morrow  
 By Dr. X. the sham's exposed,  
 And all his canting fraud disclosed.  
 Each one "discovers" what he can  
 To make a name or mar a man.

His glory lasts about four weeks.  
 Afterward no one of it speaks.  
 Each folly runs its course specific;  
 And people call this "scientific."

So slowly passes year by year  
 Of Docent's suffering career.  
 For, ah! with all his application,  
 He fails the longed "Professor's" station;  
 Thereby our Docent's entire stage  
 Comprises but the larva age.  
 For his own merit, of all things,  
 Is suited least for growth of wings.

Make but one other change in life;  
 Pay court to the Professor's wife;  
 With higher aims strive valiantly  
 To rise within the "colony."  
 A kindly warmth your limbs will thaw  
 When you've become a son-in-law.

#### Class II. THE SPECIALISTS.

Even in our calling is provided  
 That higher art should be divided.  
 Each province is well isolated,  
 For "science" is so complicated;  
 Smith leans to neurotherapy;  
 Jones more to gynecology;  
 Currie's a dentist and my own,  
 And skin disease is cured by Cohn.  
 Each specialist is known to be  
 Unquestionable "authority."

#### Order 1. THE NEUROLOGIST.

*Medicus sanitarium neuropathicum privatum dirigens.*

A large rôle in disease to-day  
 Neurasthenia is known to play.

At times with speed like that of steam  
 It rushes through life's vivid dream.  
 The pallid youth in tenderest years,  
 While yet scarce dry behind the ears,  
 Wrestles with Bacchus and Gambrinus,  
 With nicotine and goddess Venus.  
 The maiden, in steel corset tight,  
 Like the Nyanza, blooms at night;  
 Inflames her chaste imagination  
 With scenes of Zola's mild creation;  
 Acquires as sign of culture then—  
 For this belongs to "upper ten"—  
 Chlorosis and amenorrhœa  
 Combined with "reflex diarrhœa."

A nervous female *in that line*  
 Surpasses all the Muses nine.  
 This trouble is conveniently  
 Peculiar to the "Quality."  
 It stands the doctor in good stead  
 As a means to win his daily bread.

The doctor is a pure clinician  
 In his rude, embryo condition,  
 But he attends most punctually  
 The lectures on psychiatry.  
 Then modestly his name appears,  
 As "Specialist for many years,"  
 To which he adds, with zeal astute,  
 A Neuropathic Institute,  
 "In the most charming region" lives  
 [Particulars our pamphlet gives],  
 Forests with fragrance of pine cone,  
 Atmosphere laden with ozone,  
 From northern blasts by hills protected,  
 Romantic picnic tours projected;  
 Around the Home a noble ground;  
 Board reasonable [£100].

The doctor wins his way with ease  
 If he the fair, frail sex can please.  
 Platonic freedom from all passion  
 Is his most valuable possession.  
 For "confidence is slowly won  
 In nervous patients." [Nettleton.]

The therapy is "rational"  
 Only when "individual,"  
 But the brave doctor has at hand  
 Three mighty adjuncts on demand.  
 These will respond with vigor bold  
 When water hot and water cold  
 And even electricity  
 Will not secure felicity;  
 In treatment, they're ace, king, and queen,  
 Bromkali, chloral, and morphine.

#### Order 2. THE GYNÆCOLOGIST.

*Medicus parfumatius.*

Dip, gentle Muse, as "*dame d'honneur*,"  
 Thy magic wand in "*eau de mille fleurs*";  
 Lead me as guardian angel on  
 Into the incense-filled salon  
 Where, gently dimmed, the light of day  
 Through gauzy curtains makes its way;  
 Where ornaments, in taste the best,  
 The heaving bosom's pangs arrest;  
 While Rubeus's deathless "*Garden of Love*"  
 Directs their thoughts to "things above."

Here the fond patients timid wait  
For the expected *tête-à-tête*  
With him they love, while yet they fear;  
The deity they worship here.

In true artistic nonchalance  
The picture of male elegance,  
A velvet robe of pattern rare,  
With "scientific" beard and hair,  
While on his fingers soft and white,  
Gems sparkle in reflected light.  
He sits as if in marble cast—  
Nature's best work, as well as last.  
From top of head to plantar hollow  
As Æsculapius and Apollo,  
To Madam faithful to advise,  
To Magdalen a father wise,  
He hears with patience the confession  
Of honor's breach and love's wild passion;  
With "Ah!" and "Oh!" "what shall I do?"  
[Compare with Goethe's *Faust*, act two.]  
On this one point without cessation  
He centers all his application.  
Ten dollars is the usual fee;  
It's double this sum frequently.

If, spite of all, the cure's delayed,  
The "springs" serve as a lightning rod.  
Who knows the "waters" knows their names,  
Where cures are sought by gentle dames.  
At Hot Springs, Baden, Saratoga,  
Sibyllenort, Ems, Lake Ladoga,  
Our doctor stands on best of terms  
With all the various hotel "firms."  
Carlsbad is now most highly prized,  
By ladies greatly patronized.  
Charms there are found which please the sense  
With which at home they must dispense.  
Ye Gods above! women are wise!  
Oh! husbands! have you then no eyes?

### Order 3. THE ADVERTISING QUACK.

#### *Medicus charlatan.*

To former times we're carried back  
By contemplation of the quack.  
Well has this parasitic trash  
Learned how to peddle spurious cash.  
On open squares all ills of man  
Were "treated" by the charlatan,  
Aided by a street mendicant  
Who lured the sufferers to his tent.  
The "enlightened press" with powerful sway  
Serves as his mendicant to-day,  
Where every page the eye displeases,  
With "Specialist in skin diseases."  
For secret sins of every kind  
He only knows the cure to find.  
The assistant loudly shouts the praise  
Of "Cohn, chief doctor of our days."  
And Itzig wrote with pen which ran good  
A treatise on *Decay of Manhood*.

The cure is wrought by a "specific."  
The treatment's purely "scientific,"  
But acts with greater certainty  
When aided by an advance fee.  
"Relations strictly confidential,  
Absence from business not essential."

Practice of this kind pays quite well.  
The doctor knows his clientèle:

The student and the circus-rider,  
The hogreave and the humble schneider,  
With troubles of a certain class,  
Into his hands as patients pass.  
It is well known through all the town,  
His only terms are "money down."  
And as each case is quickly stated  
To be "uncommon complicated,"  
The patient finds at last the fee  
Quite a financial penalty.  
The sufferer can not get away;  
For when he nothing more can pay,  
As token of his penitence,  
The villain stakes his confidence.  
By "confidence" he keeps his "jobs,"  
By "confidence" the patient robs,  
By "confidence" his dupe denounces,  
When he at last the doctor "bounces."  
Therefore this kind of mountebank  
Is numbered in the "Vampire" rank.

### Class III.

#### Order 1. BIRDS OF PASSAGE.—THE HYDROPATHIC SPECIALIST.

#### *Medicus balneus elegans.*

In spring, when from the Nile's green shore  
The feathered warblers northward soar,  
When amorous nightingales are singing,  
And swallows their weird flight are winging,  
When storks stride through the reedy bogs  
In search of winter-fattened frogs,  
The bath-physician, like the other  
Gay birds of passage, leaves his cover.

His winter beard falls to the razor,  
For fashions new he leaves his measure,  
Then circulates his "summer card,"  
St. Moritz, Carlsbad, Martha's Yard.

Nature, scarce waked from winter chill,  
Shivers in rime upon the hill,  
While in the sheltered valley deep  
Graze undisturbed the fleecy sheep.

Already in the leafy grove  
The finches carol notes of love,  
While peals from every hostelry  
The "sanitary orchestra."  
Behold! The tardy signs appear!  
Ho! Invalids, the spring is here.

From north and south, from east and west,  
Now comes the pale-faced summer guest.  
From Maine the manufacturer,  
From Buffalo the beer-brewer,  
A colonel fresh from Bowling Green,  
From England Lord and Lady Spleen.

And then, with rank and title higher,  
From Russia, Poland, Turkey, Speyer  
[Now, Doctor, play most carefully],  
The princely crowd of -koff and -ky.  
And finally—oh, height of bliss!  
His Highness, "Serenissimus."

Take courage, Doctor, it's your mission,  
"Highness" will make you Court-physician.  
I see already on your breast  
The "order-medal," softly pressed,  
Of "Lippe-Detmold" and "Reuss-Schleitz."  
Ambition now takes loftier flights;  
One further gracious act of power,  
And, lo! the Privy Councillor!

Now as you write each proud initial  
You'll say "The baths are beneficial."

To this you may with right aspire :  
The laborer should have his hire.  
Such a reward begets renown ;  
Such merit should receive its crown.

Then head aloft ! nor feel a care,  
However your colleagues may stare.  
Their envy should not mar your joy,  
No earthly bliss but has alloy.  
You've won distinction through the State  
By means of sodium carbonate.

Of hydrotherapy the staff,  
See "interesting monograph."  
[A learned work, and finely bound,  
At all the news stands to be found  
By the beloved publicum.]  
It treats of waters and of *him*.

Highly important 'tis to guard  
In health resorts the promenade,  
For only *præsentate medico*  
Can healing from the waters flow.

At break of day, and full of grace,  
Our Medicus is at his place,  
In latest-modeled habitus,  
With silver buttoned baculus.  
Thus he approaches, brave, sedate,  
In all respects immaculate.

At duty's bidding see him stand,  
With gold chronometer in hand.  
Here, Countess's pulse must be inspected ;  
There, Highness's tongue must be projected ;  
Now lifts the hand to ask a swell  
If "Excellency rested well."

"Two glasses, Marquis ? Hold, I pray !  
Your health requires that I cry nay !  
Your noble stomach *debonnair*  
One and a half at most can bear."  
"I beg your pardon, Admiral,  
To-day, but one hour on the mall ?  
Free exercise is Nature's balm,  
Excess can lead to naught but harm."

"No, Countess, it is hard, I own ;  
Nothing at present but bouillon !"

"Excuse me, Baron, gracious Heaven !  
Already it is near eleven !  
His Highness waits ; *à la lever*,  
*Au revoir* at déjeuner !"

#### Order 2. THE IMMATURE CLINICAL FIEND.

##### *Medicus fere omnia sciens.*

When science is to be acquired  
The fruits of travel are desired.  
The man of means may go for pleasure,  
The merchant, sea and land must measure—  
May gold reward his energy ;  
His Lordship travels from ennui.  
The bashful newly married pair  
Travel they know not why or where.

By higher aspirations fired,  
The doctor travels far and wide ;  
His portmanteau is packed with care,  
His "old man" must the drafts prepare,  
And thus he journeys—grace divine—  
Toward Vienna's classic shrine

As hastening to his waiting bride.  
His bosom swells with conscious pride,  
Celebrities of every land  
Now as "colleague" extend the hand.

As a "distinguished foreigner"  
He has a seat in the parterre,  
And listens with upturned proboscis  
To the symptomatic diagnosis ;  
At times he smiles in condescension,  
To show his lofty comprehension.

Thus stalks this scientific vulture,  
This greedy carrion crow of culture,  
To clinics uninvited turning,  
A windbag of promiscuous learning,  
Till finally he moves his quarters  
Near where earth's frail and fallen daughters  
Promise "material" all too free  
For living craniotomy.

Nowhere in surgical domain  
Would be allowed this septic bane.  
Here meanwhile he may boldly try  
His virgin forceps to apply  
As soon as he with silver balm  
Has crossed the gentle midwife's palm.  
The assistants also fully know  
The meaning of a *quid pro quo*.  
And when the labor is concluded  
He seeks a restaurant secluded  
Where Bacchus, Venus incarnate,  
Assist him to recuperate.

Anon at home we see him landing,  
A man of "ripened understanding."

#### Class IV. MEDICUS PRACTICUS.

##### Order 1. THE LION OF THE BOUDOIR.

The doctor makes a gain emphatic  
By aping ways aristocratic.  
Especially in the female world  
Much hangs on how the hair is curled.  
Whoever then would be in tone  
Must make these manners all his own,  
Which act as "open sesame,"  
For those who "upper ten" would be.

Always in faultless taste arrayed,  
Reeking with perfume and pomade,  
With diamond ring, silk hat, glasses,  
Shoes patent leather, gold pince-nez ;  
Upon the hour of the visite  
He waits upon the "haut élite."  
And if with wit and *bon esprit*  
He ornaments the *causerie*,  
He knows the time not far away  
For audience in *négligé*.

With gossip from the matinée,  
From corso, grand ball, and soirée,  
He drives away through eye and ear  
All that her fancy had to fear.  
Till soon, from treatment without end,  
He is a most dangerous family friend :  
He is a living neverslip  
In point of close companionship.  
Round noble minds he weaves his toils  
Close as the gliding serpent coils,  
And cultivates with ardent passion  
The vices of the world of fashion.

The arts of gaming he has learned,  
 To feats of chance his hand has turned,  
 The jockey club he also prizes,  
 And loud his winnings advertises ;  
 For knowledge of the Derby races  
 The climax on attainments places.  
 The news in latest buffet scenes,  
 Last scandals of the lyric queens ;  
 The newest " bon mots " of the street  
 He gives, the kernel and the meat,  
 With effort which no limit knows  
 Repeats the tale where'er he goes.  
 Thus only in the " higher walks " of  
 Of life this gaudy creature stalks.  
 Cajoled by disappointed dames  
 He thus a certain standing claims.

*Applaudite*, then, colleagues all !  
 You all would suffer should he fall.  
 Science must rise, cost what it may,  
 E'en though her pedestal be clay.

Order 2. THE GRADUATED JACKASS.  
*Medicus asinus.*

In ancient times the doctor's gown  
 Was like an heirloom handed down.  
 But even the garment most sublime  
 Grows shabby with the lapse of time,  
 And gowns, like other earthly wares,  
 Are also variable affairs.  
 Oft 'neath the doctor's hat appears  
 A prominent pair of ass's ears.

The first-born son is now sixteen . . .  
 And great anxiety is seen  
 In frequent family councils grave  
 As to what calling he shall have.  
 Law would cost father too much " tin."  
 As teacher he's not worth a pin ;  
 The aunt suggests theology.  
 " No ! that at least can never be ! "  
 Cries the whole family with misgiving ;  
 " In that he ne'er could get a living."  
 " No, dearest Auntie, in our day  
 Medicine is by a long way  
 The best—there is no doubt of it,  
 He could make something out of it."  
 Therefore, solely for the " tui,"  
 The fellow studies medicine.

Only that knowledge can be right  
 Which safely stands in black and white.  
 Therefore in notebook he records  
 The old professor's drowsy words,  
 And duly notes from A to Z  
 Whatever of practice he may see.  
 For observation is in minority  
 Against a pedagogue's authority.

Their therapeutical " arrangements,"  
 The way they classify " derangements,"  
 The methods they in treatment try  
 Are most convenient for a " b'y."  
 He does not need to doubt or quibble,  
 Only a daubed receipt to scribble ;  
 Goes only to his desk to seek 'em  
 From Doctor Docent's *Vade Mecum*  
 For every dullard's quick advisement  
 [It answers as an advertisement].

The examination makes him tremble.  
 Its terrors he can not dissemble.  
 He has no confidence in shamming,  
 So zealously resorts to cramming.  
 That which he has in lectures taken,  
 Trusting thereby to save his bacon,  
 He rolls forth without hesitation,  
 To each his wordy peroration.

At length he passes all the quæstors,  
 Is ranked among the " coming Nestors,"  
 Is titled *virum illustrum*  
 And all the rest of *quid* and *quem*,  
 Recorded in his grave diploma  
 In classic terms of ancient Roma.

Now Michael need not fear the future,  
 Although he know not pill from suture ;  
 Need not in science to speculate,  
 Nor theories to ventilate.  
 He has no use for such possessions  
 Now that he's joined the " learned professions."

Before his neighbors and relations,  
 Whatever their state or occupations,  
 The cousins, uncles, nephews, aunts,  
 Whether in petticoats or pants,  
 Wet-nurses, midwives, foul or neat,  
 The officers upon the beat—  
 He throws the dust in all their eyes,  
 That they his skill may advertise.

It's quite essential the first cure  
 Should be made pleasant, prompt, and sure.  
 One does well to select migraine,  
 For morphine will relieve the pain ;  
 Should this fail, as sometimes it will,  
 We've plenty of uareotic still ;  
 If thus we give the patient rest,  
 The laity is much impressed.

A syringe is his first selection  
 For subcutaneous injection.  
 Next to his heart it finds a place  
 Within a silver-plated ease.  
 Where " indications " he detects  
 He " symptomatically " injects.

Enough ; the valiant Michael quick  
 Is widely known among the sick.  
 But in regard to surgery  
 He shows a marked antipathy.  
 For pulling teeth he has a passion,  
 For knives are now quite out of fashion.  
 By salves much comfort is achieved ;  
 Fear of the knife is thus relieved ;  
 And should the patient not do well,  
 He's carted to the hospital.

Order 3. THE HONEST OLD FAMILY PHYSICIAN.

I turn my gaze from these delusive forms,  
 Bring from the shadows of the honored past,  
 Fond memory, the bravest of our race,  
 And let me glance at long-neglected worth.

No laurel decks thy brow, but where thy spirit true  
 Thy comrades showed the way to live and do,  
 There lives thy form, enthroned in every heart ;  
 There thou art still, and hast in life a part.

On the low couch within the chamber dim  
 A sufferer waits the last long struggle grim ;  
 Thou comest ; it is light, and sorrow disappears,  
 Pain is forgotten ; hope replaces fears.

So happy makes thy face, so brave thy kindly glance,  
The touch of thy loved hand brings ease and confidence.  
And, what with sordid gold can not compare,  
The tears of gratitude reward thy care.

I see thee, dearest councilor and best,  
The children's friend, the always welcome guest.  
Sorrow is shared, and doubled is the joy,  
Affection true, and trust without alloy.

I hear thy accents, fresh from noble mind,  
In language chaste, in motive always kind.  
Thy cutting satire, causing fools to quake,  
Who on some passing whim their fortunes stake.

Shall I entice thee to the motley crowd,  
Thou hoary guest of period long since past,  
That tricksters of an age beneath thy worth  
Should air their folly on thy classic robe?

Let us away from busy streets' commotion,  
Turning aside into the silent vale,  
And where some ancient comrade kindly beckons,  
There let us rest, and grant me thy communion.

**Mortality in Cities in the United States.**—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for May 6th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	DEATHS FROM—											
			Total deaths from all causes.	Pneumonia.	Yellow fever.	Smallpox.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.	
New York, N. Y.	Apr. 30.	1,515,301	950	121	..	5	..	..	..	6	26	33	25	10
Chicago, Ill.	Apr. 30.	1,099,850	500	..	..	..	..	..	..	9	10	14	3	2
Philadelphia, Pa.	Apr. 23.	1,046,964	436	53	..	..	..	..	..	11	8	16	1	1
St. Louis, Mo.	Apr. 30.	451,770	150	16	..	..	..	..	..	1	..	3	..	..
Boston, Mass.	Apr. 30.	448,477	201	25	..	..	..	..	..	1	5	8	..	1
Baltimore, Md.	Apr. 30.	457,439	212	20	..	..	..	..	..	3	7	7	3	..
San Francisco, Cal.	Apr. 23.	298,997	..	19	..	..	..	..	..	4	..	3	2	1
Cincinnati, Ohio	Apr. 29.	296,908	129	20	..	..	..	..	..	1	..	5	2	1
Cleveland, Ohio	Apr. 30.	261,853	94	9	..	..	..	..	..	..	7	3	..	..
New Orleans, La.	Apr. 25.	242,039	159	16	..	..	..	..	..	1	..	1	1	1
Washington, D. C.	Apr. 23.	230,392	106	16	..	..	..	..	..	1	2	1	..	1
Washington, D. C.	Apr. 30.	230,392	90	13	..	..	..	..	..	..	2	..	..	2
Milwaukee, Wis.	Apr. 30.	204,468	92	11	..	..	..	..	..	..	11	1	1	..
Minneapolis, Minn.	Apr. 23.	164,738	45	..	..	..	..	..	..	1	..	1	..	..
Minneapolis, Minn.	Apr. 30.	164,738	58	..	..	..	..	..	..	..	..	1	..	..
Louisville, Ky.	Apr. 30.	161,129	68	8	..	..	..	..	..	3	..	1	..	..
Rochester, N. Y.	Apr. 30.	133,886	58	6	..	..	..	..	..	1	..	3	..	..
Providence, R. I.	Apr. 30.	132,146	52	..	..	..	..	..	..	..	2	..	..	..
Denver, Col.	Apr. 2.	106,713	38	7	..	..	..	..	..	1	2	2	..	..
Denver, Col.	Apr. 9.	106,713	52	12	..	..	..	..	..	1	2	1	..	..
Denver, Col.	Apr. 16.	106,713	21	2	..	..	..	..	..	1	2	1	..	..
Denver, Col.	Apr. 23.	106,713	29	9	..	..	..	..	..	..	..	..	..	..
Toledo, Ohio.	Apr. 15.	81,434	..	2	..	..	..	..	..	..	..	..	..	..
Richmond, Va.	Apr. 30.	81,288	30	5	..	..	..	..	..	..	..	..	..	..
Nashville, Tenn.	Apr. 30.	76,168	32	5	..	..	..	..	..	1	..	..	..	..
Portland, Me.	Apr. 30.	36,425	15	..	..	..	..	..	..	..	..	..	..	..
Binghamton, N. Y.	Apr. 30.	35,005	7	2	..	..	..	..	..	..	1	..	..	..
Mobile, Ala.	Apr. 30.	31,076	21	4	..	..	..	..	..	..	..	..	..	..
Auburn, N. Y.	Apr. 30.	25,858	6	2	..	..	..	..	..	..	..	..	..	..
San Diego, Cal.	Apr. 23.	16,159	2	..	..	..	..	..	..	..	..	..	..	..
Pensacola, Fla.	Apr. 23.	11,750	7	1	..	..	..	..	..	1	..	..	..	..

**Medical Misinformation.**—In an article with this title the *Druggists' Circular and Chemical Gazette* says: "The kind-hearted busy-body who is always ready to tell his sick friend exactly the right medicine to effect a sure cure is a bad enough person; but the newspaper prescriber is a great deal worse, for his utterances acquire a certain fictitious authority in the eyes of many people because they appear 'in the paper.' Some dangerous outbreaks of this kind of prescribing have lately occurred in several English journals. In one a 'cure for vertigo' was given in which 'glonoin' was directed as an ingredient. This article is much better known to the public by its chemical name, nitroglycerin, and the quantity of the 'cure' directed to be taken at one time would give the patient a two-grain-and-a-quarter dose of this violent remedy. In another paper a prescription for 'pains in the head' was given, in the taking of which the unfortunate patient would be dosed with a sixth of an ounce of nux vomica tincture

three times a day. Still another recipe in the same paper orders as a 'hair tonic' a seven-ounce mixture containing one ounce of strong ammonia water and two ounces of tincture of cantharides. The same style of medical tinkering may not infrequently be observed also in newspapers printed on this side of the water, although it is perhaps uncommon to find such dangerous ignorance displayed as has been recorded above. We have in mind a note on the treatment of insomnia, in which a mixture of chloral hydrate, potassium bromide, and codeine was directed in pretty stiff doses on the authority of a foreign physician, who 'highly recommended' it. The use of such a prescription under the direct supervision of a medical man and its employment by an unskilled layman might, of course, easily make the difference between life and death or between temporary help and the most wretched slavery. People have a great deal too much half-knowledge about drugs already, and the less attention they pay to newspaper prescribing the better. Here, as in the regular kind, the pharmacist is bound to stand between the patient and danger. When a customer comes to him with a nitroglycerin recipe or a blistering hair tonic he must promptly warn him of the true state of affairs, and by his watchfulness much damage can be averted and the cause of education be a little helped."

**To Contributors and Correspondents.**—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Lectures and Addresses.

NEW OUTLOOKS IN THE  
PROPHYLAXIS AND TREATMENT OF  
TUBERCULOSIS.

THE MIDDLETON GOLDSMITH LECTURE FOR 1892,  
DELIVERED BEFORE THE NEW YORK PATHOLOGICAL SOCIETY,

By FRANCIS P. KINNICUTT, M.D.,  
PHYSICIAN TO ST. LUKE'S HOSPITAL AND THE PRESBYTERIAN HOSPITAL,  
NEW YORK.

GENTLEMEN: When your committee did me the honor to request my acceptance of the Middleton Goldsmith lectureship of the present year and suggested the subject—The Present Aspect of the Treatment of Tuberculous Disease, and especially of Pulmonary Tuberculosis—my first inclination was to decline. Their representations that a review of this subject was particularly desirable at the present time, and would serve a practical purpose, have alone induced me to undertake a difficult task.

The lecture has been postponed beyond the customary time of its delivery, in the hope that investigations which have been carried on during the past winter in St. Luke's Hospital and in the pathological laboratory of the College of Physicians and Surgeons might be sufficiently advanced to be incorporated in it. This hope, in part, has been fulfilled.

Any consideration of methods of treatment of infectious diseases at the present time must necessarily be in the light of modern pathology and bacteriology. Through the discoveries in this field of medicine the term *treatment* has acquired a new significance. A large number of the infectious diseases of human beings and of animals have already been shown to have their origin in specific pathogenic living organisms, and there are strong reasons for believing that a similar aetiology will be demonstrated in the near future for all diseases hitherto included in this category.

In the infancy of bacteriology it was not unnaturally assumed that the sowing of the seed was alone necessary for the production of a disease, that, if once the specific germ gained access to the economy, its particular effects would certainly follow. The "possession of a self-protecting power by the organism of man and of the higher animals, which could exercise its influence within certain limits either in arresting the development of the living exciters of disease or in counteracting their poisonous products," was hardly dreamed of. To-day the splendid discoveries of bacteriological research have abundantly demonstrated that an unceasing contest is being waged between the growing power and toxic activity of the pathogenic microphyte and the living organism.

In this connection, what can be of more absorbing interest than the discovery by the distinguished plant physiologist, Professor Pfeffer (1), of the group of phenomena to which he gave the name of chemotaxis, the definite relation between vital movement and chemical action? Later it was suggested by Dr. Leber that the emigration of leuco-

cytes in the human body was due to the same power; in other words, that certain harmful substances in the living tissues, embracing effete materials, living pathogenic organisms, and viruses of various kinds were agreeable to a rudimentary sense of taste, as it were, in the leucocytes, which were thus allured from the media in which they commonly lived toward the attracting substance.

The mustering of the leucocytes in troops, in the neighborhood of the bacterial invaders of the body, as a direct or indirect protection to it, is almost as dramatic as it is important. This action of the leucocytes, in virtue of their chemotaxis, and the final incorporation or digestion by them of the bacteria, constitutes Metschnikoff's well-known theory of phagocytosis and phagocytic immunity.

Further, we may refer to the investigations of Buchner (2) and Roemer, showing the association of a *general leucocytosis* with febrile inflammatory processes. They found that within eight hours after the intravenous injection in rabbits of various proteids there was marked leucocytosis; the relation of white to red blood-cells on the evening of the fourth day of the daily injection of solutions of the protein of the *Bacillus pyocyaneus* (the bacillus of green pus) was 1 to 38, the absolute number of the red blood-cells remaining unchanged. It should be mentioned that the office of policeman on the part of the leucocyte is not considered proved at the present time by many. Their work as scavengers is acknowledged, but it is believed that the true guardianship of the body resides in the body fluids; in other words, that the *destruction* of bacteria is accomplished by the germicidal power of the latter, and their *removal* only is effected by the leucocytes.

Finally, we may refer to the investigations which have shown that, while the living tissues and fluids of the body possess the power in varying degree of arresting the development of living disease-producing organisms and of eventually destroying them, certain life products of the latter are capable of impairing or inhibiting this protective power.

In view of such facts, preventive medicine must necessarily embrace the means of promoting the victory of the organism in its contest, either by strengthening its defenses or by weakening or destroying the power of the growing microphyte.

With our present knowledge of the various media in which the specific living exciters of disease most commonly lurk, it should be a matter of reproach if we fail in securing a more efficient prophylaxis than has been possible in the past.

Previous to 1882 the pulmonary lesions of tuberculosis had been accurately described, and Villemin, as a result of his successful inoculations of animals, had declared it to be a specific infectious disease. With the announcement of Koch, on March 14th of the year mentioned, that he had discovered not only the constant accompaniment but the cause of the tuberculous process, the infectious nature of tuberculosis was finally established and the nature of the relation between specificity of cause and specificity of process in this disease was determined.

Before proceeding further, it will be advantageous to have accurately pictured in our minds the pulmonary lesions which are directly or indirectly due to the tubercle bacillus. The list is indeed a formidable one: Miliary tubercles, both single and conglomerate; larger and smaller areas of epitheloid cell growth, called diffuse tuberculous tissue, and various aggregations of these, often in a state of more or less advanced coagulation necrosis; disintegration and excavation as a result of the latter; cicatricial formation; peribronchitis, and extensive inflammatory consolidations specific in nature; and, finally, we must bear in mind the bronchitis and lobular pneumonias, probably simple (unspecific) in character, so frequently present in tuberculous lungs.

In the light shed by modern research upon the possession by the organism of man of a self-protecting power against pathogenic organisms, with a knowledge of the specific organism which causes tuberculosis and the lesions which are directly or indirectly produced by its presence in the economy, we are proportionately equipped to attempt to consider the measures, prophylactic and remedial, which have been proposed to cope with the disease.

Prophylactic measures must necessarily consist of those designed to destroy the vitality of the bacillus outside of the human body, to minimize the sources of infection, and to render the tissues insusceptible to its presence.

Three possibilities suggest themselves as *specific* means for exercising a *remedial* effect. They are: First, the discovery of a method of treatment capable of destroying the bacillus within the body; second, of some substance, organic or inorganic, which by its introduction into the body may so modify the action of the bacillus as to deprive it of its harmful effects—the possible abstraction of a constituent of its protoplasm or of its metabolic products, analogous to the tetanus or pneumonic antitoxine, suggests itself in this connection; third, the discovery of a principle capable on introduction into the economy of increasing the germicidal power of the fluids of the body by stimulating cell activity, upon which it ultimately depends, or by such stimulation inducing connective-tissue changes in tuberculous tissue, or both.

PROPHYLAXIS.—I shall first consider the prophylaxis of tuberculosis so far as it relates to destroying the vitality of the bacillus outside of the human body, and to minimizing the sources of infection. With the discovery of the specifically infectious nature of a disease, the means of infection are not necessarily directly evident. In tuberculosis a series of brilliant investigations quickly threw much light upon this point. Following Koch's discovery, it was very early shown that the bacilli were not contained in the air expired by patients suffering from pulmonary tuberculosis; on the other hand, that their sputum contained bacilli in enormous numbers. It was further shown that the bacilli were incapable of escaping from fluid media, and, finally, that the sputum in a dry state, conveyed in the form of pulverized atoms by currents of air, was the most common source of infection. Successive investigations demonstrated that the stools of human beings afflicted with the intestinal form of the disease and the discharges from tuberculous

ulcers, glands, and bones were positive, if infrequent, vehicles of infection; and, finally, that the milk of tuberculous cows, with or without disease localized in the udder, and tuberculous meat, were capable of producing tuberculosis in the consumer.

It will be interesting to refer at somewhat greater length to inoculation experiments and clinical observations bearing on these points.

The elaborate investigations of Cornet (3) in the Berlin Institute of Hygiene in regard to the distribution of the tubercle bacillus in the air are particularly instructive. The dust from twenty-one wards of seven hospitals, from three asylums, from two prisons, from the living-rooms of sixty-two phthisical patients in private practice, from "out-patient" departments, from the public streets, and from inhalation experiment rooms, was gathered and its virulence or innocuousness determined by inoculation of susceptible animals.

Of ninety-four animals inoculated with the dust of hospital wards, twenty became tuberculous. Virulent bacilli were obtained from fifteen out of twenty-one medical wards. Negative results, on the other hand, were obtained from the dust of the surgical wards, also from that of the streets and the inhalation rooms investigated. Of one hundred and seventy animals inoculated with dust from the living-rooms of consumptives, thirty-four became infected. As ninety-one of the one hundred and seventy died of septic disease, it is probable that the above-mentioned percentage of animals in which tuberculosis was produced does not accurately represent the specific (tuberculous) virulence of such dust. The dust was taken from the walls, articles of furniture, picture frames, etc. From the room of a consumptive in a private house virulent bacilli were obtained six weeks after her death.

Cornet records the fact that he did not once find infective bacilli in the rooms of those patients who used only spittoons for the sputum, although especially careful search was made in these instances. Equally valuable evidence on this point is furnished by Trudeau (4). In his sanitarium at Saranac Lake, where rigid rules in regard to the use of proper receptacles for the sputum are enforced and its efficient disinfection or destruction is accomplished, not a single employee has acquired tuberculosis during the six years since its institution. In Dettweiler's sanitarium at Falkenstein, where presumably similar precautions are taken, a similar experience is alleged.

With such observations before us, further *clinical* statistics may be unnecessary, but are not without interest.

In response to questions sent in 1883 by the Collective Investigation Committee of the British Medical Association to physicians throughout Great Britain (5), asking for their personal experience on the communicability of phthisis, 1,078 communications were received. Of these, 673 were to the effect that cases of tuberculosis originating in infection had not come under their notice. Of the remaining 405, 261 were regarded by the committee as positive in evidence of communicability, 39 as doubtful, and 105 as negative. Among the affirmative observers, 192 reported cases of probable infection of husband by wife and the converse,

and in 130 of these cases there was an entire absence of inherited predisposition on the part of the person infected.

Turning to our own country, the investigations of Flick (6) are of much interest. The localization of and mortality from tuberculosis in one of the wards of the city of Philadelphia for a period of twenty-five years preceding 1888 were very carefully studied by him. It is shown that while less than one third of the houses of the ward became infected with tuberculosis during the twenty-five years prior to 1888, considerably more than one half of the deaths from this disease during the year 1888 occurred in infected houses. Inasmuch as there were more than twice as many non-infected as infected houses in the ward, a preponderance of deaths in non-infected houses would be expected.

Cornet's investigations of the health statistics of the Catholic nursing orders of Prussia (7) may be considered as supplementary to those of the same author which have already been described. Thirty-eight convents were selected, representing a yearly average of four thousand and twenty-eight persons, and the statistics relate to the twenty-five years preceding the year 1889. It is known that the general annual death-rate from tuberculous disease is from one seventh to one fifth of all deaths. Among the above-mentioned orders the enormous average mortality of 62.88 per cent. is shown to be due to tuberculosis alone. In nearly one half of the convents it even rises to seventy-five per cent., and in two "mother houses" it was the sole cause of death. In others the death-rate from this disease varies from forty to fifty per cent.

Cornet says that the different mortalities may be explained by the fact that some of the nurses are engaged in attending altogether or for the most part upon surgical cases. The average age at death of the inmates is 36.27 years, lower by ten years than that of men engaged in trades notoriously the most unhealthful—*i. e.* file-cutters, copper-smiths, locksmiths, blacksmiths, cotton-spinners, etc.

If the mortality due to tuberculosis and that resulting from other diseases commonly regarded as infectious are both deducted from the death-rate in the Prussian state and in the convents, it is shown that up to the age of forty years the death-rates in state and convents are remarkably equal. From forty to sixty years the mortality due to non-infectious diseases is less in convent than in state. Even admitting the insanitary conditions of convent life, it is impossible to believe, with our present knowledge of the ætiology of tuberculous disease, that it can produce it. On the other hand, these conditions are of the kind to lead to its rapid extension when once introduced. It should be mentioned that the health of all persons on entering the nursing communities is excellent, admission being dependent upon medical certificates to this effect.

Among the numerous investigations (8, 9, 10) of the infectiousness of the milk of tuberculous cows, I shall only refer to the very brilliant ones of our countryman, Dr. Ernst, of the Harvard Medical School (11). They surpass in their extent and importance those of continental observers. Experimental inoculations in rabbits and guinea-pigs, and feeding experiments in calves and pigs with both the milk and cream of tuberculous cows *without* disease of the udder,

proved in the most positive manner that such milk was capable of producing tuberculosis in the consumer. Incidentally, in experiments with milk taken at random from the common dairy supply of Boston, virulent bacilli were found in two instances.

If Dr. Ernst's experiments are supplemented with the clinical fact of the frequency of intestinal and mesenteric tuberculous disease in children and with the statement, made in the form of a resolution, by the United States Veterinary Association in 1889, that from ten to fifteen per cent. of the dairy stock of the Eastern States was tuberculous, this subject assumes very grave importance. Although investigations have shown that tuberculous meat as such is infective, further experiments are necessary to determine whether those parts of a tuberculous animal usually used for food, and not specifically affected, are harmful.

I have been able to collect a large number of cases of probable inoculation tuberculosis in the human being. Many of them occurred through infection of post-mortem and dissection wounds. Among others the following are of interest:

A healthy girl of fourteen years, without inherited predisposition, became locally infected through wearing the ear-rings of a consumptive. A tuberculous infiltration of the glands and general infection followed (12).

A male child, very vigorous at birth, began to suffer when three years old from eczema of the skin of the abdomen. Bacilli were searched for, but not discovered. After four years of age, he constantly slept with his consumptive mother, and bacilli were shown to be present in the eczematous vesicles (13).

A student received a slight wound in dissection; a nodule appeared at its site and a swelling of the glands of the forearm followed. The glands were excised and showed central cheesy degeneration (14).

Ten Jewish boys were circumcised by the same physician only a short time before his death from consumption. There is positive evidence that the saliva of the operator came in contact with the preputial wounds. The first symptoms of infection developed ten days later. Three of the children died of tuberculous meningitis, three of marasmus, and one of intercurrent diarrhœa. Three survived, but developed tuberculous adenitis (15).

Accumulated experimental and clinical investigations in demonstrating the most common sources of infection—*viz.*, the sputum of patients suffering from pulmonary tuberculosis, the milk of tuberculous cows, and finally, though to a much less extent probably, tuberculous meat—clearly indicate the direction which prophylactic measures should take.

The enormous number of tubercle bacilli contained in the sputum of patients suffering from pulmonary tuberculosis, even admitting that many of them are dead, as Kitasato very recently has shown, is well known. In a series of investigations kindly made for me by Dr. T. Mitchell Prudden in 1891, as many as 21,460,000 were computed to be present in the daily sputum of a single patient. Nuttall's experiments (16), conducted in the Johns Hopkins laboratory, give quite similar results.

Sawizky (17) has shown, moreover, that tuberculous sputum, dried and preserved under the conditions which usually obtain in the dwelling-house, preserves its infective properties for two months and a half.

Stone's experiments (18), if corroborated by further investigations, apparently show that its virulence may be extended for as long a period as three years. If we further consider the exceptional resistance of the tubercle bacillus to the action of both chemical and other antiseptics, the efficient disinfection or destruction of tuberculous sputum becomes a matter of vital importance.

*Chemical Disinfection.*—Carbolic acid, potassa, sulphate of copper, and chloride of zinc, all in solutions of 1 to 500, were found by Grancher and De Gennes to be useless (19). Histological examination of the sputum so treated showed no change in the appearance of the bacilli, and inoculations proved that they were still active. Later experiments (20) have demonstrated that carbolic acid, even in ten-per-cent. solutions and after twenty-four hours' admixture with the sputum, is without effect. Corrosive sublimate is valueless through the coagulation produced by it of the albuminoids contained in the sputum. The experimental investigations of Schottelius and Spengler (20) with the newer antiseptics—creolin, aseptol, and lisol—of which much was hoped, have also been disappointing. Ten-per-cent. solutions of creolin and aseptol were found to be absolutely without effect, even after twenty-four hours. Lisol, however, in ten-per-cent. solutions, proved to be capable of rendering the sputum sterile in twelve hours.

These results indicate in the most positive manner that we possess no practical means at present for efficiently disinfecting sputum by chemical antiseptics.

Experiments with heat, on the other hand, have shown that the tubercle bacilli rarely survive a temperature of 80° C., and are invariably killed at temperatures varying, according to different observers, from 90° to 100° C. (21). Simple rinsing of the cups or other receptacles of the sputum with boiling water is not sufficient and is not without danger to the attendant. Numerous observers report cases of infection of cuts from sputum (*v.* Eiselberg [22], Fleur [23], Holst [24], L. Pfeiffer [25], and others).

In view of these facts, every consumptive should possess the knowledge that, while his disease is in reality a menace to those about him, the foil is within his reach. He should be taught never to use a handkerchief for his sputum, never to spit upon the floor. An appropriate receptacle of glass, china, or paper, partially filled with water, should be provided for the sputum, which should be thoroughly disinfected or destroyed at least once in twenty-four hours. For its disinfection in hospitals, an ordinary Arnold's sterilizer, of sufficient size to accommodate all the cups of a ward, and in which they should be placed daily for half an hour, may be used.

A far better method, in my judgment, is the destruction of the sputum by fire. The method at present in successful use in St. Luke's Hospital, and which is of easy application in private houses, consists in the use of paper boxes, which are daily supplied to each patient, and at the end of twenty-four hours destroyed, with their contents, by fire. They are of convenient size and very inexpensive, and the preparation used in their construction prevents all leakage. The floors and the walls of living-rooms and of hospital wards of consumptives should be scrubbed or wiped with

damp cloths, not swept or dusted. The cast-off clothing of such patients should be submitted to the action of live steam, or to the degree of heat described as sufficient to destroy the tubercle bacilli.

Public sentiment, in the absence of legislation, should compel the proprietors of hotels and boarding-houses at health resorts, at least, to take such measures as can be designated with our present knowledge for disinfecting the living-rooms of consumptives. Further investigations are urgently needed to determine the most efficient and practical means for accomplishing this object.

A further most important prophylactic measure consists in the systematic inspection of dairies, particularly those of large cities, and of slaughter-houses. Commercial considerations have secured the necessary legislation for the inspection of the pork products of the United States; a consideration of the public health should be sufficient to secure a similar legislation to minimize the sources of infection of tuberculous disease.

A bill for the inspection of dairies and the slaughter of tuberculous animals, I am happy to state, will probably be introduced in the Legislative Houses of the State of New York during the present session. Such an example, it is reasonable to hope, would gradually be followed by the Legislatures of other States.

In the mean time, in the absence of necessary legislation, the only safeguard possessed by the public against possible infection through dairy products consists in the sterilization of milk and cream by boiling or through the use of steam sterilizers.\*

Many of the prophylactic measures which have been mentioned have already been embodied in the form of suggestions or in laws by various governments and municipalities abroad, and the Board of Health of the City of New York has issued some admirable rules "to be observed for the prevention of the spread of consumption."

In considering the prophylaxis of tuberculosis I have confined myself to measures designed to destroy the vitality of the bacillus outside the human body and to means for minimizing the sources of infection, in the belief that such efforts are of far greater relative value than those directed toward increasing the resisting power of the individual. I shall even go further, and thus cease to be open to the reproach that the clinician's interest in the therapeutics of the disease is almost to the exclusion of that in its prophylaxis, and assert that infinitely more can be accomplished toward the elimination of this terrible scourge by making practical use of our present exact knowledge of its aetiology and prophylaxis than by any or all therapeutic measures at present at our command. As has been well said, "it is the seed of the disease, without the implantation of which there can be no harvest of death, that we are now most able to reach and destroy." We shall fail, then, in our duties as true physicians if we do not scatter broadcast among the laity this knowledge. From a full appreciation of the dangers at their doors and a knowledge of the means capable of divert-

\* Investigations conducted in the Imperial Health Bureau of Berlin demonstrated that tubercle bacilli also retain their vitality in butter and cheese frequently for weeks.

ing them, surely good fruit will be borne, even to the enactment and enforcement of laws for the protection of the public health.

In turning our attention to the remedial treatment of tuberculosis our thoughts naturally are first directed to Koch's tuberculin (26). His hypothesis of its specific mode of action is as follows: He particularly states that other explanations are possible and may be more correct. The tubercle bacilli in their growth produce in the living tissues, just as in artificial cultivations, certain substances which have various but always deleterious effects upon the living elements of their surroundings, the cells. Among these substances is one which, in a certain concentration, destroys living protoplasm and causes it to undergo what is known as a coagulation necrosis. The necrotic tissue is unfavorable to the nutrition of the bacillus; its further development is checked, and finally, in some cases, its death follows. If the amount of the necrosis-producing substance is artificially augmented, as he believes it to be by the introduction of tuberculin into the system, not only will the extent of the necrosis be increased and consequently the conditions of the nutrition of the bacilli be more unfavorably affected, but also more completely necrosed tissues will disintegrate and slough, and, where this is possible, take with them the inclosed bacilli, carrying them outward. Large doses of tuberculin are capable of giving rise to a certain amount of pyrexia and other symptoms in healthy persons, he believes through irritative influences exerted upon certain elements of the tissues, probably on the white corpuscles of the blood or cells closely related to them. The necrosis-producing substance in tuberculin Koch now tentatively believes to be an albumose or a substance closely related to it.

Many elaborate criticisms of this hypothesis, both theoretical and based upon experimental and clinical investigations, have appeared during the past year.

In a very recent monograph by Rosenbach (27) the author denies both a specific affinity of tuberculin for tuberculous tissue and the specific action alleged for it. The general action and constitutional disturbance following its inoculation he believes to be due to a general irritation set up in the body, which, according to its degree, can assume the characteristics of an inflammatory action, in some cases even of a purulent type. The degree of the reaction, particularly of the fever, depends upon the predisposition of the individual to febrile disturbance. Similar constitutional disturbances have been shown to follow the inoculation of cantharidal salts and the protein of other bacteria. Rosenbach asserts that the specific activity of tuberculin can only be demonstrated when it is proved that substances derived from other micro-organisms can produce fever exclusively in subjects who are the hosts of bacteria of the same kind, and, further, that they can evoke reactions only in the tissues in which changes have occurred from their action and elsewhere remain without effect. He maintains that hitherto this has not been shown. The author expresses a guarded opinion as to whether tuberculin produces an actual necrosis of tuberculous tissue; if it occurs, he believes it is not a coagulation (specific) necrosis, but

rather is secondary to an acute inflammatory process and exudation.

A new light has been thrown on the nature and action of tuberculin through the investigations of William Hunter, of England, and the German pathologist Klebs. As early as January, 1891, the former began his investigations (28). Starting with the assertion of Koch's that the remarkable properties possessed by it—unfortunately for evil as well as for good—were due to a single active principle which constituted but a fractional part of the extract, he believed that the chemical behavior of this hypothetical principle, which was described by the discoverer as a derivative of albuminoid bodies, could not possibly apply to any one known chemical substance.

His studies had for their objects:

(1) To isolate the chief constituents of tuberculin and to determine their chemical nature; (2) to ascertain their action, with special reference to their power of inducing the two most characteristic effects of tuberculin—viz., local inflammation and fever; (3) to ascertain how far it was possible to eliminate all substances having an injurious action, and thus to obtain remedial without injurious effects.

His results may be summarized as follows, under the heads of composition, action, and therapeutic value:

The chief substances found in tuberculin are: (1) albumoses;\* (2) alkaloidal substances; (3) extractives, small in quantity and of unrecognized nature; (4) mucin; (5) inorganic salts; (6) glycerin and coloring matter.

Having ascertained that the only substances present in tuberculin with which its active properties could be associated were albumoses, organic bases of alkaloidal nature, and probably various extractives, he proceeded to determine by experiments on mice and guinea-pigs to which of these substances tuberculin owed its characteristic properties, remedial or other.

Four modifications of the original tuberculin were accordingly prepared by him. He has given to them the designations *A*, *C*, *B*, and *CB*, and these terms will be retained in the present paper.

From extensive investigations with these modifications, he feels warranted in concluding—

1. That tuberculin owes its activity, not to one principle, but to several; that its action in producing local inflammation, fever, and general constitutional disturbance is not a simple but an extremely complex one.

2. That its remedial and inflammatory actions are connected with the presence of certain of its albumoses, while its fever-producing properties are chiefly associated with substances of a non-albuminous nature.

3. That by the adoption of certain chemical methods it is possible to remove the substances which cause the fever, while retaining those which are beneficial in their action.

4. That the fever produced by tuberculin is thus absolutely unessential to its remedial action. (He is inclined to believe that the inflammation is almost similarly unessential, although admitting that under certain circumstances it may assist the action of the remedial substance.)

\* Chiefly proto-albumose and deuterio-albumose, along with hetero-albumose and occasionally a trace of dysalbumose.

5. That tuberculin possesses a truly remedial action and that this is to be found in a protein—*i. e.*, in an albuminous substance derived from the plasma of the bacilli themselves and not formed by their action upon the surrounding tissues; and, finally, that it is possible to isolate largely this protein.

Dr. Hunter's clinical investigations, in which he has been assisted by Mr. Watson Cheyne, with the above-described modifications of tuberculin, have led him to assert tentatively the following propositions: Modification *A* differs but slightly in its action from tuberculin. Modification *C* differs from tuberculin in being almost completely freed from the substance which gives rise to local inflammation. It contains, however, in a special degree the fever-producing agents, which may be regarded as interfering with its remedial properties and favoring rather than retarding the growth of the bacilli. Modification *CB* contains the remedial substance present in *C*, freed from the fever-producing agents. Its use, moreover, is unattended with any of the other constitutional symptoms following the employment of tuberculin. Modification *B* contains the remedial properties of *CB* with the additional property of inducing local inflammation. Its action is free, so far as has yet been observed, from ill effects.

From the marked improvement which Dr. Hunter has seen occur in cases of ulcerative and other forms of lupus, where it is possible to watch the local changes from day to day, under treatment both with *B* and with *CB*, he believes the activity and probable remedial power of these modifications to be demonstrated. It yet remains to be determined whether the improvement noted in his cases will be more or less permanent. The absence of marked local inflammation, or of necrotic changes accompanying their use, leaves the mode of action of the above-mentioned modifications of tuberculin a matter of more or less speculation at the present time. I shall refer later to the clinical investigations of other observers, and to some personal ones with Dr. Hunter's preparations.

Professor Klebs's researches evidently have been based on the same line of thought as the foregoing, but were made quite independently of them (29). Convinced that tuberculin produced in the human being many effects which had nothing to do with its action upon tuberculous tissue, and which could be avoided without affecting the latter property, he submitted tuberculin to various chemical processes with the view of freeing it from its alkaloidal substances. Its noxious properties reside in the latter, he believes.

He maintains that the extracted principle represents the secretions of the tubercle bacilli and is a pure albumose. Experimental investigations in animals indicate that the injection of large doses of *tuberculoëidin*, as he terms the albumose, previous to inoculation with pure cultures of the bacillus, delays the development of tuberculosis to at least twice the usual period; moreover, that a complete resolution of previously developed tubercle may occur under its use.

The best results in animals were obtained when the tuberculoëidin was injected simultaneously with inoculations of the bacilli. In such animals, killed three months

later, tubercle was scantily present, and few bacilli were found. In cases where treatment was begun six weeks after experimental inoculation and continued for twenty-five days, either complete healing or a high degree of retrogradation of the tuberculous lesions was observed.

Of seventy-five critically observed cases of pulmonary tuberculosis in the human being treated with tuberculoëidin, 18.6 per cent. are alleged to have been cured, and sixty per cent. improved. In a single case of supposed tuberculous meningitis the symptoms also improved. Cases are reported in detail by Klebs in which a successful issue occurred, both tuberculin and creasote having previously failed to give good results.

The treatment being practically unattended with constitutional disturbances or fever, there is no interference with the customary life and occupation of the patient.

As far as I am able to judge from Klebs's statements, the remedial properties of tuberculoëidin reside wholly in its germicidal power—*i. e.*, in its ability to destroy the tubercle bacillus within the human body. He expressly states that no inflammatory process or necrosis of tissue is produced by it.

If Klebs's very positive statements on these points are borne out by further, extended observations, a far-reaching and very brilliant discovery has been given to the world.

In concluding his report, Klebs remarks that it only remains to determine the limitations which control the cure of the disease produced by the specific bacillus whose destruction we have succeeded in accomplishing. The first cause may vanish, and yet the pernicious results of the conditions developed from it remain. When advanced destruction of pulmonary tissue has occurred, where the general vitality has greatly depreciated, and emaciation and marked impairment of the heart's function have taken place, cure is no longer to be expected, even with the removal of the first cause of these conditions.

We have now to consider some very interesting and noteworthy investigations of Roemer and Büchner (30).

The former, as the result of his experimental researches, has made the surprising announcement that the same reactions can be obtained in tuberculous guinea-pigs from inoculations with protein-containing extracts from the *Bacillus pyocyaneus* (the bacillus of green pus) as with tuberculin. He found that tuberculous animals died quickly after injections of such extracts, while healthy animals lived; that lesions occurred in the liver and spleen of such animals apparently quite similar, both macroscopically and microscopically, to those described by Koch as due to the specific action of tuberculin. Büchner has corroborated Roemer's observations of the effect of injections of the protein of the *Bacillus pyocyaneus*, and has found similar effects to follow the use of the protein of other bacilli—*viz.*, *Pneumobacillus (Friedländer)* and the *Bacillus prodigiosus*. Inoculations of healthy men with minute doses of the protein of the *Pneumobacillus* or the *Bacillus prodigiosus* were followed by redness and swelling at the point of injection and a local rise of temperature, which gradually disappeared and were of quite similar character in the different persons experimented upon.

Constitutional symptoms were not produced, Büchner suggests, on account of the smallness of the dose administered. The pronounced local reaction, in comparison with that of tuberculin, he believes to indicate a more serious action of the protein. Büchner concludes his report on his investigations as follows: "Are the protein extractives of the tubercle bacillus alone capable of exciting a latent irritation to an appreciable inflammation and necrosis?" "Are not other ordinary exciters of inflammation, especially proteins from harmless kinds of bacteria, possessed of the same power?" The observations reported by him, he thinks, speak favorably for such a possibility and open, therefore, in a practical manner, new and perhaps not unimportant outlooks.

In the light of extended experimental investigations and of very numerous clinical observations, the incorrectness of many of Koch's original hypotheses and conclusions is evident. It has been shown that tuberculin contains not one but several active principles, respectively capable of producing different effects; that whatever remedial action it may possess resides *apparently* in certain of its albumoses, while its harmful properties are seemingly due to the non-albuminoid substances present in the extract. With the knowledge that tuberculin is the concentrated fluid medium in which the bacilli have been growing, thus presumably containing both the products of their growth and the proteins derived from their bodies, Prudden's experimental studies (31) of the action of *dead tubercle bacilli* would seem to be further corroborative of these views. His experiments indicate that the dead bacilli, freed as far as is possible from the products of their growth, are capable of enormously stimulating cell activity and of producing lesions morphologically similar to tubercle, but which are not *indefinitely progressive* and *do not tend to the production of an advancing coagulation necrosis*, and, finally, *do not induce an infectious disease*.

A legitimate conclusion from these observations would seem to be that the coagulation necrosis which Koch's hypothesis regards as the remedial mode of action of tuberculin is dependent upon a metabolic product of the growth of the bacillus.

In view of the remedial effects obtained by Hunter, Cheyne, and Klebs from the use of a tuberculin presumably freed from metabolic products, and the apparent demonstration by Prudden that a constituent of the *protoplasm* of the dead bacillus, probably a protein, is capable of enormously stimulating cell activity, it is justifiable to feel that much light has been thrown upon a most complex question.

Whatever beneficial results were obtained from Koch's original tuberculin, I am convinced were not through, but in spite of, a production of coagulation necrosis; and that the benefit alleged to-day by many from its use in exceedingly small doses is partly through the avoidance of such an effect. In exceedingly minute doses it is possible that the action of the cell-stimulating protein preponderates, and thereby a remedial influence is exerted.

A rather large clinical experience, now extending over a period of eighteen months, leads me to reiterate an opinion previously expressed that "*tuberculin contains a remedial principle*." This view is shared, among our own country-

men, by Trudeau and von Ruck, gentlemen who have enjoyed in their sanatoria the widest possible opportunities for thoroughly studying the subject.

In a recent communication by Schede, of Hamburg (32), than whom no continental surgeon has a larger clinical experience, a similar opinion is expressed. In concluding this portion of my subject I can not but express my abiding and earnest belief that the continued and exhaustive investigation of Koch's discovery will lead either to such modifications of the original extract, or to the preparation of a new one based upon a similar principle, as will place in our hands an agent specific in character and remedial in tuberculosis in a degree hitherto believed to be unattainable.

The results obtained in the wards of St. Luke's Hospital in the treatment of pulmonary tuberculosis with modifications of tuberculin already effected will be appended to the present lecture.

THE TREATMENT OF PULMONARY AND LARYNGEAL TUBERCULOSIS BY THE CANTHARIDATES.—In February, 1891. Professor Liebreich, in a paper read before the Berlin Medical Society, announced that he had discovered a new remedy for the treatment of tuberculous disease. The property of cantharidin, when taken internally, of producing an exudation of serum from the capillaries, not only of the kidneys, but also of the lungs and other organs, unattended with increased arterial tension, hyperæmia, or extravasation of blood, when used in sufficiently small doses, forms the basis of his theory. The irritability of the capillaries, according to Liebreich, varies in different parts of the organism in health; in an abnormal state, such as may be assumed to be their condition at the site of local disease, this irritability is increased. By furthering such irritability by the use of the cantharidates, an exudation of serum occurs which may favorably affect tuberculous tissue in two ways: (1) by stimulating cell activity and nutrition, (2) through the germicidal action of the serum upon the bacteria. His experimental investigations apparently indicate in a measure the correctness of his theory.

The remedial effects which have followed the use of the cantharidal preparations, while occasionally striking, especially in the case of laryngeal tuberculosis, fall short of securing for them, it seems to me, a permanent place in the therapeutics of tuberculosis. Their apparent action is in harmony with one of the possible means of a remedial treatment of tuberculosis. Cell activity is stimulated, and specifically diseased tissues are subjected to the germicidal action of the blood serum, artificially increased at the site of disease. There is a failure possibly in the degree rather than in the kind of action. The preparations at present employed are the potassium and sodium cantharidates. They are administered hypodermically at intervals of forty-eight hours or longer, and in doses of  $\frac{1}{640}$  to  $\frac{1}{320}$  grain. The latter strength not infrequently causes symptoms of vesical and renal distress.

Their use is contra-indicated in the presence of intestinal and renal disease, and in patients with marked hectic.

TREATMENT WITH THE SERUM OF DOG'S BLOOD.—The interesting experimental investigations of Richet and Héricourt, announced during the past year to the French Acad-

emy of Sciences (33), with the serum of dog's blood in the treatment of tuberculosis are in the line of thought that at present underlies our attempts to cope with the disease. These observers have been able to demonstrate that in rabbits inoculated with a culture of the tubercle bacillus the evolution of tuberculosis can be arrested by subsequently subjecting the animal to injections of dog's serum. When very virulent cultures are employed, the evolution is only delayed. Injections of a healthy animal with the serum prevent the development of experimental tuberculosis at a later period.

The effective substance has not been identified as yet, but a small dose of the serum is sufficient (0.5 c. c. to the kilogramme of the rabbit).

The clinical results obtained in tuberculous disease of human beings by this method of treatment, which has been fully tried in the Paris hospitals, would indicate that it also fails rather in the degree than in the kind of its action. It certainly acts as a potent stimulant to cell activity. Whether it possesses another action is undetermined.

**THE CHLORIDE-OF-ZINC TREATMENT.**—I shall briefly refer to the treatment of tuberculous disease with chloride-of-zinc injections at the site of the disease, announced to the French Academy of Sciences in July of the past year by Professor Lannelongue (34).

It is based essentially on the simple fact that fibrinous induration is to be regarded as the natural curative process in tuberculous lesions. The power of the chloride of zinc to excite such sclerotic processes, when administered in sufficiently small quantity to avoid its more powerful escharotic action, suggested its use in the disease in question. Its action in experimental tuberculosis is thus described by M. Lannelongue and M. Achard: The anatomical elements of the tissues which it penetrates are destroyed and an enormous proliferation of embryonic cells occurs, not only at the site of the injection but for some distance around it, with infiltration of the tuberculous tissues with migratory cells to the fullest extent. M. Lannelongue suggests that the latter may destroy the bacilli through the exercise of their phagocytic function. The morbid tissue destroyed by the chloride of zinc is slowly absorbed and disappears; the embryonic cells, on the contrary, organize with great rapidity and form firm fibrous tissue, which exists in appreciable quantity as early as the day following the injection.

Twenty-two patients were subjected to this treatment by M. Lannelongue. The list embraces two cases of pulmonary tuberculosis and twenty of suppurating and non-suppurating tuberculous disease of joints and glands. Excellent results are alleged to have been obtained in a majority of the latter. An opportunity was afforded, in a case of more or less fused tuberculous glands, for comparing histologically glands which had been injected and those which had been left without treatment. Excision showed caseous material surrounded by a zone of tuberculous tissue within a fibrous sheath in each; in the injected glands, however, there was a large amount of dense fibrous tissue, and there was firm adhesion to the investing membrane.

A report of the results in the pulmonary cases was reserved until a longer period had elapsed.

While recognizing the possible utility of this method of treatment in tuberculous joint and gland disease, either as a remedial measure or as an adjunct to surgical procedures, and suggesting the desirability of more extended investigations in this direction, its application in pulmonary tuberculosis, in my judgment, should be regarded with the greatest reserve. Aside from the difficulty of introducing intrapulmonary injections in any exact way at the site of the lesion, the extent and complexity of the morbid conditions usually present would seem to preclude the possibility of its usefulness as a method of treatment.

The technique of the method employed by M. Lannelongue is to inject two drops of a ten-per-cent. solution in a number of places around the periphery of the diseased part in cases of tuberculous joints, bones, and glands. Suppurating glands are thoroughly irrigated with sterilized water and the injections made under rigid antiseptic precautions. In cases of pulmonary tuberculosis a solution of one in forty is used for the injections.

**THE TREATMENT OF TUBERCULOSIS WITH CREASOTE, GUAIACOL, AND CARBONATE OF GUAIACOL.**—The literature of the treatment of phthisis pulmonalis with creasote, both by internal administration and by inhalation, is sufficiently familiar to those interested in the subject to warrant the briefest reference to it.

Discovered by von Reichenbach in 1830, it quickly secured a reputation in Germany, France, and England as a remedial agent in pulmonary diseases. It, however, gradually fell into disuse, and was only rehabilitated in favor in 1877 through the admirable clinical papers of Bouchard and Gimbert on its beneficial effects in consumption (35). Influenced by their statements, Beverley Robinson instituted its systematic use in his hospital and private practice in this city as early as 1878, and valuable papers by him have appeared from time to time since on this subject. In Germany, a series of publications by Sommerbrodt, Fraentzel, von Brunn, Guttmann, and others, confirmatory of the results obtained by Bouchard and Gimbert, appeared in 1887 and 1888. The literature of the subject at the present time is very voluminous, and it may be said to be exceptionally favorable to the value of creasote in the treatment of pulmonary phthisis. Varied opinions are held in regard to its mode of action, its most efficient dosage, and the best method of administration. The determination of these several points is of scientific interest, as well as of practical import.

The efficacy of creasote in hindering or arresting fermentative processes in the digestive tract, so frequently present in phthisical patients, and thereby promoting appetite, digestion, and nutrition, is very generally admitted. Its ability to favorably affect appetite, and to increase the digestive secretions when given by the mouth, by locally stimulating the gastric and intestinal nerve filaments, is also very probable. Through the promotion of a better nutrition, the beneficial effects alleged for creasote in stimulating the resolution and absorption of the secondary inflammatory exudations in tuberculous lungs may be explained. By its local action, antiseptic and stimulating, especially when given in the form of inhalations, a favorable influence upon

the simple catarrhal processes so commonly present is conceivable and probable.

In turning our attention to any *specific* action which creasote may exercise upon the pathogenic cause of tuberculosis and its specific lesions, the results of experimental investigations properly should be considered.

Guttman (36), as the result of test-tube experiments which, he maintained, demonstrated the power of creasote, in solutions of 1 to 4,000, to greatly inhibit the growth of the tubercle bacilli, and, in solutions of 1 to 2,000, to completely devitalize them, was led to believe that a similar specific action could be effected in the human body by the administration of sufficiently large doses of the drug. One gramme of creasote, according to his calculations, present in the circulation, would suffice for this purpose. The experimental investigations very kindly undertaken for me by Dr. John Ely, in the pathological laboratory of the College of Physicians and Surgeons, which will be given in detail later, confirm the correctness of Guttman's observations on the germicidal power of creasote.

Granting, therefore, the germicidal action of creasote *outside* of the human body, and also the possibility of administering it, without injurious effects, in daily doses larger than those demanded by Guttman's hypothesis, a seemingly fatal objection to the theory of the exercise of a germicidal action *in* the economy is found in very recent investigations, which indicate that creasote enters at once in the blood into chemical combinations with certain contained albuminoids—combinations which are without specific germicidal influence. Moreover, it has been wisely said that "man is not a test-tube," and no fact appears to be more clearly proved than that the germicidal action of a drug outside of the body affords little basis for correct conclusions of its therapeutic value. Experiments on animals are necessary to determine this point.

In pursuance of this idea, numerous investigators have attempted to test the antibacillary power, as well as other effects, of creasote in tuberculosis, by the treatment of animals with large doses of this drug both before and after the production of experimental tuberculous disease.

I shall refer only to the very interesting experiments of Trudeau (37) and Cornet (38).

*Trudeau's Experiments.*—Four rabbits were inoculated in the anterior chamber of the eye and in the right chest with a similar amount of pure cultures of tubercle bacilli suspended in water. Two of the rabbits were kept as "controls." Two were treated every other day with subcutaneous injections of 5 c. c. of a ten-per-cent. solution of pure creasote in almond oil. The course of the eye tuberculosis in the test animals was daily compared with that in the "controls," and was seen to be entirely uninfluenced by the treatment. Tubercles became visible in the iris from the twelfth to the thirteenth day in both sets of animals. Iritis, cloudiness of the cornea, and general secondary inflammatory changes were noted in all the rabbits from the eighteenth to the twenty-first day, and the sight was soon lost. All were killed two months after inoculation, and the lungs of both the test and the control animals presented the lesions of advanced tuberculosis.

*Cornet's Experiments* were as follows: Seven strong guinea-pigs were treated with creasote, introduced into the stomach by

means of a tube, in doses equivalent, for the body weight of a man, to rather more than two grammes daily for a period varying from one to two months. At the expiration of this interval they, with four control animals, were either inoculated with or were compelled to inhale finely atomized pure cultures of tubercle bacilli, the creasote being continued in the test animals. A single test guinea-pig died of pneumonia ten days after inoculation. The remaining six died, respectively, 30, 32, 33, 43, 77, and 84 days after infection. Two of the control animals were killed on the 32d and 43d day after infection; the two remaining died on the 61st and 84th day after inoculation. All the animals, both test and control, presented the characteristic lesions of tuberculosis, and very little, if any, appreciable difference in the appearance, the degree, or the distribution of these could be detected in the two sets.

Experimental investigations therefore show in the most positive manner that creasote, administered even in heroic doses, is incapable either of preventing the development of experimental tuberculosis or of arresting its progress.

The theory of Bouchard, Gimbert, Jaccoud, and others, that creasote promotes connective-tissue growth, by means of which recovery in tuberculous disease is favored, also is not borne out by experimental studies in animals.

The explanation of any favorable influence of creasote on sclerotic processes which *clinical* observations may indicate, should seemingly be sought in the improved nutrition which obtains through its use rather than by the exercise of any specific action.

Guaiacol, obtained by the fractional distillation of beech-tar creasote, and constituting from sixty to ninety per cent. of the latter, was suggested by Sahli (39), as early as 1887, as a substitute for creasote in the treatment of tuberculous disease. It represents the active principle of creasote and may be substituted appropriately for it. As prepared in the various laboratories it probably is not freed from all impurities. Owing to this fact, very lately Seifert and Hoelscher (40) have proposed the use of the carbonate of guaiacol. Carbonate of guaiacol possesses the advantages over creasote and guaiacol of being a simple, definite, crystalline substance, which can be obtained chemically pure. It is a neutral salt and is tasteless as well as odorless. It does not produce digestive disturbances, it is indifferent to the gastric secretion, and decomposes in the intestine into guaiacol and carbonic acid. Many of the above-mentioned characteristics of this salt have been demonstrated in its use in St. Luke's Hospital.

Seifert and Hoelscher, as the result of experimental studies with guaiacol carbonate, have advanced a new and interesting theory of the mode of action of the creasote preparations in tuberculous disease. The basis of their theory apparently rests on the fact that experiments on dogs show that creasote and guaiacol do not circulate in a free state in the blood, and that they are eliminated by the kidneys in the form of the salts of ethylsulphuric acid (*Aetherschwefelsäure*). They argue that during absorption the active principle of creasote allies itself with the albuminoids in the blood, and specifically through the agency of the sulphur contained in the albumin molecule. The blood of tuberculous patients contains, in addition to normal albumin, other albuminoid substances arising from the disease

process—*e. g.*, the products of the tubercle bacilli. These substances constitute unstable combinations, prone to cause or undergo chemical processes which act poisonously. The toxic albuminoids engendered by the disease are chiefly responsible for the fever, night sweats, etc. The guaiacol, by allying itself with them, renders them stable and therefore non-toxic. The chemical combinations effected by the guaiacol are without germicidal influence, and the favorable results obtained through the use of the creasote preparations in tuberculous disease, therefore, should be regarded as due in a large measure to their influence in assisting in the elimination of the toxic products of the specific disease process.

Seifert and Hoelscher's theory in no respect militates against other favorable influences which have been ascribed to the creasote preparations, such as the probable direct stimulation of appetite and thereby improved nutrition, etc.

The observations thus far made in St. Luke's Hospital in the use of guaiacol carbonate lead me to believe that it may be substituted very favorably for both creasote and guaiacol.

*Investigations in St. Luke's Hospital with Modified Tuberculin, Creasote, Guaiacol, and Guaiacol Carbonate.*—During the past winter sixty-five cases of pulmonary tuberculosis have been under my care continuously in the wards of St. Luke's Hospital. Many of these were cases of very advanced disease, without the possibility of recovery, and the treatment consisted merely in attempts to ameliorate the most distressing symptoms. Nineteen of the remaining cases were selected for treatment, respectively, with Hunter's modification of Koch's tuberculin, with subcutaneous injections of guaiacol, and with creasote by the mouth. It was my desire not so much to test the comparative merits of different methods of treatment as to corroborate or otherwise Cheyne's and Hunter's observations and to determine both the practicability of employing a very large daily dosage of creasote and any advantages this method might possess over its use in smaller quantities.

Seven cases of well-marked tuberculosis are embraced in the group treated with Hunter's modified tuberculin. The details of the histories of these patients and the results of treatment are given in a tabulated form for convenience of study. It will be seen that three cases have been under treatment for three months, the remainder for nearly two months. Physical examination in two of the former cases indicates no appreciable change in the pulmonary lesions during treatment. In the third case the improvement in the signs of disease and in all other respects has been most marked. Physical examination indicates not only the dryness of the cavity, but also its very evident contraction, as well as a diminution in the degree of the contiguous disease process.

In the four remaining cases, there has been no improvement in one; in one, improvement has been marked; in one, it has been distinct, though less marked; and in one, *an arrest of the disease*, at least temporarily, has occurred. It will be observed, in a study of the tabulated report, that by improvement is meant a marked diminution in the physical signs of disease. Case VII is certainly an example of arrested phthisis. This is of such rare occurrence

in pulmonary tuberculosis of this degree, under conditions which prevail in large city hospitals, as to be particularly noteworthy. A very distinct impression has been made on my mind in observing from day to day the cases treated with modified tuberculin, that its stimulation of the nutritive processes is not so marked as its effect upon the specific lesions. Creasote, on the other hand, has seemed to possess the former quality in a greater degree.

To meet possible criticism, all these cases have received no other treatment than tuberculin, beyond the administration of cod-liver oil and, from time to time, various ferruginous preparations.

The exact mode of preparation of the modifications used is given in a note. The rules of dosage were to give 0.002 gramme for the initial inoculation, and to increase by 0.002 gramme daily. The rule also was made *not* to increase the dose if any elevation of temperature followed inoculation.

With the modifications *B* and *CB*, appreciable reactions did not occur in these cases. In a single case not reported in the following table, treated with *CB*, a rise of temperature followed an inoculation of 0.008 gramme, and an acute catarrhal process was developed at the apex of one lung. At the expiration of the tenth day defervescence occurred and no further ill effect has followed.

For this reason, modification *B* has been used in all other cases but one. Trudeau has also adopted, I believe, modification *B* as the preferable one.

Through the absence of all reaction and discomfort attending the use of *B*, all patients treated with it have been able to be continuously about the wards and out of doors.

Only the usual very inexact method for determining the number of bacilli in the sputum was used. Repeated examinations were made, and they were found in all.

The number of cases treated with modified tuberculin, while much too small to permit the expression of a positive opinion of its power to exercise a specific remedial action, is large enough to indicate in the strongest manner the desirability of continued investigations of its *apparently specifically beneficial effects*.

*Method of Preparation of Hunter's Modifications.*—"Modification *B*: 1 c. c. of tuberculin, 5 c. c. distilled water, saturation with preferably large crystals of ammonium sulphate for twenty-four hours in the cold, the precipitate filtered off and freed, so far as possible, from any crystals of ammonium sulphate, placed in a dialyzer and dialyzed just so long and no longer in running water, and then in distilled water, until all trace of the ammonium sulphate has disappeared. Crystals of thymol added to the solution to prevent any putrefactive change; the solution then made up to such bulk that 10 c. c. shall correspond to each c. c. of tuberculin employed. (Title, '*B*,' ten per cent.)"

"Modification *CB*: 2 c. c. of tuberculin dropped into 20 c. c. of absolute alcohol; the heavy precipitate filtered off in a quarter of an hour; the filtrate evaporated over a water-bath at a temperature preferably not over 40° C., and just sufficiently long to drive off all alcohol; the residue taken up in 12 c. c. of distilled water, placed in a dialyzer and dialyzed for two hours in a running stream of water. Quantity made up to 20 c. c., including 2 c. c. of pure glycerin, used for preservative purposes; a few crystals of thymol added. (Title, '*CB*,' ten per cent.)"

TREATMENT WITH SUBCUTANEOUS INJECTIONS OF HUNTER'S MODIFIED TUBERCULIN.

No. of case, sex, and age.	Patient's history and physical examination at beginning of treatment.	Patient's weight, daily sputa, inoculation used, date when begun.	Duration of treatment, weight, and sputa, to date.	Physical examination at present date.
1. Male, 42.	Profuse hæmoptysis 5 years ago; pleurisy 3 years ago; night-sweats and cough since, with loss of 40 lbs. in weight. Physical signs: Slight retraction beneath right clavicle. Evidence of cavity in first interspace; also very abundant largish moist râles at this site. Abundant subcrepitation from first space to base. Posteriorly, same side, abundant subcrepitation, with larger râles, over supraspinous fossa. Abundant subcrepitation over whole of scapular region. Patient apyretic.	Jan. 13, 1892; weight, 134 lbs. Sputa, $\frac{3}{3}$ iv, daily average. "B." 0.002 gm. to increase by 0.002 gm. daily.	April 25, 1892; weight, 141½ lbs. Sputa, $\frac{3}{3}$ j, daily average. "B." 0.198 gm. to increase by 0.002 gm. daily.	<i>April 25th.</i> —Physical signs: Marked retraction, directly beneath right clavicle. Signs of cavity distinctly less marked, and it is apparently nearly dry. Scanty subcrepitation in second space; below this point, no adventitious sounds present. Posteriorly, adventitious sounds absent over supraspinous fossa and marked diminution of subcrepitation over scapular region. Patient apyretic; no night-sweats. <i>Very marked improvement.</i>
2. Male, 47.	History of 18 months; sputum occasionally tinged with blood; absence of night-sweats. Physical signs: Consolidation without crepitation over first and second right spaces and over supraspinous fossa. Posteriorly, subcrepitation over interscapular region. Left lung, feeble respiratory murmur, with scanty subcrepitation beneath clavicle and over supraspinous fossa. Evening temperature occasionally 100°.	Jan. 14, 1892; weight, 122 lbs. Sputa, $\frac{3}{3}$ j, daily average. "C. B." 0.002 gm. to increase by 0.002 gm. daily.	April 25, 1892; weight, 125 lbs. Sputa, $\frac{3}{3}$ j, daily average. "C. B." 0.092 gm. to increase by 0.002 gm. daily.	<i>April 25th.</i> —Physical signs: Practically the same as on first examination. Evening temperature occasionally 100°. <i>Condition stationary.</i>
3. Female, 32.	History of cough and occasional hæmorrhage for past 2 years. Physical signs: Dullness, with rather abundant subcrepitation in first right interspace; scanty subcrepitation in second space. Dullness, with moderate subcrepitation posteriorly, over supraspinous fossa and scapular region. Patient apyretic.	Jan. 17, 1892; weight, 105 lbs. Sputa, $\frac{3}{3}$ j, daily average. "C. B." 0.002 gm. to increase by 0.002 gm. daily.	April 21, 1892; weight, 107 lbs. Sputa, $\frac{3}{3}$ j, daily average. "C. B." 0.176 gm. to increase by 0.002 gm. daily.	<i>April 21st.</i> —Physical signs: Dullness with scanty subcrepitation in first space; absent in second. Dullness with scanty subcrepitation over supraspinous fossa and scapular region. Little appreciable difference from first examination. Patient apyretic. <i>Condition stationary.</i>
4. Male, 50.	Cough for past year; gradual loss of flesh and strength. Physical signs: Impairment of resonance over upper half of left chest, anteriorly, with fairly abundant subcrepitation over same. Posteriorly, impairment of resonance over upper half of left chest, with abundant subcrepitation over supraspinous fossa and scanty in areas over scapular region. Patient apyretic.	March 2, 1892; weight, 144 lbs. Sputa, $\frac{3}{3}$ j, daily average. "B." 0.002 gm. to increase by 0.002 gm. daily.	April 25, 1892; weight, 148½ lbs. Sputa, less than $\frac{3}{3}$ j, daily average. "B." 0.110 gm. to increase by 0.002 gm. daily.	<i>April 25th.</i> —Physical signs: Little appreciable difference in resonance over upper half of left chest since first examination. Crepitation has almost wholly disappeared anteriorly, and is practically absent posteriorly. Patient apyretic. <i>Marked improvement.</i>
5. Male, 32.	Hæmorrhage 5 years ago and another 3 years ago, very profuse. Since latter, unable to work, and has lost 40 lbs. in weight. Treated with tuberculin in Presbyterian Hospital a year ago, and apparently improved temporarily. Physical signs: Diffuse infiltration upper lobes of both lungs, with abundant subcrepitation at apices and scantier over remainder of affected regions. Most marked, right apex; occasional night-sweats. Patient apyretic.	March 2, 1892; weight, 123 lbs. Sputa, $\frac{3}{3}$ j, daily average. "B." 0.002 gm. to increase by 0.002 gm. daily.	April 25, 1892, weight, 119 lbs. Sputa, $\frac{3}{3}$ j, daily average. "B." 0.078 gm. to increase by 0.002 gm. daily.	<i>April 25th.</i> —Physical signs: No appreciable difference from first examination. Occasional night-sweats. Patient apyretic. <i>Condition stationary.</i>
6. Male, 33.	Cough for 3 months; no hæmoptysis, no night-sweats. Physical signs: Impairment of resonance, with loss of vesicular respiration over right infraclavicular region. Abundant subcrepitation in second and third spaces. Similar signs over whole left chest anteriorly; in less degree also over left supraspinous fossa and scapular region. Slight pyrexia; evening temperature, 100°–100.2°.	March 3, 1892, treatment begun—March 21st, weight, 132 lbs. Sputa, $\frac{3}{3}$ ss., daily average. "B." 0.002 gm. to increase by 0.002 gm. daily.	April 25, 1892; weight, 135 lbs. Sputa, none. "B." 0.100 gm. to increase by 0.002 gm. daily.	<i>April 25th.</i> —No appreciable difference in impairment of resonance over affected regions. Subcrepitation scanty at present over right chest, and absent over supraspinous fossa and scapular region, left. Anteriorly, same lung, no appreciable difference from first examination. Patient apyretic since March 18th. <i>Improvement.</i>
7. Male, 41.	Cough for 6 months; no hæmoptysis, no night-sweats; gradual loss of flesh. Physical signs: Impairment of resonance, slightly prolonged and high-pitched expiration, with abundant subcrepitation in first two spaces, left; scanty, fine crepitation below. Same signs over supraspinous fossa as beneath clavicle; over upper half scapular region, scanty crepitation after cough. Slight pyrexia; occasional evening temperature, 100°.	March 3, 1892; weight, 135 lbs. Sputa, $\frac{3}{3}$ ss., daily average. "B." 0.002 gm. to increase by 0.002 gm. daily.	April 18, 1892; weight, 135 lbs. Sputa, none. Discharged, through desire and ability to go to work.	<i>April 25th.</i> —Impairment of resonance over first two spaces. Respiration feeble, but expiration not prolonged or increased in pitch. <i>Entire absence of all adventitious sounds over whole of left chest, anteriorly and posteriorly.</i> Patient continuously apyretic since March 18th. <i>Disease at present arrested.</i>

## TREATMENT WITH SUBCUTANEOUS INJECTIONS OF GUAIACOL RAPIDLY INCREASED.

No. of case, sex, and age.	Patient's history and physical examination at beginning of treatment.	Patient's weight, daily average of sputa ( $\bar{x}$ ), when guaiacol $\bar{m}j$ , increasing $\bar{m}j$ daily, was begun; date.	Duration of treatment, weight, and sputa, to date.	Physical examination at present date.
1. Female, 17.	Cough for 10 months; progressive loss of flesh and strength; no hæmoptysis; moderate night-sweats. Physical signs: Excavation at right apex anteriorly, with consolidation below; posteriorly, same lung, consolidation with numerous large râles and abundant subcrepitation over whole of scapular region, below fine crepitation. Left, anteriorly, moderate consolidation at apex, without crepitation. Advanced laryngeal disease. Marked hectic; evening temperature, $102^{\circ}$ - $103^{\circ}$ .	Weight, Feb. 27, 1892, $70\frac{1}{2}$ lbs. Average daily sputa, 3 ss.-3 j. Guaiacol, 0.05 gm. daily, to increase 0.05 gm. daily to 1 gm.	March 20, 1892, 71 lbs. Average daily sputa, 3 j-3 ij. Guaiacol, 1 gm. reached to-day; discontinued.	<i>March 20th.</i> —Physical signs: Progressive increase of lesions; night-sweats. Marked hectic; evening temperature, $102^{\circ}$ - $103^{\circ}$ .
2. Female, 30.	Hæmoptysis 3 years ago; present history of cough, 3 months; progressive loss of flesh and strength; no night-sweats. Physical signs: Dullness, prolonged and high-pitched expiration over left infraclavicular region, with very abundant subcrepitation. Same signs posteriorly over upper half of left lung. Right, similar signs, less in degree, anteriorly and posteriorly over upper half. Slight pyrexia; evening temperature, $100^{\circ}$ .	Weight, Feb. 27, 1892, $91\frac{1}{2}$ lbs. Average daily sputa, $\bar{x}$ j. Guaiacol, 0.05 gm. daily to increase 0.05 gm. daily to 1 gm.	April 25, 1892, $91\frac{1}{2}$ lbs. Average daily sputa, $\bar{x}$ j- $\bar{x}$ ij. Guaiacol, 1 gm. daily for 37 days.	<i>April 25th.</i> —Physical signs: Little appreciable difference from first examination, except subcrepitation now heard over whole left lung posteriorly. No night-sweats. Slight evening temperature.
3. Female, 24.	Pleurisy, right side, 3 years ago. Empyema same side 1 year ago, exsection of rib; cough and frequent hæmoptysis since; night-sweats. Physical signs: Large antrum in first right space, nearly dry. Moderate consolidation, without crepitation, in second space. Consolidation, apex, same lung, posteriorly, without crepitation. Patient apyretic.	Weight, Feb. 27, 1892, 135 lbs. Average daily sputa, 3 ij- $\bar{x}$ ss. Guaiacol, 0.05 gm. daily to increase 0.05 gm. daily to 1 gm.	April 25, 1892, 141 lbs. Average daily sputa, 0- $\bar{x}$ ss. Guaiacol, 1 gm. daily for 37 days.	<i>April 25th.</i> —Physical signs: Anteriorly, no appreciable difference from first examination; posteriorly, moderate subcrepitation at apex and over upper half of scapular region. Patient apyretic; occasional night-sweats. Marked improvement in general condition.
4. Female, 44.	Pneumonia 3 years ago; cough since; no hæmoptysis; no night-sweats at present. Physical signs: Consolidation, with fairly abundant subcrepitation at both apices. Subcrepitation also present over upper half right scapular and upper third left scapular regions. Slight pyrexia; occasional evening temperature, $100.2^{\circ}$ .	Weight, Feb. 28, 1892, $91\frac{3}{4}$ lbs. Average daily sputa, $\bar{x}$ ss.- $\bar{x}$ j. Guaiacol, 0.05 gm. daily to increase 0.05 gm. daily to 1 gm.	April 25, 1892, 90 lbs. Average daily sputa, $\bar{x}$ ss. Guaiacol, 1 gm. daily for 37 days.	<i>April 25th.</i> —Physical signs: No appreciable difference from first examination; no night-sweats. Occasional evening temperature, $100.2^{\circ}$ - $100.3^{\circ}$ .
5. Female, 32.	Grippe a year ago; cough since; no hæmoptysis; profuse night-sweats. Physical signs: Areas of infiltration throughout upper lobe, right lung, with abundant subcrepitation. Areas of infiltration upper lobe, left lung, with abundant subcrepitation and evidence of beginning excavation at apex. Hectic; evening temperature, $101^{\circ}$ - $102^{\circ}$ .	Feb. 28, 1892, 72 lbs. Sputa, $\bar{x}$ ij-iv, daily average. Guaiacol, 0.05 gm. daily; increasing 0.05 gm. daily. March 12, 1892, 0.60 gm. Weight, 72 lbs.; sputa, $\bar{x}$ ij-iv.	March 15, 1892, guaiacol by mouth, $\bar{m}x$ ; $\bar{m}iv$ daily average. March 24th, $\bar{m}ij$ daily in pill, not increasing. April 1, 1892, weight, 64 lbs. April 6, 1892, sputa, $\bar{x}$ iv-v.	<i>April 1st.</i> —Physical signs: Progressive increase of lesions; moderate sweats. Treatment apparently some effect on sweats, none on fever. Died April 7, 1892.
6. Female, 46.	History of 10 months; a single hæmoptysis; night-sweats almost continuously. Physical signs: Large antrum, apex left lung, with impaired resonance and abundant subcrepitation to base anteriorly. Posteriorly, areas of subcrepitation to base. Beginning disease at right apex. Hectic; evening temperature, $101^{\circ}$ - $102^{\circ}$ .	Feb. 28, 1892, $95\frac{1}{2}$ lbs. Sputa, $\bar{x}$ j-ij, daily average. Guaiacol, 0.05 gm. daily; increasing 0.05 gm. daily. March 9, 1892, 0.45 gm. Weight, $93\frac{3}{4}$ lbs.; sputa, $\bar{x}$ ij-iii.	Treatment discontinued before maximum dose reached; no further treatment. March 24, 1892, weight, $96\frac{1}{2}$ lbs. March 31, sputa, $\bar{x}$ ss.- $\bar{x}$ ij.	<i>March 10th.</i> —Progressive increase of lesions. Treatment apparently some effect on night-sweats, none on fever. Died April 1, 1892.
7. Male, 31.	Typical history since last November; several hæmoptyses; no night-sweats. Physical signs: Feeble respiratory murmur, with abundant subcrepitation over whole of right lung, anteriorly, and upper half of scapular region. Similar signs in slightly less degree over upper lobe left lung anteriorly and posteriorly. Pyrexia; evening temperature, $101^{\circ}$ - $102^{\circ}$ .	March 2, 1892, 92 lbs. Sputa, $\bar{x}$ vij-xjss., daily average. Guaiacol, 0.05 gm. daily; increasing 0.05 gm. daily. March 21, 1892, 1 gm. for 2 days. Weight, $88\frac{1}{2}$ lbs.; sputa, $\bar{x}$ vij.	March 22, 1891, guaiacol carbonate, gr. vj daily by mouth. April 12, 1892, weight, $86\frac{1}{2}$ lbs. Sputa, $\bar{x}$ iij; treatment stopped. April 19, 1892, guaiacol pill, $\bar{m}vj$ daily; increasing, $\bar{m}iij$ . April 25, $\bar{m}xxvij$ ; weight, 88 lbs.; sputa, $\bar{x}$ iij.	<i>April 25th.</i> —Physical signs: Very similar to those of first examination, except subcrepitation heard over whole of left lung anteriorly and posteriorly; no night-sweats; pyrexia. Evening temperature, $100^{\circ}$ - $101^{\circ}$ . General condition worse.

These modifications were prepared for me in the chemical laboratory of the College of Physicians and Surgeons.

My desire to test the practicability of employing a very large daily dosage of the creasote preparations, and to determine, if possible, any advantage which this method

might possess over their use in smaller quantities, has been fulfilled in a measure.

Several of the patients selected for this treatment presented in a well-marked degree many of the symptoms—*viz.*, hectic, sweats, etc.—attributed to the toxic influence of the

products of the bacillus, and were well adapted, therefore, to test the effect of creasote upon such manifestations.

It will be seen in the tabulated record that seven cases have been treated with subcutaneous injections of guaiacol, rapidly pushed to a daily dosage of one gramme, and five cases with creasote by the mouth, also rapidly increased to six grammes daily.

In four of the former cases there has been little if any appreciable change in the physical signs of disease. In one of these, however, the general condition has greatly improved, and there has been a gain in weight of eight pounds. In one the weight has decreased by a pound and three quarters; in one there has been a loss of four pounds; in one the weight has remained stationary.

In two of these cases the daily sputum has slightly increased in amount; in two it has slightly diminished.

In the three remaining cases there has been a progressive increase of the pulmonary lesions. No influence upon hectic, when present, has been observed. Night sweats, however, have been affected favorably.

In a single patient, suffering from chronic diffuse nephritis (confirmed by autopsy), a marked increase in the albuminuria was observed when a daily dosage of one gramme was reached. The treatment was then discontinued, and the albuminuria gradually diminished. In no other case treated either with guaiacol or with creasote has any trace of albumin appeared in the urine, in examinations made every other day. In a single case, when the maximum dose of guaiacol was reached, the urine became dark in color and very similar in appearance to urine containing carbolic-acid products.

Dr. Ely's report on the enumeration of tubercle bacilli in the daily sputum of several patients treated with guaiacol contains observations of interest and practical import. It indicates the possibility of incorrect conclusions even from the best method at our command for this purpose; also the absence of bacilli, from time to time, in the sputum of patients suffering from grave pulmonary tuberculosis.

In Cases II and IV, where there has been no apparent increase in the lesions and the general condition has remained stationary, the number of bacilli has greatly diminished.

In Case VII, in which the area of disease has slightly increased and the general condition has deteriorated, the bacilli have greatly increased in number.

In the cases treated with creasote there has been no appreciable difference in the physical signs of disease up to the present date in two. In these there has been a gain of one pound and a loss of three pounds, respectively. In the three remaining cases there has been a progressive increase of the lesions.

The effect of a very large daily dosage of creasote upon "hectic" and sweats corresponds to that noted in the use of guaiacol.

Entire tolerance of six grammes (over a drachm and a half) of creasote was exhibited by three of the five patients. One complained of gastric discomfort when a daily dosage of five grammes was reached, and one patient, who had suf-

fered from occasional nausea and vomiting previous to the administration of creasote, believed that these symptoms were increased by it. Several other patients at present in my wards are taking from four to six grammes of guaiacol daily, without gastric or intestinal discomfort.

Carbonate of guaiacol has been used so far as its supply permitted, and, aside from the advantage of being tasteless and odorless and only being decomposed by the intestinal secretions, it has seemed to me to very positively stimulate appetite.

The clinical conclusions which I have formed from a careful study of these cases are: That both creasote and guaiacol, in certain forms, can be given in very large doses with entire tolerance and without injurious effects; that such dosage apparently possesses no advantages over a much smaller one; and that it has no greater effect upon hectic and night sweats.

That subcutaneous injections of the drug possess no advantages over its administration by the mouth.

That whatever beneficial influence creasote may exert in pulmonary tuberculosis can be effected with a comparatively small dosage; and that favorable results can be expected only by its continuous and prolonged employment.\*

Dr. Ely's reports of his investigations on the germicidal action of creasote on the tubercle bacillus outside of the human body, and on the enumeration of bacilli in the daily sputum of patients treated with guaiacol, are appended.

For valuable assistance rendered me in my investigations, I desire to express my thanks to Dr. John Ely and Dr. Robert J. Devlin and to the gentlemen of the house staff of St. Luke's Hospital, Dr. Hollis, Dr. Rogers, Dr. Bunce, and Dr. Tuttle.

DR. ELY'S REPORT ON THE GERMICIDAL ACTION OF CREASOTE OUTSIDE OF THE HUMAN BODY.—Shortly after the revival of interest in creasote as a therapeutic agent in tuberculosis, the question arose as to the manner in which its beneficial effect was produced. Its general preservative and antifermentative properties had long been recognized and made use of in the arts, and the possibility of a similar inhibiting or germicidal action upon the specific germs of tuberculosis at once suggested itself. With a view to the solution of this problem, Guttman undertook a more definite determination of its germicidal action.

In his experiments nutrient gelatin was impregnated with creasote in proportions varying from 1 to 500 to 1 to 8,000. Into this seventeen different species of bacteria, thirteen of them pathogenic, were inoculated, and at the same time similarly inoculated tubes of ordinary gelatin serving as controls. The inhibiting action of creasote was found to vary considerably with different species, but in general a creasote proportion of 1 to 2,000 was found sufficient to prevent growth. The plan of experiment received slight modification in the case of the tubercle bacillus, blood serum being used as the nutrient medium, and the cultures,

\* Creasote was administered, without exception, in the form of what are known as the "enteric pills" of a well-known manufacturer. The nature of their protecting envelope I am ignorant of. Personal investigations of the effect of an artificial gastric juice upon the envelope showed that it was partially dissolved after one hour.

after inoculation, being placed in the thermostat at a temperature of 37° C. After several weeks, examination showed a meager growth in the tubes which had contained creasote in the proportion of 1 to 4,000 and 1 to 16,000; none in the others.

Since these experiments of Guttman, so far as I am aware, stand quite alone, it has been thought advisable to repeat them in so far as they relate to the tubercle bacillus, but in a slightly modified form. Instead of blood serum, glycerin-bouillon and glycerin-agar have been used as nutrient media, both of which have shown themselves particularly well adapted to the growth of the tubercle bacillus; and an aqueous solution of guaiacol, the principal ingredient of creasote, has been substituted for the alcoholic solution of creasote employed by Guttman in the preparation of his media.\*

These media were impregnated with guaiacol in the proportions of 1 to 1,000, 1 to 1,200, 1 to 3,000, and 1 to 4,000, and into them were introduced particles of a rapidly growing culture of the tubercle bacillus, other media, not containing guaiacol, being at the same time inoculated as controls. All were then sealed and placed in the thermostat at 37° C. At the end of seven weeks they were examined and the records tabulated below noted. It may be permissible to state here that every slightest indication of growth was carefully searched for, and that no record is made except where all the conditions necessary to the growth of tubercle bacilli were observed, so that the entry "No growth" in the tables below means literally what it says.

SERIES A.

*Glycerin-bouillon. Inoculated March 11, 1892; examined April 29, 1892.*

Control. Four flasks.	1 to 1,000. Two flasks.	1 to 2,000. Two flasks.	1 to 3,000. Three flasks.	1 to 4,000. Two flasks.
1. Moderate growth, not spreading much, but heaping.	1. No growth.	1. No growth.	1. No growth.	1. Apparently slight heaping up, thought to indicate very slow growth.
2. Luxuriant growth, overgrowing the whole surface of the bouillon.	2. No growth.	2. No growth.	2. No growth.	2. Slight heaping, though somewhat questionable.
3. Ditto.....			3. No growth.	
4. Moderate growth, heaping.....				

While fully recognizing the illusive nature of conclusions as to the value of therapeutic agents based upon periodical determinations of the number of tubercle bacilli in the sputum, it has been thought desirable to make such determinations in a number of cases treated with creasote and guaiacol.

The method employed for this purpose has been that recommended by Nuttall, the details of which are to be found in the *Bulletin of the Johns Hopkins Hospital*, vol. ii, No. 13, May-June, 1891.

\* Notwithstanding Guttman's statement to the contrary, it was thought possible that the alcohol necessary for the solution of the creasote might have a disturbing influence upon the experiment.

SERIES B.

*Glycerin-agar. Inoculated March 11, 1892; examined April 29, 1892.*

Control. Four tubes.	1 to 1,000. Five tubes.	1 to 2,000. Five tubes.	1 to 3,000. Five tubes.	1 to 4,000. Five tubes.
1. Very luxuriant growth, heaping and spreading.	1. No growth.	1. No growth.	1. No growth.	1. No growth.
2. Abundant growth, heaping and spreading.	2. No growth.	2. No growth.	2. No growth.	2. Very slight heaping and cloudiness at edges, as if growing sluggishly.
3. Moderate growth.	3. No growth.	3. No growth.	3. No growth.	3. Abundant growth.
4. Moderate growth.	4. No growth.	4. No growth.	4. No growth.	4. Very slight heaping; no apparent spreading.
	5. No growth.	5. No growth.	5. No growth.	5. Slight heaping and cloudiness at edges, as if slowly spreading.

Although this method is unquestionably the most accurate thus far proposed, it is nevertheless subject to great error, and the results are liable to be particularly misleading in cases in which the expectation is large and the number of bacilli small. Case VII, tabulated below, may be referred to as an example. About eleven ounces of sputum were eliminated daily. This was so viscid that its disintegration necessitated the addition of considerably more than an equal bulk of potash and water, so that once the total amount after dilution came to be 700 c. c. Since the dropper used delivers about 100 drops to the cubic centimetre, the contents of each drop (in this particular case) must be multiplied by 70,000 in estimating the total number of bacilli eliminated in twenty-four hours, and, of course, any error in the determination of the number of the bacilli to the drop is similarly multiplied; and where there are only a few bacilli to each drop, all may be overlooked in count-

*Results of the Determination of the Actual Number of Tubercle Bacilli in Twenty-four Hours' Sputum, by Nuttall's Method.*

Case.	Date.	Quantity of sputum in 24 hours.	Number of tubercle bacilli in 24 hours' sputum.
1	Feb. 24, 1892.	9 fl. dr.	227,684,401.
2	Feb. 24, 1892.	12 "	7,798,791.
	Mar. 23, 1892.	9 "	4,189,915.
	Apr. 6, 1892.	8 "	1,946,657.
	Apr. 29, 1892.	3 "	380,828.
3	Feb. 22, 1892.	1 "	579,792.
	Mar. 23, 1892.	3 "	About 100 fields carefully gone over without finding any bacillus. Whole drop then examined systematically, and still none found. Stain good.
	Apr. 29, 1892.	4 "	6,858,090.
4	Feb. 26, 1892.	6 "	7,707,033.
	Mar. 23, 1892.	6 "	274,246.
	Apr. 6, 1892.	4 "	202,149.
	Apr. 29, 1892.	2 "	270,228.
7	Mar. 17, 1892.	.....	100 fields carefully gone over; no bacillus. Whole drop; no bacillus. Stain good. A second cover of the same examined with the same result.
	Mar. 28, 1892.	10 fl. oz. and 6 fl. dr.	100 fields searched as above; no bacillus. Duplicate cover gives the same result.
	Apr. 6, 1892.	11 fl. oz. and 4 fl. dr.	1,307,395.
	Apr. 29, 1892.	11 fl. oz.	2,915,976.

ing fifty fields, or, on the other hand, a disproportionate number may-chance to be seen. Thus, in Case VII, while the majority of the fields contained no bacilli, one had three. A discrepancy of 100,000 or so is a matter of small import where many millions of bacilli are present, but may be very misleading when there are only a few hundred thousand.

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## Original Communications.

### A CASE OF HEREDITARY NERVOUS GOUT.

By A. D. ROCKWELL, M. D.,  
NEW YORK.

Gout is a disease which, in the majority of instances, is so thoroughly dependent upon errors of food, drink, and exercise, and the influences of heredity, that its prevention and cure depend, for the most part, on the observance of strict hygienic methods.

It is within the experience of every physician that hereditary influences are alone sufficient, in many cases, to occasion attacks of gout. The victim may be most abstemious in all his habits of eating and drinking and active in his exercise, yet suffer at intervals from the characteristic pain and swelling of the smaller joints, clearly indicating the lithic-acid diathesis.

I have seen several cases of this character in which the loss of nervous tone was such a prominent feature that the term "nervous gout" seemed entirely applicable. There is one phase of the subject to which more consideration should be given in the study of electricity in its relation to gout, and that is the remarkable variation in the susceptibility of different individuals to its effects. One can appreciate fully this fact, however, only after long and varied experience. To say that some persons were not born to be treated by electricity is a strong expression, but thoroughly true. The observation was made years ago, and proofs of its substantial accuracy accumulate year by year without regard to the nature of the symptoms or the disease. There are, on the contrary, those whose tendencies and susceptibilities are quite in the opposite direction, and who respond most readily to any form of electrical treatment.

One of the most interesting evidences of the truth of this statement occurred in the person of a young man who first consulted me some ten years ago and whom I have been able to keep under observation ever since.

When I first saw him he was twenty-six years of age and was suffering from a distinct gouty swelling of the metatarsophalangeal articulation of the great toe and the large joint of the index finger.

He gave a history of direct hereditary transmission through several generations, and although both his father and grandfather had been high-livers and indulged freely in the choicest wines, he himself had been from childhood unusually abstemious in eating, had never touched liquor of any kind, and was an enthusiast along the line of athletic sports. He belonged, however, to the true neurasthenic type that is now so familiar to every observing physician. This was by no means his first attack. They were accustomed to come on at irregular inter-

vals, sometimes one or two years intervening between the paroxysms, and then again only a few months.

On each occasion the joints were exceedingly stiff, swollen, and painful, invariably keeping him from all active exercise for a month or six weeks.

The results that followed the use of electricity on many different occasions in his case conclusively proved that he was one of those "born to be treated by electricity." General faradization has always been followed by immediate and almost complete alleviation of pain, and has always very considerably shortened the attack.

In all the attacks from which the patient has suffered, six or seven in number, since electricity was first attempted, ten years ago, only once was he prevented from receiving the customary treatment.

On this occasion it was five weeks before he fully recovered, while in all previous and subsequent attacks three weeks was the limit of the duration of the disease.

Acute attacks of gout, however, depending upon errors of food and drink, combined with indolent habits, offer no encouraging field for the beneficial effects of electricity. It is indeed doubtful whether it would ever prove of sufficient service during the attacks in these ordinary cases to be worth the time and labor necessary.

Taking into consideration the catalytic and absorptive power of the galvanic current, it has been suggested that much could be accomplished through its use in dissipating the gouty concretions that form in the various joints of the body. Experience has not, however, confirmed the correctness of this suggestion. The deposits of urate of sodium resist with great persistency all external and mechanical methods of treatment, as well as the internal administration of remedies.

I have in past years treated many cases of this character, but I am bound to say that I have never yet seen a true calcareous deposit in the joints appreciably diminished by any form of electrical treatment. I have, however, known of actual damage being inflicted by a too confident and careless resort to the galvanic current.

In December last a gentleman called upon me, inquiring if electricity could do anything to relieve his hands and feet, stiff and crippled from repeated attacks of gout. That the urates had been deposited in large quantities was evidenced by the great deformity and unusual size of many of the joints, and especially those of the hands. The skin, as it stretched over the concretions, presented the characteristic bloodless and shining appearance, and looked as if, under provocation, it might entirely give way.

I told him that electricity could do nothing for him. Within a week he returned, saying that he had been assured by another that the galvanic current would certainly help him. Upon this assurance he submitted to two local applications of the current strong enough to occasion sharp burning and reddening of the skin. The almost immediate result was an excoriation, which is likely to be permanent. While the continuous pressure of the deposits might in time have caused ulceration, yet it is quite certain that this result was hastened by the injudicious treatment to which he had been subjected.

There is much truth in the expression that "he only has gout who will have it." Leaving heredity out of the question, it is an entirely preventable condition, and is brought

about in the majority of cases by grossly unhygienic methods of living.

Its prevention and cure depend, for the most part, on a return to proper methods of living, both as regards eating and drinking and exercise, and only in so far as electricity can be made to produce effects similar in kind to those obtained through muscular exercise is it of any therapeutic value in this disease. In those cases, therefore, where, from any cause, adequate active exercise is not practicable, the mechanical effects of the faradaic current, by the method of general faradization, or of the static induction current of electricity, are certainly indicated and are capable of service.

## SENILE GANGRENE OF THE TOES;

AMPUTATION AT THE LOWER THIRD OF THE THIGH;  
RECOVERY.

By M. S. KAKELES, M. D.,  
NEW YORK.

LAST March (1891) I was called to see a lady, seventy years of age, who had been confined to her bed for three months. It was on the 19th of the month when I first saw her and received from her the following history: For twelve years she suffered with pains in the lower left extremity, which she supposed were due to a varicose ulcer situated a little above the external malleolus which now and then healed over, but oftener was in an open condition. During the latter part of the three months that she was bedridden the ulcer had healed, but the pains persisted around the ankle joint and foot. She had been treated for rheumatism until a small dark spot appeared on the big toe, about a week before I first saw her. The physician then had diagnosed commencing gangrene, and ordered poultices to the parts; this had been kept, until I was called in.

On examining the patient, one would, from her appearance, have judged her to be ninety years old instead of seventy. Anæmic, haggard, and in a debilitated condition. Appetite poor. The pulse fairly good, and evidenced sclerotic condition of the vessels. The heart was weak. No murmurs. Lungs normal. There was no rise of temperature. The urine, from repeated examination, contained neither sugar, albumin, nor casts. The skin was wrinkled and in a flabby condition. Over the sacrum there was an abrasion of epidermis and cutis about the size of the palm of the hand, as result of continual pressure. The left big toe was entirely gangrenous, the second in an incipient stage of mummification. From her general appearance and debilitated condition, and from the character of the gangrene, there seemed to me at the time no hurry to amputate the foot, or even the toes, until the nature of the progress of the disease was well established and the patient been put in a better condition, although I had in view at the time that an amputation above the middle of the leg would give better results than removal of the toes or even the foot.

The first indication to be met was the extreme weakness of the patient, and I resolved to stimulate her for a few days with tonics and good nourishment, in order that she could better be able to withstand the shock of an amputation. The gangrenous toes were treated antiseptically, and the course of the disease carefully watched until it commenced to spread to the back of the foot.

As my patient had reacted well to the tonics (strychnine, iron, etc.), which had been given for two weeks, and the bed-sore taken on a healthy granulation, it then seemed that the time had arrived when amputation was imperative. The question was at what place.

Koenig, in his *Surgery*, gives three causes of senile gangrene.

1. As consequence of inflammatory stasis, resulting from some slight injury, in such patients who have exhibited symptoms of impoverished nutrition of parts—such as coldness and insensibility of toes, fingers, etc.

2. Less frequently as a consequence of marasmic thrombus of the capillaries without preceding inflammation which leads to localized mummification of skin and gradual spreading.

3. Still less frequently gangrene as result of embolus or localized thrombus in a large arterial branch.

I attributed in my patient the cause of the gangrene to that class due to thrombus in the capillaries, and, on account of the unhealthy condition of skin above the ankle, due to her chronic ulcer, thought to amputate above the seat of the ulcer—namely, the middle or upper part of the leg; but still the fear that my flaps might slough deterred me from taking this seat of election. The popliteal artery was also much sclerosed, which also led me to believe that the higher I would amputate (without forgetting the serious risks taken in removing so much of an extremity) the better chance I would have of avoiding a recurrence of the gangrene. I decided, therefore, after careful deliberation, that the prognosis would be far better by amputation above the knee than below, through a skin which in all likelihood, from its appearance, would have sloughed, and thus endangered my patient's life through septic infection.

On April 2d, as careful an aseptic operation (under a narcosis with the A. C. E. mixture) as could possibly have been done was performed through the junction of the middle and lower thirds of the femur. The circular method was used; the flaps sewed with silkworm gut, and three small drainage-tubes inserted—one at each end, and one in the middle of the wound. The stump dressed, and patient put to bed with a good pulse. She rallied well and primary union obtained, except where drainage-tubes were inserted. After four weeks the patient was walking around on crutches, and said she felt better than she had in the last twelve years. She left the city perfectly happy that she could once more walk about.

I report this case to confirm the value of Haidenhain's conclusions that amputation through the thigh, when once senile gangrene has commenced in the toes and spreads to the foot, is far better (barring contra-indications) than running the risk of rapid sloughing of flaps in a lower operation.

## IRREDUCIBLE UMBILICAL HERNIA

(OMENTAL) SIMULATING LIPOMA.

OPERATION.

By CAPTAIN H. P. BIRMINGHAM,

MEDICAL DEPARTMENT, U. S. ARMY,  
BOISE BARRACKS, IDAHO.

(Published by authority of the Surgeon-General.)

In October last Mrs. M. R., a laundress at this post, a woman of large build and very fleshy, consulted me about a tumor of the abdominal wall. She is a French Canadian with Indian blood, forty-seven years of age.

About ten years ago she first noticed a small lump a little to the left of the median line, near the umbilicus, which at times appeared to remain stationary and again would increase in size with considerable rapidity. She had some time previously been examined by two civilian physicians, who pronounced it a fatty tumor of the abdominal wall.

Upon examination, I found what appeared to be a lobulated growth nearly the size of an adult head, with a distinct pedicle when the patient was standing, but which seemed to flatten out

somewhat when she lay down. She gave no history of strain or traumatism of any kind at the time, although, after the operation, when it was explained to her what was found, she remembered being hurt by attempting to save a man from falling under the burden of a too heavy log, and of feeling a very acute pain in the abdominal wall at the time—a statement which, if made before the operation, would probably have saved me from an error in diagnosis. She also stated that the tumor began to grow shortly afterward, although she did not consider the accident a causative factor.

The location of the tumor seemed to be against its being of a lipomatous nature, but the general appearance and history pointed that way, and I was also influenced somewhat by an idea which prevails in the Northwest that people of the mixed type are more liable than others to lipomatosis.

I asked a physician from the neighboring town of Boise City to see the case with me, and, after a careful examination and the application of Nélaton's circumduction test, we concluded that it was a fatty tumor. As the patient was anxious for relief from the annoyance due to the weight and consequent dragging, I decided to operate, which I did on October 16, 1891, under conditions of strict surgical cleanliness.

Upon cutting through the integument I came upon what looked like a peritoneal sac, and soon discovered what I had to deal with. I opened the sac, and, upon introducing my hand, found that it contained omental fat only, from which the membrane proper had in great part disappeared. I found the whole mass firmly adherent at the neck and wholly irreducible. I separated the adhesions with some difficulty with my fingernails, and while so doing violent retching set in and several feet of small intestine were forced out through the ring and tightly and immovably held there. I then determined to remove the sac and its contents, which I did by doubly ligaturing them separately with aseptic silk, cutting them off close to the ring, and dropping the pedicles back into the abdominal cavity. In hastily separating the intestine from some adhering omentum I tore a hole in the mesentery, which caused a very free hæmorrhage, but which was readily controlled by hæmostatic forceps; two vessels were ligated with catgut. After returning the prolapsed gut, which had been protected by towels wrung out of hot, previously boiled water, I decided to attempt a radical cure, but, as the patient's condition was none of the best, whatever was done had to be done quickly, so I hastily passed a double silk ligature, in purse-string fashion, around the umbilical opening, well back from its cartilage-like border, drew it tight, tied it, and brought out the ends at the upper angle of the wound. I did this with the McBurney idea in view—that is, keeping the upper angle open and making it granulate from the bottom. The lower part of the wound was closed and a dressing of iodoform gauze applied.

There was a slight rise of temperature for several days, but there was no evidence at any time of other than a local peritonitis at the site of the purse-string suture. The opening at the upper angle of the wound continued to discharge, and was slow in filling up on account of the thick layer of abdominal fat. I irrigated it with Thiersch's solution, and latterly with one of weak permanganate of potassium. It is now completely closed, and there is a fine cicatricial boss with a broad base over the site of the former opening. The ligature came away on the twenty-fifth day. Of course, it is too soon to even conjecture what the ultimate result will be, but the patient says her "stomach" feels as firm as ever, and that she never felt better.

The amount of omentum removed must have weighed nearly three pounds, but, unfortunately, it, with the sac, was thrown away before I could secure it.

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NEW YORK, SATURDAY, MAY 21, 1892.

DR. LAUDER BRUNTON ON HÆMORRHOIDS.

DR. LAUDER BRUNTON lately read before the Medical Society of London a practical paper on the causes and treatment of hæmorrhoids and allied affections. According to the report of the discussion, as given in the *Medical Press and Circular* for March 16th, it was contended that this "lowly complaint, piles," should receive a larger degree of medical attention than was commonly the case, in order that in the end the surgeon should have to be called upon less frequently; and that, in fact, only when persistent neglect had increased the severity of the disorder beyond ordinary limits should there be recourse to surgical means. Unfortunately, the term "piles" is often applied to pathological states of the anal region that have little in common. The prophylaxis of the disorder has for this reason been clouded by discrepant views. Dr. Brunton seeks to put anal prophylaxis and rectal medication on a clearer and more even basis. He especially magnifies the causative influence of "chill." There are four regions of the human body that are particularly susceptible to cold—the nape of the neck, the abdomen, the shins, and the feet. The shins are a weak point seldom considered. There are many persons who would not think of going out into the cold, unless properly clad, who pass comparatively long periods in cold, sometimes damp, water-closets with important parts of their bodies entirely unprotected. Reflex contraction of rectal muscular tissue prevents the blood from finding its way back through the hæmorrhoidal veins, the obstruction taking place at the point where the veins pass through the muscular walls of the rectum.

The question of treatment with cathartics was discussed, reference being made first to the benefit derived from mercurial purgation followed by salines in the reduction of hepatic congestion. The author next showed that certain cathartic drugs—aloes, for example—would in large doses conduce to pile formation by unduly stimulating the muscular coats of the rectum; whereas in small doses they acted in a contrary way. Hepatic congestion from chill might also be relieved by applying hot-water bags to the back of the neck and over the liver. Persons who had piles might be benefited by accustoming themselves to emptying the rectum after supper, in order to secure rest in the recumbent posture afterward. The use of water for cleansing and at the same time allaying irritation was preferable to that of the somewhat harsh fabrics sold for the closet, but unsuitable for vigorous application to sensitive or to irritated parts. Dr. Brunton often advises the use of a pledget of absorbent cotton, dipped in a liquid preparation of hamamelis, since it both supports the parts and acts as a topical medication. The official extract and tincture, he thinks, have

not been so serviceable as some of the trademarked articles. The anal pad has been a means of great relief in some obstinate cases. The compound called "listerine," when suitably diluted, has been found by some practitioners an advantageous application.

MINOR PARAGRAPHS.

AWAY WITH THE HOLLOW PESSARY.

A HOLLOW Hodge pessary is an innocent-looking thing, and it is undoubtedly somewhat lighter than a solid one; but the weight of a hard-rubber Hodge pessary is not worth considering, whether hollow or solid, and the hollow article may do damage, as the writer of this article has reason to believe from an occurrence that is within his recent experience. Having removed a hollow pessary, when he was about to reinsert it, he found that, although it had been lying for several days in a disinfectant solution, it was decidedly odorous. Knowing that hard rubber ought not to acquire an odor incapable of being dissipated by washing with water, he was for the moment puzzled. He soon observed, however, that, although the instrument had been carefully dried on its exterior, it felt moist on further handling. On closer inspection, it was found to present a pin-hole opening, and it was evident that through this opening the secretions of the vagina had gained access to its interior. This conclusion was further confirmed by applying the test of succussion; on shaking the pessary, the presence of the liquid within it was abundantly evident. It was at once returned to the instrument-maker, and a solid pessary was substituted for it. The hollow Hodge pessary is not often met with in commerce, and, considering the danger to which, as this incident shows, a patient may be subjected by its use, it should no longer be put upon the market.

A REMEDY FOR CHRONIC RHEUMATIC ARTHRITIS.

ACCORDING to Mr. Hugh Lane, in his recent work on *Rheumatic Diseases*, the following prescription was found of such service among the pensioners of Chelsea Hospital who suffered from chronic rheumatic arthritis that Lord Anson gave three hundred pounds for the liberty to give publicity to it: ℞ Honey, ℥ xvj; sulphur, ℥ j; cream of tartar, ℥ j; rhubarb, ℥ iv; gum guaiaci, ℥ j; nutmeg, No. j. Misc. The patient took two tablespoonfuls in a small tumbler of hot white wine and water when going to bed, and the same quantity before rising in the morning, remaining in bed until any perspiration that was occasioned had subsided. The treatment was continued until a perceptibly good effect had ensued, when only one teaspoonful was administered at a dose until the mixture was used up.

THE WOMAN'S HOSPITAL AND THE ALDERMEN.

THE Board of Aldermen have a deep interest in the prosperity of the Woman's Hospital in the State of New York. This is shown by the following report of proceedings at a regular meeting last week: "A resolution was passed by the aldermen permitting the sale of the property at Lexington Avenue and Fiftieth Street, now occupied by the Woman's Hospital, on condition that the hospital authorities in their new location set aside fifty free beds to be at the disposal of the aldermen." After the meeting adjourned, one of the friends of the hospital suggested that at the next session the City Fathers should vote that the twelve signs of the zodiac should be "set aside" at the disposal of the aldermen. It is a new feature in the politician's evolution for him to "strike" a hospital for "free beds."

## EPISPADIAS SUBSEQUENT TO INJURY IN COPULATION.

THE fourth annual report of the Senev Hospital, of Brooklyn, contains a brief note regarding an alleged acute gangrenous inflammation of the penis due to injury during coition. The corpora cavernosa took on violent inflammatory action, and the greater part of their substance sloughed away. The treatment, by incision, removal of necrotic tissue, and iodoform dressings, was followed by a gradual repair. Deformity and epispadias marked the condition of the penis at the time of the patient's discharge. A plastic operation has been proposed for the relief of the man's embarrassment from the flow of his stream of urine from the top of the deformed member, but he has not yet returned to accept the offer.

## DEATHS BY INFLUENZA.

DR. BALOH, the secretary of the State Board of Health, estimates that 10,000 deaths, in New York State, were chargeable to influenza and its sequels in the winter quarter of 1892. The local diseases appear to bear the brunt of a largely increased mortality, but influenza is probably the genuine cause.

## THE DIGNITY OF THE PATIENT.

It is reported that a physician in Germany has lately been sentenced to imprisonment for an indignity offered to a patient affected with hysteria. The incident serves to illustrate the principle that, while it may often be necessary to shock a patient, either physically or mentally, nothing ever warrants an affront from physician to patient.

## ITEMS, ETC.

**The New York State Medical Association.**—At the eighth annual meeting of the Fifth District Branch, to be held in Brooklyn on Tuesday, the 24th inst., under the presidency of Dr. H. Van Hoesenberg, of Kingston, papers are to be presented as follows: The Limitations for Vaginal Hysterectomy in Malignant Disease of the Uterus, by Dr. J. E. Janvrin (the discussion to be opened by Dr. George T. Harrison); Retention of Menstrual Blood from Imperforate Hymen, by Dr. J. R. Van derveer; Voluntary Patients in Asylums for the Insane, by Dr. W. D. Granger; Acute Catarrh of the Middle Ear as a Complication of la Grippe, by Dr. Samuel W. Smith; and Brown-Séquard's Paralysis resulting from Syphilis, by Dr. S. T. Armstrong.

**The Medical Society of the State of New York.**—The business committee for the meeting of February, 1893, has been organized by the appointment of Dr. Seneca D. Powell, of No. 12 West Fortieth Street, New York, as chairman, and Dr. William Maddren, of Brooklyn, and Dr. John O. Roe, of Rochester, as associates. The programme for the scientific work of the session is said to be already well advanced in its preparation.

**The New York Society for the Relief of Widows and Orphans of Medical Men** celebrated the fiftieth anniversary of its organization at a dinner at the Academy of Medicine on Saturday evening, the 14th inst. The secretary read a summary of the work done by the society, showing it to be an exceedingly well managed and useful organization.

**The New York Polyclinic.**—Dr. Christian A. Herter has been appointed lecturer on the anatomy and pathology of the nervous system.

**The Northwestern Medical Society of Philadelphia,** which has been in existence two years, meets on the second Tuesday of each month.

**Change of Address.**—Dr. C. H. Althaus, to No. 1024 Bushwick Avenue, Brooklyn.

**The Death of Dr. Rutson Maury** took place on May 5th, after less than a week's illness of pneumonia. He was born in North Carolina

thirty-seven years ago. Nearly all his life had been spent in New York. He was an alumnus of the College of the City of New York of the class of 1883, and of Bellevue Hospital Medical College of the class of 1887. At the latter institution he passed at the head of the class, and availed himself of an internship at Bellevue. About two years later he entered practice, being associated with Dr. W. T. Lusk. His death took place at St. Luke's Hospital.

## Society Meetings for the Coming Week:

MONDAY, *May 23d*: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Academy of Medicine.

TUESDAY, *May 24th*: New York State Medical Association, Fifth District Branch (annual—Brooklyn); Connecticut Medical Society (first day—New Haven); Association of American Physicians (first day—Washington); New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society (private); Buffalo Obstetrical Society.

WEDNESDAY, *May 25th*: Connecticut Medical Society (second day); Association of American Physicians (second day); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Medical Societies of the Counties of Albany and Monroe (annual—Rochester), N. Y.; Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield); Philadelphia County Medical Society.

THURSDAY, *May 26th*: Connecticut Medical Society (third day); Association of American Physicians (third day); New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopaedic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

FRIDAY, *May 27th*: Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, *May 28th*: New York Medical and Surgical Society (private).

## Letters to the Editor.

## THE POLYSCOPE AND THE DIAPHANOSCOPE.

[Translation.]

14, RUE VIVIENNE, PARIS, April 11, 1892.

To the Editor of the *New York Medical Journal*:

SIR: In the *Revue illustrée de polytechnique médicale et chirurgicale* for March 31, 1892, I read a letter addressed to the *New York Medical Journal* by Dr. Max Einhorn, who seeks to establish priority over Dr. Hugo J. Loebinger for an electrical apparatus making it possible to illuminate the stomach and even the large intestine in man.

The French journal comments upon its translation of the letter into our language. It asks justly how the observer can procure any information from illumination thus produced, and it remarks that experiments in diaphanosecopy were long ago made in France without any appreciable positive results.

Will you allow me, Mr. Editor, to join in the discussion and to furnish Dr. Loebinger with the historical data that he desires? Perhaps I am competent to do it, for, being perfectly familiar with the chief fruitless attempts that had been made in Europe, in 1869 I invented certain electrical appliances which I called *polyscopes*, which not only illumined the interior of the stomach, the large intestine, and certain other natural cavities of the human body, but allowed of viewing the interior of these organs *directly, and not by transparency*. My polyscopes were

honored with the medal of progress at the Vienna International Exposition in 1873. They were briefly described in your country by the *Scientific American* for September 21, 1878.

I do not wish to insist on the services that my *electrical polyscopes* have rendered in the domain of biology; I will only say, in order to show that these appliances really exist and that for many years they have rendered signal services to medicine, that with them Professor Guyon has shown to his pupils the normal and morbid states of the mucous membranes of the rectum and bladder; that Professor Lallier and the illustrious Professor Péan have made use of them for illuminating deep cavities from which they have removed tumors; and that Professor Collin, of Alfort, since 1876, with the aid of my polyscope, has been demonstrating to his pupils the interior of the ox's stomach in order to teach them the digestion of that ruminant. Introducing successively a frog and a leech into the organ, he has shown them the disorders caused by the latter animal.

I shall not further insist upon the experience, now classical in France, Germany, and Austria, of my luminous fishes. Dr. Georges Barrall's work (chapter vii, second part, pp. 291 to 320), which I have the honor of sending you, will give you the amplest data on all these subjects. *Les nouvelles découvertes en électricité* (such is the title of the work) will also show you how the use of my electric polyscopes has been extended even to extra-organic investigations. It is thus that they were found of service in inspecting and testing the bores of cannon and shell at the arsenal St.-Thomas d'Aquin, the interior of casks, the slides of steam-engines, hydraulic elevators, and bore-holes, (in which case they are called *orygmoscopes*).

They are still used daily in the national powder magazines of Sevrans-Livry and Ripault, in the schools of practical artillery and engineering at Versailles, Toul, Belfort, Verdun, and Epinal, and the foundries and ship-yards of the Mediterranean, etc.

Dr. Loebinger's pelveoscope, therefore, was long ago—more than twenty years ago—preceded by the Trouvé electric polyscope, which, used upon the rectum, has for many years been known as the rectoscope. My electric gastroscope also leaves Dr. Max Einhorn's gastrodiphane just twenty years behind it.

There is no further occasion, evidently, to speak here of diaphanoscopy. As a diagnostic procedure, it was long ago condemned. In 1867 Mr. Bruch, of Breslau, illuminated the interior of the mouth with his stomatoscope; at that time, also, Dr. Millet made experiments in Paris in diaphanoscopy upon the stomach of animals. In 1868 Dr. Lazarevic, of Karkoff, published a brochure upon the subject. No undertaking in this direction has succeeded, and none could succeed.

Such being the case, I certainly believe that I was the first not only to illumine the bodily cavities in a really practical way, but also to see directly and distinctly what I illumined. As the *Revue illustrée de polytechnique médicale et chirurgicale* justly says, Dr. Einhorn seems to have wholly forgotten to take this last, but chief, precaution.

Dr. Bardet, the author of a *Traité d'électricité médicale* (1884) very much esteemed in France, recognizes as follows the progress achieved from the point of view of medical diagnosis by my polyscopic apparatuses: "M. Trouvé, auquel on doit tant de découvertes précieuses autant qu'ingénieuses, est certainement celui des électriciens qui a le plus fait pour la médecine. Ses appareils ont été copiés plus ou moins servilement à l'étranger; mais c'est à lui seul que revient l'honneur d'avoir le premier réussi à éclairer les cavités profondes de l'économie en portant le foyer lumineux au sein même de l'organe, marquant ainsi un grand progrès sur tous les autres appareils précédemment imaginés." G. Trouvé.

## Proceedings of Societies.

### NEW YORK SURGICAL SOCIETY.

Meeting of November 25, 1891.

The President, Dr. ARPAD G. GERSTER, in the Chair.

**Osteosarcoma of the Jaw.**—Dr. CHARLES McBURNEY showed a man, sixty-two years of age, who had come to him two weeks and a half before with an osteosarcoma of the left upper jaw. He had felt some hesitation in operating because of the extensive encroachments of the tumor. The operation was, however, done in the usual way. The growth, being too soft to remove *en masse*, was taken away piecemeal with scissors and curette. The speaker wished to urge the advantage of preliminary tracheotomy when operating upon such very vascular tumors, as this proceeding allowed one to pack the lower pharynx with sponge and so entirely avoid the entrance of blood into the trachea. Etherization also went on uninterruptedly through the tracheal tube. It seemed to him that the plan he had followed was simpler and better than that dependent upon the use of the tampon of Trendelenburg. The preliminary tracheotomy was rapidly done, and there was no irritating cough, such as usually occurred when one made use of the tampon of Trendelenburg. As to the method of nutrition for these patients, the speaker again urged consideration for rectal alimentation exclusively for a period of some days after such operations about the air passages. In this old man it had been carried on for three days without any evidences of weakness from lack of food. He had been thus fed every four hours, and had been given an ounce of whisky, an egg, half a drachm of salt, and four ounces of water each time.

**Osteoplastic Resection of the Upper Jaw for Nasopharyngeal Polypus.**—Dr. McBURNEY also reported the case of T. E. W., twenty-five years of age, who, eight months previous to treatment, had first noticed the signs of his disease, the first indication being stiffness of the articulation of the lower jaw and pain on the right side of the head. Severe neuralgia followed, then obstruction of the nares and difficulty in swallowing. Severe epistaxis occurred on several occasions. The right nostril was found occluded and the right infra-orbital region was slightly prominent. With the finger behind the soft palate a large smooth tumor could be felt high in the pharynx. This could also be seen with the rhinoscopic mirror. Believing that the tumor was one of naso-pharyngeal origin and not one involving the upper jaw, and appreciating that much room would be required to remove it successfully, the speaker determined to do an osteoplastic resection of the right upper jaw. As hæmorrhage from such vascular tissue was to be feared, preliminary tracheotomy was done in order that the lower pharynx might be plugged during the operation. The superficial incision extended along the lower border of the orbit, then downward beside the nose into the nostril, and again through the upper lip. The flap was turned back and then a section of the hard palate made in the median line with the knife through mucous membrane and periosteum. Also, transversely from the posterior end of this incision, an incision was made to a point near the last molar tooth. An incisor tooth was drawn and the bone divided with the chisel at all points except its upper outer angle. The right upper jaw was then easily pried outward, fully disclosing the naso-pharyngeal space, which was filled by the large tumor. The tumor was readily removed with scissors from its base of attachment to the extreme upper pharyngeal roof. Bleeding was active, but was readily controlled by pressure, and, the pharynx having been previously packed at its lower end with sponges, no blood entered the trachea. The

base of the tumor attachment was cauterized and the jaw swung back into place and stitched at various points. Primary union took place throughout, but on the fifth day a sharp secondary hæmorrhage occurred, which was promptly stopped by partially separating the jaw and packing the upper pharynx with gauze. After this, recovery was rapid and complete.

Dr. J. A. WYETH thought that there was little merit in discussion when a case was so successful. Perhaps he should question whether there had existed the necessity for preliminary tracheotomy. He had many times removed the jaw for malignant and non-malignant disease, and had never had to resort to tracheotomy. He held, as he had before urged, that, by giving a position of lateral declination to the patient's face without the head being pitched over the back of the table, the blood would run out effectually and there would be no danger.

Dr. J. D. BRYANT said that, in considering what operation should be done, it was well to recall the fact that the dangers from loss of blood were comparatively trifling. He had collected two hundred and fifty-four cases of excision of the jaw. There were two hundred and thirty cases of excision of a single jaw, and one hundred and eighty-eight of the patients had made a perfect recovery. Thirty-three had died from hæmorrhage, but only nine from primary hæmorrhage. In twenty-four cases in which both jaws or the principal portions of both were removed none of the patients had died. In the operations the speaker had done, to expose pharyngeal growths or for disease of the jaw itself, he had ligated the external carotid. The fact that Dr. McBurney's patients were present and that tracheotomy had acted so well was evidence in its favor. Still, the object was to get rid of the blood and insure against its entrance into the air passages. Ligation of the external carotid did this and avoided the additional danger of opening the trachea. In the operations he had done the hæmorrhage had been trifling.

Dr. McBurney explained that he was by no means a believer in preliminary operations of any kind, unless they were required. In the case of a large tumor with soft and very extensive attachments, such as he had described, he thought the method he had followed advisable.

**Fracture of the Temporal Bone involving the Petrous Portion; Extradural and Subdural Hæmorrhage; Fistulous Communication with the Lateral Ventricle; Operation; Recovery.**—Dr. C. BRIDDON presented a man, aged twenty-six, who had been admitted into the Presbyterian Hospital in his service. The man had fallen from a hay-loft, a distance of twelve feet, alighting on his head. It was thought that at the same time he had been struck on the head with a heavy piece of iron. On his admission his temperature was 100.5° F.; his pulse 80, full and regular; and his respiration 34. He was in a condition of stupor, but could be aroused, and was irritable. The pupils were equal, but dilated. There was a sero-sanguinolent discharge from the right ear. Examination of the scalp revealed a superficial contused wound in the right post-parietal region, but no evidence of depression. There was no paralysis. The reflexes were preserved. The head was shaved and an ice-cap applied. On the following day the temperature was normal, the serous flow from the ear continued profuse, and the mental condition was sluggish. There were noted dilatation of the left pupil, deviation of the tongue to the left, obliteration of the right naso-labial fold, left conjugate deviation of the optic axes, and marked weakness of the left arm. The mental condition improved somewhat, but the memory was impaired, and the flow from the ear persisted up to the morning of September 7th, when he complained of a severe pain in the right side of the head and neck, and had become stupid. Thus, after a lucid interval of eight days, there supervened manifestations of compression, the patient lying as if in a tranquil sleep,

except during paroxysms of delirium, lasting sometimes an hour, and followed by excruciating pain in the head. The pulse was slow and regular, except on exertion, when it would reach 130. When aroused, he would open his eyes and mutter. The respirations were slow and deep, sometimes stertorous. The left facial paralysis, the inequality of the pupils, the optic deviation, the partial paralysis of the left arm, and the progressively increasing stupor, with a temperature of 105°, all seemed to justify an immediate operation. On September 7th he was operated on under ether narcosis and with antiseptic precautions. By a curved incision the squamous portion of the right temporal bone was exposed. There was found a V-shaped fracture, the apex pointing downward, and the arms extending upward to the squamo-parietal suture; the apex was depressed about an eighth of an inch. This was elevated and removed, exposing a clot. The opening was enlarged to the extent of an inch and a half and the clot removed. Examination showed a fissure extending downward through the root of the zygoma into the petrous portion, but it could not be followed farther. The dura was opened and the brain substance found lacerated and contused. Several small clots and a good deal of broken-down brain material escaped. There was a considerable protrusion of cerebral substance through the opening. Two drainage-tubes were introduced, and the wound was dressed open. On the following day the patient responded intelligently to questions, but was delirious at times. The tubes were removed at the end of ten days. There was a protrusion of brain substance. Facial paralysis was still present, and there was complete deafness of the right ear. There was a continuous flow of cerebro-spinal fluid, the pillow being constantly soaked, and the liquid to be seen distilling from a small fistulous opening, situated in the center of the granulations covering the exposed brain. The amount that escaped every day was estimated at about two ounces and a half. On October 8th an aluminium probe was allowed to pass by its own weight into the sinus, a distance of two inches and a half, evidently entering the ventricle. The fluid was quite limpid and, after continuing for about two weeks, the flow gradually diminished, and in three weeks had ceased entirely. *Pari passu* with these changes the brain receded and cicatrization ensued. At the present time the wound was entirely healed, but the cicatrix was tender, and pulsation of brain could be detected over the area of the operation. No paralytic conditions remained except some obliteration of the naso-labial fold. One feature of extreme interest remained unexplained. Before this accident the patient had been the terror of the neighborhood in which he lived, frequently coming in contact with the police. Since his recovery his character had entirely changed; he had lost all his aggressive traits, or they were in abeyance, he was amiable and, as a convalescent, occupied himself in ministering to the other patients in the ward.

Dr. L. A. SIMMONS thought that the depression at the apex of the fracture and the existence of a small clot did not point to such a change in the relations between the cranium and the contents as to constitute depression and compression. He would like to point out that the active processes had ceased soon after the accident. For some unknown reason certain cerebral symptoms had developed which were not those of late hæmorrhage or compression. The speaker did not believe that the depression of the temporal bone or the clot had caused sufficient compression to call for the operation; the operation had done the patient good, but not by relieving compression.

Dr. BRIDDON said that, as he had read the history, compression either by bone or by blood had not been regarded as the cause of the trouble. There were active inflammatory processes present for seven or eight days, as shown by the temperature of 105°.

**Vaginal Hysterectomy.**—Dr. A. J. McCOSH showed a woman, thirty-eight years of age, who had suffered from prolapsus uteri for eight years. He said his experience with plastic operations for this kind of trouble had been rather unsatisfactory. In this case he had decided that extirpation of the uterus was the best procedure. For some time the improvement had been marked, and no descent of the mass had occurred until a few weeks ago, four months after the operation. Now, however, the patient was in very much the same condition as before the operation, minus the uterus. The operation, so far as effecting a cure was concerned, had proved a complete failure. From his experience with four cases he had come to the conclusion that the ultimate results of this operation were far from satisfactory.

**Experience in the Treatment of Buboec by Excision and Injection** was the title of a paper read by Dr. McBURNEY.

Dr. BRIDGON thought that when the glands situated beneath the cribriform fascia were involved the dissection was difficult and there was always danger of injuring veins. He had twice divided the saphenous vein as it passed through the cribriform fascia to join the femoral vein and had been obliged to tie the femoral vein.

Dr. L. S. PILCHER said that he had looked with a good deal of skepticism upon the method of attacking large suppurating buboec with vaseline, and, indeed, no method of dealing with these conditions short of radical surgical methods had seemed to him worthy of acceptance. Evidence to the contrary had been given at this meeting and had come in such a way that it was impossible to refuse it credence. Some years ago he had made a series of observations on double buboec. On one side the gland was extirpated as a tumor and primary union sought for. On the other side the suppurating region was freely opened and eurented, the cavity packed, and secondary adhesions encouraged. The latter method had yielded the best results, and since that time he had used it as a rule.

Dr. STIMSON could confirm the statement as to the frequency with which only partial success followed excision of the inguinal glands. He had no experience of any accidents following the operation. He thought it best always to search at once for the femoral vein, and thus, by knowing where it was, be able to avoid it.

Dr. ROBERT ABBE said that the treatment with vaseline impressed him as a method to be tried. His own experience had been favorable after excision and packing for thirty-six hours and then allowing the edges of the wound to fall together and secure union. He had never sutured the skin over the incision made in getting out the glands.

Dr. WILLY MEYER said he always tried to first free the package of glands from all sides and then let the saphenous vein, where it entered the femoral, form the pedicle. He had invariably been able to do so. In two instances he had been obliged to leave a portion of the gland adherent to the vein, but no harm had resulted. He had in two cases of glandular abscess tapped with a large needle, and, after antiseptic irrigation of the cavity injected a ten-per-cent. solution of iodoform in ether. A perfect cure without the necessity of an additional cutting operation had ensued in both instances.

Dr. F. W. GWYER asked if Dr. McBurney had ever tried to prevent buboec by local treatment of the chaneroid. Success had followed the use, at Chambers Street Hospital, of salicylic acid spread thickly over the chaneroid. In one case in which a bubo had existed as a fluctuating tumor this treatment had resulted in the disappearance of the tumor.

Dr. McBURNEY said, as to accidents during excision of these glands, that none had occurred. Hæmorrhage from the vessels of the region could be attended to or prevented by previous ligation.

**Perforating Ulcer of the Bladder.**—Dr. WYETH reported the case of a man, aged forty-three, of good family history, who had always enjoyed robust health. For twelve years he had had a hernia which he said had always been reducible. He had had no injury. About twenty hours before his admission he had passed a large amount of bloody urine, but had had no pain in the bladder. Since then he had had constant pain in both shoulders, behind. There had been no other symptoms. He was admitted on November 17, 1891, at 1.30 p. m. He complained of nothing but pain in the back of the right shoulder. His temperature was 98°, his pulse good. He had a peculiar facies (intestinal). The abdomen was lax and not painful on pressure. He was given a warm bath, and passed a moderate amount of urine containing no blood. He was ordered fluid diet, also five grains of sodium benzoate every four hours. During the night he urinated twice, the amount passed being small. The urine was dark in color, of neutral reaction, and contained no albumin or sugar. At 8 a. m. on the 18th he complained of pain in and fullness of the bladder. A soft-rubber catheter was passed, withdrawing, first, clear urine and, finally, a little bloody urine. He had a loose stool. At 11 a. m. he was examined thoroughly. Rectal examination was negative. The abdomen was apparently normal. There was a large left inguinal hernia, doughy to the feel and not reducible. The stone-searcher passed easily into the bladder. The walls of the bladder were examined in all directions. The interior felt as if it contained about six ounces. The searching was done very carefully. Rugæ were distinctly felt. No pain followed the examination. The foot of the bed was elevated. At 6 p. m. four ounces of bloody urine were withdrawn. Pulse, 104 and good; respiration, 30; temperature, 99°. He had a stool, with no urine. Ordered suppositories of extract of opium, half a grain, and extract of belladonna, a quarter of a grain, one every four hours. At 8 p. m. he had a stool and vomited several times. At 4 a. m. on the 19th he was catheterized, and eighteen ounces were drawn, the first part clear, followed by a large amount of bloody urine. Pulse, 108; respiration, 30; temperature, 98°. The bladder was washed out with hot Thiersch's solution, four ounces at a time, three times. All the fluid seemed to return, and was bloody. An ice-bag was applied over the bladder. At 8.30 a. m. he vomited a green fluid. Pulse, 104; respiration, 30; temperature, 98°. His condition was about the same as on the day before. The abdomen was not distended. At 12 m. he was feeling badly, vomiting. A high enema was given, and caused a small movement. At 2 p. m. he was still vomiting a green fluid. Pulse, 116; respiration, 33; temperature, 100°. Five drops of Magendie's solution were given hypodermically. The abdomen was tense and tympanitic, and the hernia was tense. At 6 p. m. he had gradually grown worse. He had been stimulated freely by the rectum and hypodermically. Morphine had had but little effect upon the vomiting. At 4 p. m. thirteen ounces of urine were withdrawn with the catheter. At 9.15 p. m. he was anesthetized with chloroform and kelotomy was performed. The knuckle of intestine was found to be normal. The peritonæum was washed out with warm Thiersch's solution. The patient was freely stimulated during the operation, and reacted fairly well, but gradually collapsed during the night. He died early on the morning of the 20th.

At the autopsy the intestines were found loosely adherent. There was a small amount of bloody fluid in the abdominal cavity. The kidneys were normal. There was an opening between the cavity of the bladder and the free peritoneal cavity of about the size of half a dollar, with irregular, jagged edges. The adjacent part of the wall of the bladder was dark-colored.

**Injury of the Wrist.**—Dr. STIMSON showed a specimen taken from a man who had fallen from an electric-light pole

two days before. The injury was to the left wrist. There was dislocation together with an irregular form of fracture of the scaphoid bone. The injury had been produced by excessive dorsal flexion combined with some ulnar flexion. The semi-lunar bone had remained attached to the radius, and the scaphoid which joined it had been broken off by avulsion.

**Appendicitis.**—Dr. F. KAMMERER showed a perforated vermiform appendix that he had tied off on the third day of a perityphlitic attack. The patient, a boy of thirteen, when seen, had a very anxious expression and a temperature of 101°. The respiration and pulse were accelerated, and the abdomen was tympanitic, but the only symptom pointing to the affection on the right side was increased tenderness in the iliac region. After opening the peritoneal cavity by an incision along the external border of the rectus, the slightly adherent intestines were separated and the appendix was discovered lying behind and to the inner side of the caput coli. Around it there was a small collection of pus. After its removal the wound cavity was packed with iodoform gauze. The boy did well at first, although the temperature never was normal. Then the abdomen began to distend, occasional vomiting set in, and the patient died of septic poisoning on the seventh day. At the post-mortem no general peritonitis was found, but immediately adjoining the wound cavity, and separated from it by a thin wall of agglutinated gut only, was another collection of pus, about half a cupful, securely shut off from the rest of the peritoneal cavity by inflammatory adhesions. This, although lying in the true pelvis, had escaped detection by rectal palpation. Reviewing the case, the speaker thought this was one of those in which it was impossible to determine the course at the outset. He had assumed that a beginning general peritonitis was present, and had operated upon this indication, but the post-mortem examination had demonstrated that this was not so. Considering the difficulty in prognosticating perityphlitic attacks, the speaker did not believe that an absolute condemnation of exploratory puncture, as it had lately been uttered, was entirely justifiable. If all surgeons agreed that all cases of perityphlitis demanded surgical interference, then, of course, exploratory puncture would be a useless procedure. But this was not the case. As regarded the dangers attending puncture, the speaker was convinced that practically they did not exist. In the last few years he had frequently resorted to it, and had never seen an untoward symptom follow the use of the needle under the necessary precautions. The presence of pus was an absolute indication for operative interference, of whatever character that interference might be in the individual case. The speaker gave it as his conviction that the greater part of the cases that ended fatally did so from an extension of a localized inflammatory process to the general peritoneal cavity. This accident, he argued, could almost always be prevented by early operative interference. In conclusion, he now thought that in most cases exploratory puncture could be dispensed with, especially when the surgeon had determined to operate whether he drew out pus or not. But, where a small, deep-seated tumor was discovered in the iliac region during the first week of an attack, with no general symptoms except perhaps a rise of temperature, he confessed the withdrawal of pus was occasionally for him the signal to operate. To do away with all risk, the operation might follow puncture immediately.

Dr. McBURNEY said that, while not able to state directly from personal knowledge the dangers likely to accrue from the use of the exploratory needle in these cases, he quite believed that such dangers did exist and he objected to its use on theoretical grounds. A considerable number of cases called urgently for operation, such as those in which the vermiform appendix was already gangrenous and yet no pus existed. A great deal of harm could be done in such cases if the operator did not suc-

ceed in finding pus after a number of punctures and therefore deferred the operation.

*Meeting of December 9, 1891.*

The President, Dr. ARPAD G. GERSTER, in the Chair.

**Deformity of the Leg relieved by Fracture and Wiring.**

—Dr. R. F. WEIR presented a boy of six years who had had, three years previously, an extensive necrosis of the left tibia. An operation for its removal some six months later had resulted in a very loose false joint at the junction of the lower and middle thirds of the bone. This had caused the weight of the body in walking to be borne by bending at the false joint on the outer side of the foot and on the end of the fibula, which bone had hence become much bowed outward. When the limb was thus bent the shortening amounted to nearly three inches. The deformity was relieved by cutting away the false joint, which separated the tibial surfaces nearly an inch, and, after fracturing the fibula with a chisel, the broken ends of this latter bone were forced between the ends of the tibia and secured there by wiring. A good result had followed this procedure; the limb was now straight and firm, with a shortening of but three quarters of an inch.

**Nephrectomy for Nephrydrosis.**—Dr. WEIR also showed a patient, aged eleven, from whom he had removed a large multiple cystic or hydrotic kidney in May last. The boy had noticed for some six or seven months that the right side of his belly had gradually increased in size, and on examination it had been only with some difficulty that a flaccid tumor, apparently anterior to the kidney, could be made out. This had yielded, on lumbar aspiration, a clear fluid, free from urinary salts. An incision was made into the tumor from the loin by Dr. Bull, who thus ascertained it to be a nephrydrosis. No calculus was found, and, it might be stated, there had not at any time been a history of calculus formation. The sac was stitched to the skin and drained. The patient came under Dr. Weir's notice on May 1st. The discharge was quite purulent and very free, and the patient's general condition was deteriorating. Injection of water into the cavity showed it to be still very large, holding twenty-four ounces of fluid. It was determined to withdraw, if possible, as much of the thinned walls of the kidney as might be done, hoping that a certain portion of good kidney tissue would show itself and be saved with the ureter, in accordance with Tuffier's views of kidney regeneration. But, as the cyst walls were separated and withdrawn, which was easily accomplished by a T-shaped incision, it was seen to be a multiple distention of the whole kidney, of which only small scattered portions of the secreting tissues were left. The pedicle was a slight one and easily secured, and the tumor was removed. The ureter was seen to be occluded about an inch below the pelvis of the kidney, probably from a congenital cause. No calculus was found. Recovery was uninterrupted, but rendered tardy by the persistence of a sinus, which was so often due to a retained silk ligature. This had been the cause in this case. A curved probe had recently withdrawn such a retained portion of silk. The speaker had often found help in the extraction of such ligatures by the ordinary crochet-needle.

**Luxation of the Internal Meniscus.**—Dr. L. A. STIMSON showed a patient who had suffered from recurrent pain in and locking of the knee. The last attack had occurred about the middle of October, after immunity for six months, and had been caused by sudden outward rotation of the leg. The patient was completely disabled when seen by the speaker, the day after the last attack. There was inability to flex the knee more than 10°. Any attempt to go beyond this angle would give intense pain. On the inner side of the left knee could be

felt a firm mass occupying the anterior and outer aspect of the joint. The mass seemed to be cartilaginous, and gave the impression of a displacement of the internal meniscus. On cutting down, this was found to be the case. The detached anterior half of the cartilage was removed by division in front of its posterior attachment. The wound was closed and healing had been prompt. He showed the case because it was rare that active interference had been undertaken for such a condition.

Dr. WEIR said that there not infrequently existed rare troubles in the knee joint the nature of which could only be revealed by exploratory incision.

Dr. STIMSON said that in most of his cases an accurate diagnosis had been possible. One point was constant—namely, the movement of the leg by which the attack was provoked; it was partial flexion of the knee combined with outward rotation of the leg. Subluxation of the meniscus was now well recognized as a surgical fact, and deserved to be classed and spoken of by its appropriate title, to the exclusion of the term "internal derangement of the knee joint."

**Excision of the Elbow Joint.**—Dr. F. LANGE presented a patient on whom he had performed excision of the elbow joint seven weeks before. He presented the case to illustrate his technique and after-treatment. Otherwise the case did not present any extraordinary features. The process had gradually developed within two years, and was tuberculous osteitis. The speaker had made three incisions—one main incision on the posterior aspect over the inner side of the olecranon as usual, but, besides that, two lateral incisions over the epicondyles, and downward, and this in order to get an easy access to those important points where the strong ligamentous and tendinous attachments of the joint normally existed, which, according to a proposition of Professor Veit's, of Greifswald, were left in connection with a thin shell of bone, which was chiseled off the cortical substance. The same was done on the attachment of the triceps. The after-treatment was by loose tamponade of the joint, and drainage through the wound over the internal epicondyle, but at the end of the second week everything was allowed to close, no purulent secretion being then present. About four or five weeks after the operation the patient got an apparatus which he still used. It fulfilled the following indications: First, by its being suspended from the shoulder to lift the forearm, so that its weight would not exert traction on the new joint; second, to keep the elbow at a right angle by elastic straps. The muscular action was done by the patient's holding weights in his hand just heavy enough to pull the hand slowly down. Against the force of this weight his flexor muscles had to battle. Extension was practiced without a weight against the action of the elastic straps. Third, to bring the bones at the new elbow into such relation to each other that those of the forearm were slightly pushed behind that of the arm. In this way the physiological conditions of the elbow joint were imitated. The splints were jointed with each other in such a way that they would allow of a certain amount of slipping of the forearm in an upward direction, and of their being pressed against those of the arm through a lever action, the point of support being transferred to the points of attachment of the elastic straps. The functional result was a very good one already. Even without the apparatus the movements were already safe and fairly strong. The patient could, in lateral elevation and pronation, make extensive excursions in the elbow joint. There would certainly not be a flail-joint as the result. There was a distinct new formation of bone at the points where the soft parts had been chiseled off. The patient's general condition had become excellent.

**Excision of a Large Ulcer of the Stomach; Adenoma.**—

Dr. LANGE also presented a butcher, twenty-five years of age,

who had begun to have pain in the region of his stomach about two years before. The pain was mostly located in the middle, sometimes more to the right or the left, and often radiating into the back. It would mostly come on when the stomach was empty, and was relieved by taking food, especially liquids, also often by the recumbent posture. He had vomited only twice during his illness and never discharged blood by the mouth or with his stools. He had been treated for various things—enlargement of the liver, gastric catarrh, rheumatic affection, neuralgia, and finally supposed ulcer of the stomach. This last treatment was maintained for several months, from the beginning of April to the beginning of June of this year, but with no benefit at all. In July the patient was examined under chloroform anaesthesia, and a descended kidney was assumed as the probable cause of the trouble by another surgeon. The speaker had seen him at about the end of September. By palpation nothing certain could be made out, and, the patient's suffering being very intense, probatory laparotomy was proposed. Owing to the absence of dilatation of the stomach or any symptoms pointing to the presence of an ulcer, the speaker had been inclined to assume the gall-bladder as the seat of the trouble, especially since on deep pressure that region had seemed to be painful. On the 26th of October laparotomy was done. A longitudinal incision was made over the gall-bladder. The latter was found in healthy condition. Adhesions over the duodenum, which seemed to compress it, were cut across. On passing the hand toward the middle line, a hard disc could be felt on the anterior wall of the stomach. A cross-incision to the middle line was made at a right angle to the upper part of the existing opening. The mass, which felt like a cancerous tumor, was pulled forward. The omentum was tightly adherent. The hard disc and a good deal of the apparently healthy neighborhood were excised. It measured from four to five inches in diameter, of which the ulcer itself occupied a central area about three inches in diameter. The bottom of the central portion was formed by omentum and was of about the size of a five-cent piece; the wall of the stomach seemed to be entirely gone. The edges of the ulcer were sharp and abrupt. The stomach wall in the neighborhood was much thickened, but microscopically did not appear like a carcinoma. Several glands of the omentum were removed. The opening in the stomach was enormous after the cicatricial traction of its walls had ceased. At one point less than half of the circumference remained, since here the operation had had to be extended beyond the insertion of the omentum. To prevent narrowing at this point the large wound was united partly in a longitudinal direction on the upper edge, as well as on the lower. The main line of suturing was from the left to the right, and the whole line of suturing formed an irregular cross. The inner row of sutures was done with iodoform catgut, the outer with silk thread. On the points of crossing additional sutures were placed. A loose iodoform-gauze packing was used over the lines of suture and at the point where the two abdominal sections met. The operation lasted almost four hours. In spite of that, the patient was in fairly good condition. He had lost considerable blood from the wound in the stomach, where numerous vessels had had to be tied, and several injections of wine and water were given during and after the operation. There was continuous vomiting during the first four days, with moderate elevation of temperature. The patient was given enemata alone for about a week, during the second week with small quantities taken by the mouth. From the end of the third week all food was taken through the mouth. The patient was kept in bed four weeks and discharged two days later. His pain had not recurred since the operation, and he was gaining strength rapidly. The microscopical examination made it probable that the tumor was an adenoma the center of which was ulcerated and digested, while

the peripheral part showed luxuriant adenomatous formations and much chronic inflammatory infiltration.

**Fracture of the Base of the Skull; Cerebral Hæmorrhage; Death.**—Dr. BRIDGES reported the case of a man, fifty-five years old, who had been admitted into the Presbyterian Hospital on November 19th. Family history negative. While under the influence of liquor, he had fallen from a stairway a distance of about eight or ten feet, landing upon the hard pavement and presumably striking on the left side of the head, from the existence there of a slight abrasion and a small hæmatoma. On his admission he was in a mild degree of alcoholic stupor, combined with concussion. His temperature was 97°, his pulse 70, and his respiration 17. His face was flushed, and his pupils were contracted but equal. From the left ear there was a slight bloody discharge. Over the left parietal boss there was a small abrasion of the skin with a contused area about two inches in diameter, but no evidence of depression or fracture could be detected. Physical examination of the thoracic and abdominal organs revealed nothing pathological, except that the liver was somewhat diminished in size. There was slight œdema of the extremities. There was no paralysis. The head was shaved, an ice-cap was applied, and ten grains of calomel were administered. During the night and the following day the patient was very restless and at times delirious. Some slight nervous twitchings on the left side of face were noticed, but no other facial symptoms were observed. On account of the bloody discharge from the left external auditory meatus, which ceased at the end of thirty-six hours, the ear was carefully cleansed, dusted with boric acid, and treated with the strictest antiseptic precautions. On the third day the delirium still continued and the temperature rose to 102°, the pulse being 76, and the respiration 20. On the following day (four days after the accident) his mental condition became more sluggish and stupid, and only with difficulty could he be aroused. Convulsive seizures were now first noticed. There were spasmodic twitchings of the left side of the face, and of the left arm and leg, and violent clonic muscular contractions of the right arm. The optic axes deviated decidedly to the left. The pupils were dilated, but equal. The pulse was slow, full, and bounding. During the interval between the convulsions there was paralysis of the left arm and leg, and the patient lapsed into a semi-comatose condition. In the next twenty-four hours there were sixteen seizures similar to those described, each lasting about two minutes. On the following day the temperature fell to normal, the pulse to 60, and the respiration to 16. The functions of the left arm and leg were restored and the patient rested quietly. There were now noticed some slight ecchymosis and bagginess over the mastoid process of the left side. During the following week there were no further convulsions, there was no rise of temperature, and the mental condition became much improved. Examination of the urine now showed seven per cent. of albumin and a few hyaline and granular casts. On the morning of the 30th there was noticed a marked inequality in the pupils, the right being the larger. This condition lasted, however, only twelve hours. On December 3d, two weeks after his admission, the temperature rose to 101.5°, the pulse to 118, and the respiration to 28, and he rapidly grew weaker and more stupid. The urine and faces were passed involuntarily. On the next day there was a rapid rise of temperature, until at 11 p. m. it had reached 106.5°, the pulse being 146 and the respiration 40. Death occurred two hours later. At the autopsy a fracture was found extending from a point about half an inch below and behind the left parietal eminence, through both plates of the skull, to the external auditory meatus. Inside, it ran along the upper surface of the petrous bone, about an eighth of an inch in front of the edge. The fracture lay close in front of the membrana tympani, but did not involve it.

There was evidence of there having been profuse hæmorrhage beneath the dura, all over the convexity of the right hemisphere. The clots were in part intimately adherent to the dura. The brain was otherwise normal. In the lungs there were found a few old adhesions, some fibrous nodules on the surface, much congestion, and abundant mucopus in the bronchi. The kidneys were somewhat congested, the cortex was slightly opaque, and the capsule was adherent. The remaining abdominal organs and the heart were normal.

## Book Notices.

*Practical Midwifery: A Hand-book of Treatment.* By EDWARD REYNOLDS, M. D., Fellow of the American Gynecological Society, etc. With One Hundred and Twenty-one Illustrations. New York: William Wood & Company, 1892. Pp. xiv + 421.

This book, though intended for the medical student, contains many practical hints which might be of service not alone to the "busy practitioner," for whom so much is nowadays done, but to the every-day practitioner whose cases do not come so frequently that his knowledge is at his fingers' ends. Although as a rule the author steers a safe middle course, and hence is a safe guide, there are not a few points which call for criticism: for instance, the advice to make frequent examinations in the first stage of labor, to ascertain the exact position of the head, and in the second stage to ascertain the advance it is making. Another instance is the freedom with which injections of bichloride of mercury (1 to 3,000 and 1 to 4,000) are recommended. We are surprised to find that no mention is made of tamponing the uterus with iodoform gauze in cases of severe post-partum hæmorrhage. We think that, considering the importance of the matter, greater space might have been allotted to the subject of septicæmia. Apart from these criticisms, the book can be very warmly recommended to the class for whom it was written.

*Hospice de la Salpêtrière. Clinique des maladies du système nerveux.* M. le Professeur CHARCOT. Leçons du professeur, mémoires, notes et observations. Parus pendant les années 1889-'90 et 1890-'91, et publiés sous la direction de GEORGES GILNON, chef de clinique. Avec la collaboration de MM. HALLION, DE LA TOURETTE, BLOCC, HUET, PARMENTIER, SOUQUES, HALLION, J. B. CHARCOT et MEIGE, anciens chef de clinique, internes et interne provisoire de la clinique. Avec 47 figures et 3 planches. Paris: Veuve Babe et cie., 1892. [Publications du *Progrès médical*.] Pp. iii+468. [Prix, 12 francs.]

This is the first volume of a collection of the lectures, observations, notes, and original researches made by Professor Charcot and his pupils, and published in various journals between 1889 and 1891. The original publications are not always accessible; and to those who are interested in neuropathology this plan of reuniting scattered essays will be particularly convenient.

In the present volume are lectures on Morvan's disease, hystero-traumatism, hysterical tremor, ophthalmoplegic migraine, blue œdema in hysterical subjects, amyotrophic paralysis in the popliteal region, external ophthalmoplegia, diabetic paralysis, hysteria in the male, the gait in hemiplegics, cerebral syphilis, and abortive types of sclerosis in patches, together with a contribution to the study of hysterical yawning. Many of these papers have been noticed in the *Journal* in the reports on the progress of medicine and of neurology.

The volume is an interesting one, and will undoubtedly prove to be of great convenience for reference.

BOOKS, ETC., RECEIVED.

A Text-book of the Practice of Medicine for the Use of Students and Practitioners. By R. C. M. Page, M. D., Professor of General Medicine and Diseases of the Chest in the New York Polyclinic; Visiting Physician to Raudall's Island Hospital, etc. New York: William Wood & Company, 1892. Pp. x to 568.

Text-book of the Eruptive and Continued Fevers. By John William Moore, B. A., M. D., M. Ch., Univ. Dubl., Physician to the Meath Hospital, Dublin, etc. William Wood & Company, 1892. Pp. xxv to 535.

Maladies des voies urinaires: urètre—vessie. Exploration, traitements d'urgence. Par P. Bazy, chirurgien des hôpitaux de Paris. Paris: G. Masson, 1892. Pp. 7 to 187. [*Encyclopédie scientifique des aide-mémoire.*]

Technique bactériologique. Par le Dr. R. Wurtz, chef du laboratoire de pathologie expérimentale à la Faculté de médecine de Paris. Paris: G. Masson, 1892. Pp. 9 to 192. [*Encyclopédie scientifique des aide-mémoire.*]

Diseases of the Nervous System. By J. A. Ormerod, M. D., etc., Medical Registrar and Demonstrator of Morbid Anatomy at St. Bartholomew's Hospital, etc. With Numerous Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xiv-13 to 343.

On the Choice of Operation for Removal of Stone from the Bladder. By L. Bolton Bangs, M. D. [Reprinted from the *Annals of Surgery.*]

A Peculiar Accident during Litholapaxy. By L. Bolton Bangs, M. D. [Reprinted from the *Maryland Medical Journal.*]

Four Cases of Orbital Traumatism resulting in Immediate Monocular Blindness through Fracture into the Foramen Opticum. In One of these Cases the Blow was over the Left Orbit, causing blinding of the Right Eye. By Peter Callan, M. D., New York. [Reprinted from the *Journal of the American Medical Association.*]

The Science and Art of Midwifery. By William Thompson Lusk, M. D., Professor of Obstetrics and the Diseases of Women and Children in the Bellevue Hospital Medical College, Consulting Physician to the Maternity Hospital and to the Foundling Asylum, etc. New Edition, revised and enlarged, with Numerous Illustrations. New York: D. Appleton & Co., 1892. Pp. xviii to 761.

The Electro-therapeutics of Gynaecology. By A. H. Golet, M. D., Fellow of the New York Academy of Medicine and of the New York Obstetrical Society, etc. Part I and Part II. With Illustrations. Detroit: George S. Davis, 1892. [The *Physicians' Leisure Library.*]

History of the College of Physicians and Surgeons in the City of New York; Medical Department of Columbia College. By John C. Dalton, M. D., President, and Professor Emeritus of Physiology. Published by order of the College, 1888.

Trattato d'igiene pubblica. Del Dottor Carlo Ruata, Professore dell'Università di Perugia. Vol. I (parte generale). Castello: S. Lapi, 1892. Pp. x to 271.

De l'influence du courant continu sur les microbes, et particulièrement sur la bactériologie charbonneuse. Par MM. Apostoli et Laguerrière. [Extrait du *Répertoire de police sanitaire, vétérinaire et d'hygiène publique.*]

The Fundamental Principles of Anatomical Nomenclature. By Burt G. Wilder, M. D., Ithaca, N. Y. [Reprinted from the *Medical News.*]

Myelitis in a Case of Incipient Spinal Sclerosis. By J. T. Eskridge, M. D., Denver, Col. [Reprinted from the *International Medical Magazine.*]

Double Pyosalpinx; Ovarian Abscess; Curettement during Acute Stage of Purulent Inflammation; Subsequent Laparotomy; Recovery. By Florian Krug, M. D. [Reprinted from the *Transactions of the New York Obstetrical Society.*]

The Treatment of Posterior Displacement of the Uterus with the Utero-vaginal Ligature. By H. J. Boldt, M. D. [Reprinted from the *Medical News.*]

Contribution to the Literature concerning the Normal Mucous Membrane of the Uterus. By H. J. Boldt, M. D. [Reprinted from the *Annals of Gynecology and Pediatrics.*]

Suppurative Oophoritis. By H. J. Boldt, M. D., New York. [Reprinted from the *New York Journal of Gynecology and Obstetrics.*]

Phtthisis Bulbi and Artificial Eyes. By William Oliver Moore, M. D. [Reprinted from *International Clinics.*]

Studies upon Injuries of the Kidney, Nephrolithotomy, and Nephrorrhaphy. By Aug. Schraclmer, M. D. [Reprinted from the *Annals of Surgery.*]

Eleventh Annual Report of the State Board of Health of Illinois. Being for the Year ending December 31, 1888. With an Appendix containing the Official Register of Physicians and Midwives, 1892.

Presbyterian Hospital in the City of New York. Twenty-third Annual Report, 1891.

Thirty-first Annual Report of the Cincinnati Hospital to the Mayor of Cincinnati, for the Year ending December 31, 1891.

## Miscellany.

The Association of American Physicians will hold its seventh annual meeting in the Army Medical Museum and Library Building, Washington, on Tuesday, Wednesday, and Thursday, May 24th, 25th, and 26th, under the presidency of Dr. Henry M. Lyman, of Chicago. Besides the president's address, the programme gives the following titles: The Cold-water Treatment of Typhoid Fever, by Dr. G. Wilkins, of Montreal; The Treatment of Follicular Tonsillitis, by Dr. G. M. Garland, of Boston; A Collective Investigation in Regard to the Value of Quinine in Malarial Hæmaturia or Malarial Hemoglobinuria, by Dr. H. A. Hare, of Philadelphia; Alcoholism, by Dr. T. S. Latimer, of Baltimore; Practical Results of Bacteriological Researches, by Dr. G. M. Sternberg, of the navy; The Treatment of Experimental Tuberculosis by Koch's Tuberculin, Hunter's Modifications, and other Products of the Tubercle Bacilli, by Dr. E. L. Trudeau, of Saranac Lake, N. Y.; Report of a Case of Glanders, with Results of Bacteriological Study, by Dr. William Pepper, of Philadelphia; The Bacteriological Study of Drinking Water, by Dr. V. C. Vaughan, of Ann Arbor, Mich.; The Morbid Anatomy of Leprosy, by Dr. Heneage Gibbes, of Ann Arbor, Mich.; Discussion on Dysentery (Etiology and Pathology, by Dr. W. T. Councilman, of Baltimore; Symptomatology, Complications, and Treatment, by Dr. A. B. Ball, of New York); The Treatment of Acute Dysentery by Antiseptic Colon and Rectal Irrigation, by Dr. W. W. Johnston, of Washington; A Contribution to the Study of Hepatic Abscess, by Dr. W. C. Dabney, of Virginia; Pulsating Pleural Effusions, by Dr. James C. Wilson, of Philadelphia; A Case presenting the Symptoms of Landry's Paralysis, with Recovery, by Dr. F. T. Miles, of Baltimore; A Case showing Symptoms of Landry's Paralysis—Recovery, by Dr. A. McPhedran, of Toronto, Canada; The Areas of Anæsthesia in Spinal-cord Lesions as a Guide to Localization, by Dr. M. A. Starr, of New York; A Study of the Seasonal Relations of Chorea and Rheumatism for a Period of Fifteen Years, by Dr. Morris J. Lewis, of Philadelphia; The Significance of Intermission in Functional Nervous Diseases, by Dr. W. H. Thomson, of New York; Misconceptions and Misnomers revealed by Modern Gastric Research, by Dr. Charles G. Stockton, of Buffalo; The Production of Tubular Breathing in Consolidation and other Conditions of the Lungs, by Dr. Charles Cary, of Buffalo; The Different Forms of Cardiac Pain, by Dr. Samuel G. Chew, of Baltimore; The Late Systolic Murmur, by Dr. J. P. Crozer Griffith, of Philadelphia; Tube Casts and their Diagnostic Value, by Dr. I. N. Danforth, of Chicago; Studies in Hypnotism, by Dr. B. F. Westbrook, of Brooklyn; and Influenza and Some of its Present Aspects, by Dr. Morris Longstreth, of Philadelphia.

Points in Uterine Therapeutics.—We are indebted to the *Occidental Medical Times*, of Sacramento, for proof-sheets of its excellent report of the recent meeting of the Medical Society of the State of California. Among the proceedings we find an interesting communication on The Septic Origin and Antiseptic Treatment of Chronic Endometritis, by Dr. W. A. Briggs, of Sacramento, the chairman of the committee on gynecology, in the course of which he says: In my earlier gynecological

work, tincture of iodine was quite in vogue and gave me many a *man-vais quart d'heure* in my office. Repeated experiences with uterine colic diminished my zeal as well as that of my patients for this form of treatment. The monotonous futility of the applicator, however, drove me to the resumption of injections, with the previous result. Notwithstanding this unpleasant and unsatisfactory experience, I have latterly resumed intra-uterine injections, although in somewhat different form, with different purposes, and invested with greater precautions. I use them now as but one element of a systematic and consistent whole—the antiseptic treatment; and, I feel sure, with better results, immediate as well as remote.

After considerable experimentation, I have found that camphor-creasote is an excellent solvent for iodine, and, over alcohol, possesses the following advantages: (1) It does not coagulate albumin. (2) Being thick and oily and having no affinity for water, it does not come in such rapid contact with the mucous surface, and hence is not so likely to produce severe pain. (3) It dissolves by far the largest ratio of iodine of any liquid with which I am acquainted—roughly estimated, about twenty-five or thirty per cent. by weight—and hence can be used in a correspondingly smaller quantity, and with marked immunity from uterine colic. Occasionally, it must be confessed, it will provoke considerable pain and even colic, but I believe much less frequently than tincture of iodine, and, if properly used, very rarely.

The formula is as follows:

R̄	Camphoræ.....	gm. 16;
	Creasoti fagi silvat.....	c. c. 6.
	M. solve et adde	
	Iodini resub.....	gm. 7.

If the orifice is not patulous enough to permit the ready outflow of the injection it should be sufficiently dilated by Hegar's bougies. For these injections I take a deep urethral syringe, with small terminal and lateral perforations, wrap the last three inches of the nozzle with a thin layer of absorbent cotton, dip it in the iodized camphor-creasote, pass it quickly through the cervix to the fundus, and, expressing two or three minims of the solution at a time, spread it thoroughly over the entire mucosa. During this process careful watch should be kept to see if the injection escapes freely, and, if not, the cause should be ascertained and removed before proceeding further. Injections should be limited to ten or fifteen minims, and repeated every second or third day, and, as improvement manifests itself, every fifth or seventh day.

Having made the injection, we are now prepared for cataphoresis, which is done by introducing into the uterus a platinum electrode, whose active surface corresponds in length with the uterine cavity and constitutes the positive pole of the utero-abdominal current, varying from five to twenty milliamperes. The electrode is covered with absorbent cotton, saturated with iodized camphor-creasote, and made to sweep the mucosa in its entire extent, not neglecting the cornua. The sitting lasts from five to ten minutes and is repeated with each injection. If the case be a hæmorrhagic one of recent origin, the current is raised to thirty, forty, or even fifty milliamperes, and the application repeated if necessary weekly during one or two intermenstrual periods. The uterine mucosa is capable of active absorption, and under the influence of electricity we may introduce considerable quantities of iodine or other remedy into the general circulation. This fact may be of importance in uterine cataphoresis. After treatment, patients will often complain of a metallic taste before leaving the office, and sometimes before leaving the gynæcological chair.

In the algæic form of endometritis the positive pole produces sedative effects that render it doubly valuable. Pain will be often markedly relieved by three or four applications. Whenever the uterine cavity is enlarged and the uterine tissue flabby, it will be advantageous to combine the faradaic current with the galvanic, which is easily done by means of double cords terminating in single electrodes, to continue it for ten minutes, and repeat it every second day. This treatment is of marked benefit, not only in the relief of pain, but also in the promotion of uterine circulation and the absorption of inflammatory exudates.

In confirmed hæmorrhagic and hypertrophic endometritis it is difficult, if not impossible, to restore the diseased mucosa to its normal condition; nothing less than its destruction will produce a satisfactory result. For this purpose we have several means at command—chemical

cauterization, positive galvano-chemical cauterization, and eurette. Nitric acid and chloride of zinc are undoubtedly efficient, but it is impossible to limit their action to the diseased structures, and so often do they entail cicatrices, stenosis, and sterility that their use is altogether indefensible. The same objections perhaps, although in a far inferior degree, apply to galvano-chemical cauterization. But in recent cases, or in inveterate ones, in which the patient will not consent to its use, we have in positive galvano-chemical cauterization a sovereign remedy, which, if used by the antiseptic method, is altogether free from danger. By the cataphoric action of the positive pole the eschar becomes aseptic from absorption of iodine, and, in my experience, breaks down and passes away without the slightest untoward result. Besides, the acids generated at the positive pole are themselves more or less antiseptic and assist in the general effect. For the purpose of a cauterant, the current should vary from thirty to sixty milliamperes, and be maintained from five to eight minutes in weekly sittings. With the large currents recommended by Apostoli I have had no experience in endometritis, but I must confess to a prejudice against them, which must be overcome, if overcome at all, by positive and indisputable evidence of their freedom from untoward secondary effects.

Curetteage, however, I prefer. My own experience leads me to concur in the opinion that, properly done in properly selected cases, it is one of the safest and not the least efficient of surgical procedures. In hæmorrhagic and hypertrophic endometritis the uterine mucosa is soft and pulpy, and, moreover, it is an essential feature of curettage that it leaves the terminal *culs-de-sac* of the mucous glands as a basis for the regeneration of the membrane. The sharp curette of Sims, therefore, and the cutting spoon of Simon, are out of place in this condition, and I habitually employ the irrigating curette with an edge, as Pozzi says, like that of an unfiled knife-blade. The irrigating current should be turned on from a reservoir with a head not exceeding eighteen or twenty inches. A bulb syringe should never be used, for it is difficult accurately to estimate the force exerted on the bulb, and the intra-uterine pressure is liable to be raised to a dangerous degree. The curettage should be systematic and thorough, especially in the neighborhood of the tubal orifices. The irrigation should continue until the *débris* has been completely removed and the fluid returns nearly or quite colorless. The curette should then be withdrawn, and ten or fifteen minims of iodized camphor-creasote should be introduced into the uterus by the syringe-applicator and spread over the entire denuded surface.

Drainage is the next, and an important element of the antiseptic treatment. In a large majority of the serious and annoying cases of endometritis coming under my observation the uterus has been either retroverted or retroflexed, or both retroverted and retroflexed. These backward displacements are probably partly cause and partly consequence of the inveteracy of the inflammatory condition. In the first place, they prevent drainage, especially in the recumbent position. The secretions stagnate, microbes multiply and maintain a constant irritation of the endometrium. In the second place, they hinder the uterine circulation, produce stasis and malnutrition, and thus furnish conditions extremely favorable to the development and maintenance of inflammation. Such displacements, therefore, if possible, should be corrected early in the course of treatment, and reposition, if necessary, be maintained by antiseptic cotton or lamb's-wool pessary. Artificial drainage, I believe, is frequently advantageous and occasionally necessary. Iodized candle-wicking, which is prepared by immersing the wicking in tincture of iodine and drying it without heat, seems to me to answer a better purpose than iodoform gauze. It should be introduced well within the uterine cavity and be supported by an antiseptic tampon.

The uterine treatment, whether of injection and cataphoresis or of curettage, having been completed for the day, we reach the question of vaginal dressing, which, while always antiseptic, will be determined in a measure by our views of the necessity or advantage of local depletion. As nearly every patient suffering with chronic endometritis becomes more or less anæmic, blood waste in every form, even the menstrual flow, should be restricted rather than promoted. For this reason, and because I rarely witnessed any improvement even in the local condition from the application of either the natural or the artificial leech, I long ago altogether discarded local bloodletting. But glycerin, by its high specific gravity and affinity for water, as well as various hygroscopic

powders, produce a free exosmosis from the engorged vessels, and thus effectually deplete them without impoverishing the blood. They also serve another useful purpose: By distending the vagina and inviting the effusion of considerable quantities of liquid, secretions and microbes, if unfortunately they escape all our previous precautions, are rapidly carried out of the body. Tampons of glycerole of tannin possess other advantages—they leave an astringent after-effect, which, in accordance with the law of diffusion of liquids, extends well into the cervical canal and probably into the uterine cavity itself; they support the uterus in ease of displacement, and thus promote drainage, the uterine circulation, and the absorption of inflammatory exudates. The vaginal dressing, therefore, by promoting antiseptics, drainage, the uterine circulation, and the depletion, with subsequent contraction of the engorged uterine vessels, is an indispensable element of the antiseptic treatment.

Should the support of a tampon be unnecessary, and the astringent effect of the tannin undesirable, or should there be vaginal leucorrhœa, dry packing with boric acid and sulphur (9 to 1) will be an excellent substitute. This dressing, whether of liquid or of powder, will produce considerable discharge from the vagina. A napkin, therefore, is necessary, for the purpose of cleanliness as well as to furnish the final element of the antiseptic treatment. It should be made of antiseptic gauze, woru constantly, and changed twice daily, after the vaginal injections.

**An Act to Regulate the Practice of Midwifery in the State of New Jersey** was approved on March 28th. The text is as follows:

1. Be it enacted by the Senate and General Assembly of the State of New Jersey, That every person practicing midwifery in any of its branches shall possess a certificate from the State Board of Medical Examiners as hereinafter provided.

2. And be it enacted, That every person now practicing midwifery in cities of the first and second classes in this State shall, within thirty days after the passing of this act, personally present to the State board of medical examiners an affidavit setting forth the name, nationality, age, authority, location, and length of practice, together with a certificate of good moral character from some registered physician, resident of the same district; whereupon the board, on receipt of a fee of one dollar, shall issue a certificate, signed by its president and secretary and bearing the seal of said board, entitling the person named therein to practice midwifery in this State.

3. And be it enacted, That every person hereafter beginning the practice of midwifery in this State shall appear before the State board of medical examiners and submit to such examinations in midwifery as the board shall require, and if such examination is satisfactory to the examiners, the said board shall, upon the receipt of a fee of five dollars, issue a certificate the same as provided in section two of this act.

4. And be it enacted, That the person so receiving said certificate shall file the same or a true copy thereof with the clerk of the county in which she resides, and said clerk shall file said certificate or a copy thereof, and enter a memorandum thereof, giving the date of said certificate and the name of the person to whom the same is issued, and the date of said filing, in a book to be provided and kept for that purpose; and for which registry the said county clerk shall be entitled to demand and receive from each person registering the sum of twenty-five cents.

5. And be it enacted, That the State board of medical examiners are hereby authorized and empowered to execute the provisions of this act, and shall hold examinations of candidates for certificates in midwifery at such times and places as may be deemed expedient.

6. And be it enacted, That the State board of medical examiners may refuse licenses to persons guilty of unprofessional or dishonorable conduct, and may revoke licenses for like cause, or for neglect to make proper returns to the various health officers, of births, and the cases of puerperal and other contagious diseases occurring in their practice.

7. And be it enacted, That any person shall be regarded as practicing midwifery within the meaning of this act who shall publicly profess by advertisement, sign, card, or otherwise to be a midwife, or who shall, for a fee, attend to women in childbirth; but nothing in this act shall be construed to prohibit gratuitous service in case of emergency, nor to the legally qualified physicians or surgeons of this State.

8. And be it enacted, That any person practicing midwifery in this

State without first complying with the provisions of this act, shall be guilty of a misdemeanor and shall be punished by a fine of not less than ten dollars nor more than fifty dollars, or by imprisonment in the county jail for not less than ten nor more than thirty days, or both, in the discretion of the Court.

9. And be it enacted, That all acts or parts of acts inconsistent herewith be and the same are hereby repealed, and that this act shall take effect immediately.

**The New York Academy of Medicine.**—The special order for the meeting of Thursday evening, the 19th inst., was a discussion on The Causes and Treatment of Endometritis, opened by Dr. W. R. Pryor.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 25th inst., Dr. J. E. Newcomb will report a case of Adenocarcinoma of the Fauces, Dr. J. W. Wright will present a case of Carcinoma at the Base of the Tongue, and Dr. J. E. Nichols will read a paper on Disease of the Frontal Sinus.

At the next meeting of the Section in Obstetrics and Gynecology, on Thursday evening, the 26th inst., Dr. C. A. von Ramdohr will read a paper on The Treatment of Puerperal Fever, and Dr. F. Krug will read A Report of Some Interesting Cases of Extra-uterine Pregnancy.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

## Original Communications.

SOME SURGERY OF  
THE LIVER AND GALL-BLADDER.\*By J. C. REEVE, JR., M. D.,  
DAYTON, OHIO.

THESE organs dispute only with the intrameningeal and intestinal tissues the claim of being the latest regions to be invaded by our art. Their surgery, though differing in no general way from other surgery, or rather in no particular way from other abdominal surgery, requires, nevertheless, in its more difficult features, a greater command of technique than that of any other part of the body. The making of delicate seams in the ducts, lying as they do deep in the abdomen and at times almost out of reach, must often be difficult beyond accomplishment. But the object of this paper being the practical presentation of some points, and its form but the hasty collection of actual material, we will pass at once to the consideration of some cases.

*Abscess of the Liver.*—Fullness in the hypochondrium and difficulty in lying on the right side, pain in the right shoulder, dyspepsia, nausea, vomiting, rigors, fever, sweating, irritability of the nervous system, cough, local enlargement, dysentery, jaundice rarely—these make up the complete picture of this trouble; but that it is often announced by much fewer symptoms is not necessary to state—in fact, can exist without manifestation until another cause brings the subject to the dead-room. In order of frequency, these may be placed in this sequence: First, digestive disturbances; second, pain; third, fever; while jaundice is so rare as to weigh rather against than for abscess. The fever, with its chills, sweats, and intermissions, so like that from malarial cause, is often mistaken for it. The following will fairly represent the subject in hand:

CASE I.—A strong German, fifty-eight years of age, and a stone-cutter, had been complaining of pain in the abdomen and slight diarrhoea for several months before entering the hospital. His temperature was then fluctuating between 99° and 101°, with the higher figure usually in the evening. The pain was in the liver region, but whether extending to the shoulder we are unable, after several years, to recollect. The diarrhoea was considerable and not lessened by the usual remedies; the stools were thin, but not lacking color. It was not long after his admission until increase in liver dullness appeared, and the diagnosis of abscess was made and an operation suggested; but, as this diagnosis was not supported at a consultation, the case was continued tentatively. At the beginning of the fifth week of observation the temperature was from 101° to 103°, and all the man's symptoms were worse. Besides, he had chills, vomiting, much sweating, and, on the thirty-ninth day of this record, coughing began. On the next day a very long coughing spell. On the forty-fourth day it was plainly demonstrated at a consultation held that day that the upper line of liver dullness was rapidly rising. (That it was the liver and not pleuritic dullness was told by the method of percussing the highest line of dullness during expiration and then seeing that it disappeared upon

full inspiration.) A few days later widespread pain, and on the fiftieth day a circumscribed flush on the most prominent part of the distention that occupied the upper right part of the abdomen—in fact, all the conditions which Greig Smith calls “signs of the abscess bursting of its own accord,” and he adds: “Redness, tenderness, and some swelling at any point over a hepatic tumor, which is probably suppurating, may be taken as an indication that the matter is forcing its way to the surface. In such cases there will be adhesions between the liver and the overlying peritonæum, and an opening may be made with safety. It need scarcely be said that such a tendency to point is neither to be waited for nor encouraged, . . . and before the signs of pointing appear the patient will have been reduced to a very low ebb.” But it was not until two days later, four weeks after the diagnosis was first made, that agreement with a consultant was reached as to the need of evacuation, and aspiration was the means fixed upon.

And here we may consider the several surgical methods of dealing with abscess of the liver, for medical there are none.

First, aspiration. It has the disadvantage of uncertainty in finding a small collection of matter, and, in common with its use in all abscesses, the impossibility of removing all material. The later exclusion of air is almost sure to fail, and hence the conditions for hectic are perfect—the accession of the atmosphere to retained pus. Further, the danger of leakage into the peritoneal cavity is great. Puncture by trocar has the same disadvantages, except adhesions are known to exist, when danger of leakage is absent. Opening by caustics is bungling and inhuman, and by thermo-cautery of application only in late stages. Opening by “direct incision” would be attempted only when pointing, as above described, existed, and “by incision in two stages” only when ample time was to be had. The latter operation consists in incising the parietes to the peritonæum, packing the wound in order to excite enough inflammation to cause the viscus to adhere to the parietal fold, and, a few days later, incising the liver through the peritonæum. Finally, there is hepatotomy—that is, by means of laparotomy. Here we have the advantage of sight, possibly, in detecting the position of the abscess, in detecting other abscesses, and in avoiding omentum and bowel, which might have suffered in the making of puncture or adhesions, and the advantage of protecting the peritoneal cavity. Though some choice of these means lies certainly in the demands of the case, it is to the last we must look for best results, and it has already given us these in the hands of such operators as Tait and others. The incision is over the most prominent part of the tumor, four or five inches long. If in exploration suitable adhesions are found to exist, the collection is punctured through the parietes by a large trocar. If not, the abscess is incised, and its edges stitched to the parietes. This is much easier if the case is from a suppurating hydatid cyst, because there is then a distinct limiting membrane. Several operators have presented in late numbers of the *British Medical Journal* their methods of aspiration, and with most siphon drainage to the floor is adopted. With this and several other details this operation has not all of the above disadvantages, and that it is efficient the results of these gentlemen show.

\* Being parts of a paper read, with specimens, temperature charts, and diagrams, before the Montgomery County, Ohio, Medical Society.

But to return to our patient. His tumor was aspirated at the point of most prominence in the right hypochondrium, and several quarts of grumous pus obtained—grumous from shreds of liver tissue. The tube was not withdrawn for four days, during which time large quantities of pus continued to flow, with no improvement, however, in his condition, except that the pain had disappeared. When the needle was withdrawn, the matter continued to discharge four days longer, when the patient died from exhaustion. To-day we would refuse to treat this case except by free incision, and in its earlier stages except by laparotomy.

*Tumors of the Liver.*—From its extreme vascularity and friability, no tissue in the body has the surgeon attacked with more trepidation than that of the liver. Yet every week brings new accounts of neoplasms removed from its embrace, and even portions of the organ excised. The frightfully abundant hæmorrhage from its cut surface can, however, be checked—usually by the cautery, but often, in meeting the larger vessels, the ligature itself must be applied, a procedure which certainly must be difficult and unsatisfactory from the above features of the liver substance. Even lesser means will suffice, as will be seen by an instance below.

*Cholelithiasis.*—Though usually very easy of diagnosis, the presence of gall-stones is at times so unsuspected that we tarry only long enough on diagnosis to present two cases in point. They were mentioned to the society last winter, but we venture to report them fuller. At that meeting a member read a paper on gall-stone colic and the favorable results he had had from phosphate of sodium, a remedy which, together with olive oil, we do not reject. But the results were so favorable that we ventured to doubt to some extent the diagnoses.

CASE II.—Annie E., aged thirty-nine, had been incapacitated for work by pain for five years. The trouble began suddenly with abdominal pain and the appearance of a tumor in the right lumbar region of the abdomen, which tumor was described as being hooked or J-shaped, about an inch in thickness. There were various remissions, and upon one exacerbation a quantity of pus was said to have been passed by the rectum. The pain, though varying, was continuous and never agonizing. When first seen, the tumor was cylindrical to the touch, extending from the right inguinal region to beneath the ribs, movable, and feeling like a tense cyst. There was considerable stagnation of gas and, feces in the larger bowel, but the stools were of natural color. A distended appendix or colon was diagnosed, and, from what she said, her attendant in a neighboring city had thought the same, and yet upon operation a distended gall-bladder was found.

A man, dying at sixty, had during the last ten years of his life paroxysms of pain over the region of the liver, but no other symptoms aided at finding a cause, and palpation was prevented by his fat. Still, for years he and his attendant took it for granted that gall-stones were the sole trouble, and operations were talked of. An attack of sickness brought to the patient thin abdominal walls, when was revealed an unexpected tumor. It was very movable, often below and to the left of the umbilicus, and from there moved to every part of the upper right quarter of the abdomen. In size, consistence, and form, as felt through the parietes, it was very like a kidney, and what a perfect picture of floating kidney the case presented! Occasional attacks of hæmaturia or suppression of urine following paroxysms

of unusual pain, so strongly suggesting twisting of the pedicle, the tumor movable, even to being elusive, in size and feel so deceptive—these led us to attempt to replace the lump in the loin, where it easily went, and when kept there by a binder seemed to give the patient some ease. Nephrorrhaphy was presented, but the patient in his exhausted state doubted his powers of endurance, and after many months of most awful suffering he succumbed. His last attendant was so kind as to let me make the autopsy, and he has in his possession the tumor—this gall-stone. It is pyriform, weighs two ounces and a half, is two inches and three quarters in length, and six inches and a quarter in its equatorial circumference. Two inches below it, in the duct, this smaller stone, the size of a large cherry, was found. Five facets make up the entire surface of the latter, one of which is polished and fits the facet in the point of the larger stone, and the two placed together make the pyriform shape of the gall-bladder. They were plainly at one time in contact if not in union. The sac, when found, was not much elongated, the stone resting just below the edge of the liver. The stone made a visible projection of the abdominal walls after death. These two cases, it is trusted, will show how deceptive exceptional cases of cholelithiasis may be.

In cases like these which have resisted all remedies, what is to be done? Plainly, operate. The ideal operation is this: Open the abdomen, incise the bladder, remove the stones, suture the opening in the bladder and drop it back, close the abdomen after it, leaving the patient eventually in the full possession of his organs. This, of course, can be done only when the cystic and common ducts are perfectly patent; otherwise the local back pressure of the bile would destroy the delicate scam in the fundus of the cyst. Circumstances have permitted this to be done very seldom. Very often the stone, or some of the stones, can not be found in spite of the most diligent search. Then to close the bladder, presuming it could be safely done, is simply to place the patient where he was before beginning the operation. So it has been advised to stitch the margins of the bladder to the margins of the parietes, thus establishing a biliary fistula for the escape of this calculus or of regurgitant bile, or for assisting the onward movement of the stone by the probe. The following case will illustrate:

CASE III. *Cholecystotomy.*—The patient, M., was a strong man of forty-one, who for two years had had occasional attacks of what was called dyspepsia, accompanied by tenderness in the right hypochondrium. These attacks increased in severity till six months before the operation; they assumed the character of biliary colic and occurred as often as every three or four weeks. Gall-stones were never found, but the distended gall-bladder was easily felt during the attacks and could not be at other times. His condition was serious from excessive jaundice, the persistent reflex vomiting, and the large amounts of morphine necessarily given to lessen pain. Attacks were now becoming so frequent that sometimes but four days intervened between them, and the offers of an operation were about to be accepted when a violent cystitis occurred, following a catheterization. The most terrible strangury, which nothing would lessen, made still more morphine necessary, and these, with the continued high temperature and loss of sleep, soon brought the patient to a state of extreme emaciation and asthenia. He now recognized the need of an operation to ward off a recurrence of biliary obstruction, which might come on at any moment,

and appreciated also the probable insufficiency of his powers to withstand either operation or attack. Under these critical circumstances it was decided to defer operating as long as possible to give time for recuperation; but, in case obstruction again occurred, to operate at once, as safer than to weather another attack. There were but a few days to wait until colic once more began, and accordingly, six hours later, with a temperature of  $101.4^{\circ}$ , the patient was placed on the table. The incision, five inches long, was made parallel with the cartilages of the ribs and three finger-breadths from them. The cyst was but slightly distended, presenting an inch and a half below the liver, which was somewhat enlarged. The former was raised by two loops passed through it, and incised between these for the length of an inch. Several ounces of clear mucus, tinged straw-yellow by the bile and in places mottled-brown, were evacuated, and with them a gall-stone the size of a marrowfat pea. Though this bore facets, no other stones could be found by the finger, either within or without the bladder, nor by a probe; but as one was known (from the jaundice) to be in the common duct at the time of beginning the operation, it was decided to establish a fistula to allow of its possible escape externally, and more because closing the sac securely would, in the face of the back pressure, hardly be possible. The opening in the latter was accordingly stitched by continuous suture to the peritonæum and transversalis fascia in the outer end of the parietal incision, a large tube inserted, and the rest of the incision closed. His temperature at once fell to  $99.4^{\circ}$ , and was not over that during his recovery. His colic, however, continued three days and ended, not by the extrusion of the stone, but by its entrance, as was to be supposed, into the bowel.

This is of interest as showing that such concretions are not advanced (through the duct) by fluid pressure alone, for the bile was flowing freely externally, but possibly by a peristalsis of the muscular coat of the duct. At the end of the third day the most violent vomiting began, induced, most likely, by the movement of the stone; it lasted all night, and before it was done consisted of gall, thus showing that the common duct was once more free. It did not stop until a very large evacuation from the bowels had been secured by a copious irrigation of castor oil and soap. Alarming hiccough then began, and was stopped in the same way after some hours. His emaciation now increased until two weeks later he was all but a skeleton; this was to be attributed to his cystitis, which was, fortunately, giving him less misery than before the operation. As the disease subsided, he was taken with severe pains in the lower limbs and joints in the nature of rheumatism, and after a week of these, then with the appearance of three mysterious, painful swellings in the axilla, on the scapula, and on the shin respectively. What these were, in the face of a normal temperature, no one could say. They slowly enlarged, one to the size of the fist, approached suppuration, and then declined. All these, it is unnecessary to state, added much to the discouragement of both patient and attendant, for the swelling in the axilla, together with his emaciated condition, and then a badly inflamed bursa over the third sacral spine, limited very much the position in which he could lie. Next came an attack of subacute bronchitis of a week's duration. Convalescence was, of course, much prolonged by this fateful list of miseries, but the fistula progressively diminished, and, in spite of the

copious discharge of bile, his weight reached, six weeks after the operation, twenty pounds more than it usually had been.

In case this stone, which was known to lie in the common duct, was found at the time of operating, what should have been done with it? First attempt to slide it back into the open bladder by pressure on the outside of the duct by the fingers; failing in this, to slide it onward into the duodenum, unless so large as later to hazard obstruction of the bowels from its size. The probe can also be tried for this purpose. If these are not successful, crushing the stone by padded forceps on the outside of the duct must be attempted, or the same thing by introducing needles into the friable substance of the stone. These failing, the duct must be incised and doubly sutured after removal of the obstruction; or, if this is impossible or contra-indicated, and the cystic duct and sac are still open, an anastomosis must be made between the latter and some part of the bowel for the diversion of the gall to its proper destination and the avoidance of a fistula. Sometimes, when the stone lies near the lower end of the duct, it can best be reached by an incision in the duodenum. The technic of the last four procedures will be neglected, as the intention is to write from personal experience as much as possible.

CASE IV. *Closure of Biliary Fistula.*—The above patient, M., was now up, and the fistula had contracted to the size of a needle-hole, but all the bile ran out of it in spite of many applications and expedients in minor surgery, and the stools remained perfectly white. It was feared the common duct had closed by some adhesive process following laceration by the last stone, or through disuse, as Langenbuch suggests, and to determine this the following test—an original one, it is believed—was made: A warm saline solution was passed into the fistula under a "head" of four or five feet. No current inward could be detected. The trial was repeated with olive oil with no better results. However, there grew to be occasional hindrances to the external secretion through granulations, and when these occurred the faces took on more color, thus proving to the patient's great good fortune that there was an inward channel and that steps could be taken to close the fistula permanently. Otherwise the outcome would have been, to quote Langenbuch's words, "a definite occlusion of the duct and a permanent fistula, two circumstances not promoting the comfort of the patient." But, in spite of the harm to clothing which the leakage occasioned, an operation was not considered until inflammation of the abdominal integument set in. Protectives and unguents had been carefully used, but still the inflammation grew until a large surface was quite raw and the patient could only lie on his back in bed with neither clothing nor covers on him. Thirteen weeks after the first laparotomy the second was undertaken. The old incision was opened an inch and a half just internal to the fistula, the internal surface of the fistula and cyst curetted, four stout silk ligatures drawn as tightly as possible around the elongated fundus of the bladder, and the whole opening firmly closed. The cyst walls were found so thick that sufficient constriction could not be brought to bear upon them by means of the silk; silver was not at hand, and the obstinate reappearance of the fluid was hourly expected. Surely enough, on the third day a drop of the clear mucus made its appearance, and two days later the bile. This so discouraged the patient that he bravely declared he would not leave his bed till he was well, and accordingly the hour was set for the third operation. Circumstances, however, caused him to change his mind, and he went

walking on the street six days after the last abdominal section! Only once again did *bile* appear, and the residual mucus of the gall-bladder gradually diminished till seven weeks after, when it disappeared, not, however, before two of the ligatures had been extruded. Whether these ulcerated *through* the walls of the bladder into the sinns or over its ends cemented in the parietes can not be said, but their appearance greatly mystified the patient, who was something of a mechanic. Since then, during a period of eight months, he has been in perfect health, weighing more than ever before and doing all his business.

CASE II (Aunie E., continued).—Cholecystotomy in two sittings.\* The patient would have nothing but an operation, so in July, 1890, a vertical incision three inches and a half in length was made just external to the right rectus and beginning an inch above the middle of Poupart's ligament. Later this cut was extended an inch upward. A distended gall-bladder was discovered, glistening and pyriform, and extending to the lower end of the incision. It was decided to stitch this to the parietes, after the general rule with pancreatic cysts waiting for adhesions, and at a second sitting to evacuate the organ. The walls of the cyst appeared as tense and thin as a toy balloon—a sufficient objection, it seems, to the suggestion made to this society by a member to produce always in gall-stone colic vigorous vomiting. This condition made stitching through its serous coat difficult, but an oval upon the lower end of the tumor, an inch and a half in length, was, by continuous suture of fine silk, attached to the parietal fascias at the lower angle of the wound and the remaining part of the incision closed. The open wound was packed. No rise of temperature followed above what had prevailed for a month previous—viz., 99.5°. The second operation was undertaken on the morning of the sixth day. Without anæsthesia the cyst was incised after passing a securing loop, and over a pint of clear serum resembling white of egg evacuated. It may here be desirable to explain that the natural secretion of the lining of the bladder is a clear mucus, and being here unmixed with bile, showed that communication with the common duct had been long cut off. Upon exploring, an ovoid stone an inch and a sixteenth in length was found resting against the under side of the anterior border of the (enlarged and locally inflamed) liver. Here a suppurative process had begun, probably toward extrusion as an end. The calculus was extracted after a little trouble by cutting in two by a penknife. Large drainage-tubes were used for a week. The mucous discharge progressively lessened for three weeks, when the fistula closed. This stone, of the "mulberry" variety, weighs one hundred and five grains and measures two inches and five eighths in its smallest circumference, is radial in structure, and floats in water. In the light of the second sitting it is plain that it would have been advantageous to have opened the cyst at once, the plan generally followed, we find, by other operators.

CASE V. *Cholecystotomy for Second Stone*.—Annie E. remained well for a few months, during which time the fistula occasionally opened and discharged a little clear mucus, and upon these occasions she felt somewhat better, as other patients similarly circumstanced have reported. But pain and tenderness returned, and at the end of five months she was again unable to do housework. Not only pain, but extreme tenderness, extended in the form of a girdle around her *left* loin, from near the middle line behind to the middle line in front, and the same existed over the site of the operation. It will be remembered that the gall-bladder was fastened within an inch of Poupart's ligament; and could tension from retraction cause this? Hardly the pain in the left side, but neither would residual gall-stones

seem to do so. An examination under ether failed to explain. When occasionally visited over a period of six months, she was plainly seen to be declining, and eventually took to her bed. Anxious to have anything done, she was offered a cholecystectomy with uncertain prospects, when a probing of the fistula revealed another stone, and her second operation was at once undertaken, thirteen months after the first. It was necessary to open the abdomen in the line of cicatrix, but only to a limited extent. Numerous adhesions were expected, but, in spite of the utmost care and deliberation, the liver was incised to the extent of an inch and a half by an inch. The hæmorrhage was alarming even from this small cut, and the Paquelin was in use elsewhere. But a packing of gauze dipped in a solution of chloride of zinc, twenty grains to the ounce, effectually removed this interruption. After opening the bladder enough to admit the finger the stone had disappeared, and it required considerable search, both within and without, to find it, and it is believed a sacculated dilatation of the duct (not a rare condition in these cases) concealed it both then and at the first operation. The stone was of the same variety as the first, somewhat smaller but weighing a little more. Cholecystectomy was now indicated to prevent any more intruders, but, from the dense adhesions, this was not attempted. In lieu of it, the following scheme was adopted, apparently without a precedent, and how wisely remains yet to be seen: In place of removing the viscus, why not ligate its duct, thus cutting it off from taking any part in the transference of bile? This was not easy, working almost against the vertebræ and including no other structures, but it was finished with two stout silk ligatures. A drainage-tube was placed within the lips of the cut in the liver and surrounded by a little gauze. The fragments of the fundus of the bladder were gathered together and stitched in the wound, a silver wire being placed between them and reaching to the outside to conduct out the mucus which it was expected would still be secreted from the mucous lining. The night of the operation showed a temperature of 103°, but this was but one degree more than three days before. This quickly fell, and seven days later tube and stitches were removed, and on the twelfth day she abandoned her bed. But her new-found ease was not to last. Pain and tenderness, very much as already described, again appeared, and again the question, from what cause? This time, however, the deep-lying and heavy ligatures might be suspected. After some months of discouragement electricity was applied, in the hope that the pain was neuralgic. The first application of the fine coil rapidly interrupted gave much relief, and three weeks of daily applications, made between the sacrum or flank and the incision, so helped the patient that with occasional applications she began again the whole work of a large house and has continued it till to-day—two months—with comparative vigor and little pain. She still wears the silver wire, and still feels indisposed and uneasy when its removal allows the fistula to close.

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**Vivisection in Germany.**—"The Education Committee of the Prussian House of Representatives has lately had under consideration a petition from the 'International and Hanoverian Association for the Suppression of the Scientific Torture of Animals,' urging the absolute prohibition of vivisection. Both the House of Representatives and the Reichstag have already had the question before them, and the late Cultus-Minister, Dr. von Gossler, imposed certain restrictions on scientific investigators in respect of experiments on animals with the object of preventing any abuse. The majority of the committee were of opinion that science could not dispense with vivisection, and that abuses had only been proved to have occurred in a few isolated instances. Such exceptional cases did not, however, in the opinion of the committee, justify the total prohibition of vivisection. The House was therefore recommended to pass to the order of the day."—*British Medical Journal*.

\* Reported before in the *Cincinnati Lancet Clinic*.

- SOME CASES OF THE  
DERMATITIS HERPETIFORMIS OF DUHRING,  
WITH REMARKS ON THEIR ÆTIOLOGY.

BY GEORGE T. ELLIOT, M. D.,

ATTENDING DERMATOLOGIST TO THE DEMILT DISPENSARY AND  
THE NEW YORK INFANT ASYLUM;  
ASSISTANT PHYSICIAN TO THE NEW YORK SKIN AND CANCER HOSPITAL, ETC.

In a recent article on Dermatitis Herpetiformis\* I reported two cases, in each of which the origin of the disease could be traced directly to the reception of a severe mental and moral shock. Owing to this fact, and also because in their entire pathological course and history, they showed a profound subjection to influences of all sorts, which in one way or another expended their effects upon the nervous system, the conclusion was drawn that the *raison d'être* of the process on the skin was a disturbance of some kind brought about in the nervous system by the ætiological factors in existence, and from thence transmitted to the cutaneous surface. For these same reasons I also expressed my belief that the cases ought to be regarded as dermatoneuroses, and I stated that not they alone, but also all other examples of the disease, should, in my opinion, be included in the same category.

In support of this confession of faith, I would record the following cases:

CASE I (private practice).—Male, aged forty-five, was kindly referred to me for treatment on November 26, 1889, by Dr. Blundell, of Paterson, N. J. His disease had begun a year previously, and for many months prior to its inception he had been subjected to severe overwork, business worries and anxieties, and grave responsibilities. These circumstances had finally induced great nervousness, he suffered from severe neuralgic attacks, constant insomnia, and he became generally unstrung and neurasthenic. He could not say that any special determining factor immediately preceded the first appearance of the cutaneous disease beyond a qualitative and quantitative increase in his mental strain, but he had observed during its existence that new outbreaks had occurred whenever any fresh worry or anxiety arose or after any slight or severe nervous shock or disturbance. In fact, he even stated that regularly, a few hours or the next day after connection with his wife, a relapse of variable severity and extent would be manifested.

The eruption had first appeared in the lumbo-sacral region, but later quite generally over the entire body, though more especially over the extensor surfaces of the extremities. From the beginning he had never been free from the manifestations of the process, but relapses occurred continually, at times of limited extent, at others covering a wide territory. Pruritus had been a constant and severe symptom, not only on the site of the lesions, but also generally over the entire surface. Occasionally burning pain would also be experienced. During the existence of the disease the bowels had been regular and the appetite good. Once in a while he suffered from slight indigestion. A "brick-dust" deposit in the urine had been frequently observed.

*Status Præsens.*—The patient was slight, wiry, and of medium height. His functional health was good. The urine contained urates, uric acid, and oxalate of calcium to a marked degree. The eruption occupied the lumbo-sacral region, the extensor surfaces of the arms, especially about the elbows, and extended over the shoulders. The buttocks and external aspects of the thighs and legs were affected, but the lesions were aggregated together,

more abundantly about the knees. It was noticeable that almost perfect symmetry was followed in the distribution of the lesions and patches. On the surfaces mentioned papules, papulo-vesicles, and vesicles were met with. These were occasionally discrete, but for the most part arranged in groups of variable extent upon a reddened, somewhat elevated base, and they varied in size from that of a pin-head to that of a small pea. The vesicles were tense, deep-seated, rounded, stellate, or flattened, and contained a clear, slightly yellow fluid of neutral reaction. The papules resembled somewhat those of urticaria, as also did larger erythematous patches, which were distributed here and there, but, in contradistinction to the lesions occurring in that disease, they were persistent in character, only disappearing gradually and then leaving pigmentation. Abundantly distributed over the surface were dark pigmented spots and areas, the residua of previous lesions, and there were also crusts and scratch marks. The itching was bitterly complained of and was said to be most severe at night, at times paroxysmal in character and accompanied by a sensation of heat and pain.

While the patient was under my care, the course of the disease at first was one of alternate improvement and relapse. The relapses and recurrent outbreaks followed regularly after any worry, anxiety, or increased mental work. Several times, the day following a coitus, I was able to observe on him more or less abundant new lesions and patches, and he complained of increased pruritus. The character of the eruption varied in the relapses, at times papular and vesicular, or purely vesicular, or the latter and bulbous, or again a mixture of all three forms of lesions with, in addition, erythematous patches of variable extent.

At the end of a few months, there being still no cessation of the mental worry, the overwork, etc., the treatment also being ineffectual, the patient was ordered to take an entire rest and to go away for some weeks. He remained in the country for six weeks, and on his return reported that the outcropping of lesions had ceased at the end of the first week; the pruritus had diminished greatly. The insomnia also had been relieved, he gained flesh and strength, and on his return felt better than in several years. He could now attend better to his business, but still got tired easily. A week, however, after taking up his old cares and responsibilities and worries, pruritus began about the ankles, and groups of papules appeared around the knees and on the legs. He was ordered to take a long rest and went away from business and work of all kind. He regained his general health completely, the eruption disappeared, and since May, 1890, he has remained well.

CASE II (private practice).—J. H., male, aged forty-two, an electrical machinist, consulted me October 5, 1890. He stated that he had always been of a nervous temperament, excitable, prone to worry and to restlessness. The nature of his work had also necessitated constant watchfulness and anxiety, owing to its dangerous character. In 1876 a falling window shutter struck him on the right shoulder, fracturing the clavicle and four ribs, and for more than a year after he was unable to use the right arm or leg. In 1883 he had a severe attack of dysentery and, when barely recovered, he failed in business. In 1884 he lost his four children inside of a few weeks. His wife's illness began in the following year and has persisted ever since, but it was severer for him during the first year, as, owing to his poor circumstances, he was obliged to work during the day-time and take care of her during the night. He thus had little rest and sleep, and this, conjoined to his mental suffering, the severe moral shocks he had experienced, and the harassing anxiety of poverty and debt, operated an entire change in his character, causing him to become gloomy, despondent, and melancholic. In 1887 he broke his left leg, and his circumstances became still

\* *Journal of Cutan. and Genito-urin. Dis.*, September, 1891.

more precarious, but, finally recovering, he began work again. During May and June, 1889, he worked in a damp cellar containing pools of stagnant water. Early in May attacks of quotidian malarial fever began, and at the end of two or three weeks he felt a most intense pruritus over the buttocks. When he examined himself, he found that they were covered with an eruption of "small water blisters and bumps" (vesicles and papules?). A week later the face became swollen, very itchy, and a similar outbreak ensued upon it, and extension of the process to the trunk and extremities gradually took place.

Since that time the patient has never been free from the disease, but crop after crop of lesions have appeared, vesicles, papules, bullæ, and large "hives" occurring simultaneously, or the one form or the other predominating in successive outbreaks. The pruritus has always been most intense, interfering with his rest, causing loss of appetite and flesh, and even at times forcing him to abandon work for days in succession. During the course of the disease the patient constantly observed that severe itching invariably preceded an outbreak of lesions on any part of the surface, lasting for an hour or more, but abating somewhat with the appearance of the objective manifestations. Symmetrical distribution of the lesions was also noted, and when an outbreak occurred on one side of the body it was invariably followed within twenty-four hours by a similar crop on the opposite side. An increase in the degree of the itching and in the amount and intensity of the eruption followed regularly after the reception of any shock, or with any accession of worry, or when his work demanded more watchfulness than usual—in other words, whenever, from any cause whatever, an additional mental strain or effort was required of him. Continuous pressure upon any portion of the body was also followed upon that part by an outbreak of lesions. Clonic spasms and jerkings of the legs, but especially of the arms, were also complained of as occurring when in bed, and lately, after a severe wetting, a numbness of the extremities had developed and lasted for several weeks. Shooting neuralgic pains had also begun at that time and still occurred, being invariably followed by a crop of lesions.

When seen by me the patient still suffered from occasional attacks of quotidian malarial fever, but they did not appear to be followed by any outbreaks of the cutaneous manifestations. He was thin, much run down, anæmic, and very constipated. Anorexia, but no gastric derangement. Urine abundant and normal.

The entire surface was occupied by the eruption, except over the abdomen and flanks. Very marked symmetrical arrangement was observed. The morbid phenomena consisted of vesicles, papules, and pustules grouped in patches and also occurring discretely, covering more or less large areas, lying contiguous to each other or separated by intervening masses of crusts or by pigmented spots and surfaces of variable extent. Every stage and grade of the process was apparent on the skin from the fresh vesicle or papule or other lesion to the crusted one, or the pigmented spot, or in many places to the superficial cicatrix, the result of the wounding and tearing of the skin by the nails in the patient's endeavor to obtain relief from the itching. The body presented in consequence a most peculiar appearance, which, however, bore testimony to the severity of the disease and the suffering entailed by it. While the patient was under treatment there was no cessation in the outbreaks of the process, but crop after crop appeared, consisting of lesions of all forms. Occasionally large erythematous patches developed, upon portions of which numerous vesicles would be aggregated, or tense bullæ would arise suddenly upon an intensely itchy or burning surface, or groups of papules would appear and remain as such, or become transformed into papulo-vesicles. The most

protean course was shown by this case; but yet the tormenting and implacable itching persisted unchanged and uninfluenced by the condition of the patient, by the paucity or multiplicity of the new lesions, or by any treatment made use of. After being under observation for some months, the patient disappeared from view, being still in *statu quo ante*.

CASE III (dispensary practice).—L., male, aged forty-five, consulted me in September, 1890, giving the following history: Two years before the eruption began he experienced severe family troubles, and these still continue. At the same time he suffered business reverses, and he has never recovered his former position in life. As a result, he became greatly depressed, the periods of depression alternating with others of severe nervous excitement and restlessness; he suffered from insomnia and sudden and unaccountable feelings of oppression and night terrors. The patient had had several years ago malarial fever, and also an attack of pneumonia. His functional health had been good; but the new occupation he followed caused him considerable excitement and necessitated exposure to cold during the winter months.

The eruption first manifested itself two years before I saw him, beginning as an outbreak of pustules on the inner side of the right upper arm. The same manifestations soon appeared on the left arm and gradually implicated the trunk, and later on the lower extremities. From the first appearance of the lesions he has never been free, though their type shortly changed to the existing one. The pruritus and burning sensation, which had been always a prominent symptom, has increased greatly in degree. When the patient was examined he was found quite well nourished, bowels regular, stomach in good order, urine normal. His habits were good; he drank beer with his dinner, but did not over-indulge in stimulants. The eruption was distributed quite generally over the face, arms, and legs and trunk, consisting of erythematous, slightly elevated, sharply defined patches of all shapes and sizes. They were round or oval or irregular in outline, and from a silver dollar to a whole hand in size. Their color was for the most part of a purplish-red; some had become purpuric. Besides these, there were groups of papules, here and there small crusted areas, and more or less large pigmented surfaces, the sites of former lesions. The pruritus was intense. While the patient was under observation it was seen that the erythematous patches began as small lesions, the size of a thumb-nail perhaps, and then gradually enlarged to a silver dollar or much larger size, no involution of the central portion taking place. The patches were not transitory in existence, but remained persistent for weeks and months, only slowly disappearing and then leaving pigmentation. There were no outbreaks of vesicles or pustules or bullæ while under my care; only a few groups of papules. In December the patient was much improved by his treatment, and was not seen again until March, 1891, when he presented himself with a new but slight relapse. It subsided shortly, but he returned in June with another and similar erythematous outbreak. In September he again presented himself with a new relapse, affecting especially the face. The lesions were symmetrical on both temples, forehead, and cheeks, consisting of thickened, elevated patches on which were papules, vesicles, and crusts. The pruritus was very severe. This relapse has persisted without material change up to the present day (February, 1892), having become general over the body.

From the clinical histories of these three cases it can be seen that each possessed, in common with the others, certain prominent and striking characteristics, which would immediately suggest their intimate relationship, and tend to establish the fact that each constituted an integral part

of one and the same process. It can not be said that there was an absolute quantitative and qualitative identity in their objective and other symptoms, but yet all were characterized by chronicity and long duration, by frequent relapses, multiformity of lesions, excessive subjective disturbances—pruritus and burning pain—and by rebelliousness to treatment. Possessing, therefore, these essential features, it would be impossible to regard these cases as any other form of disease than dermatitis herpetiformis, if we accept the writings of Dr. Duhring and are familiar with the superb analysis of the subject made by Brocq. If, however, we base our diagnosis upon the objective lesions alone and do not take the entire course of the disease into consideration, then certainly difficulties will be met with at every step, for at one time the eruption could be regarded as an eczema, at another a herpes, or an urticaria, or some other process. It scarcely seems necessary to me, however, to point out the differential characteristics of Cases I and II, when their entire clinical histories and course are duly valued, and the same may be said, in my opinion, in regard to Case III. Yet, for the reason that, when I presented the patient before the New York Dermatological Society, some of the members present were inclined to regard the eruption in this case as a chronic urticaria, I would point out those points which appeared to distinguish it from that of dermatosis. There was not observed during the entire time that the patient had been under observation any sudden and daily outcropping of wheals, which, after short duration, would disappear, but the lesion began as a small erythematous patch, which gradually enlarged to the size of a silver dollar or much larger, and then persisted for weeks and weeks, finally and gradually fading and leaving pigmentation. The lesions in no instance resembled those seen in urticaria, but were sharply defined, slightly elevated, and of a dusky-red color. In addition, there was not any of the irritability of the skin seen in urticaria; no wheals or lesions could be evoked by rubbing, scratching, or by other means. Finally, sections of the newer lesions under the microscope showed distinct inflammatory changes, such as do not exist in urticaria.

CASE IV (New York Skin and Cancer Hospital, Dr. Bulkley's service).—A man, aged thirty-eight, entered the hospital on November 16, 1889. His general health had always been good. He had never had syphilis or any other disease; had always been temperate, though accustomed to drink a few glasses of beer at night, but no whisky. For months before the cutaneous process began he had been subjected to excessive mental worry, anxiety, and fatigue, superinduced by certain duties in connection with one of the more or less large secret societies of the country, and the nervous strain had led to insomnia and a general lowering of his physical and mental powers. While in this condition he observed, toward the end of July, 1889, immediately after experiencing a keen disappointment, the appearance of an elevated, reddened, somewhat scaly patch, as large as the palm of the hand, over the middle portion of the sternum. It was accompanied by severe itching and burning pain, and persisted until the middle of September, when an outbreak of similar lesions occurred over the shoulders and back, at the flexures of the elbows and at the wrists, over the knees, and on the palms and soles. The latter burned and tingled, while the rest of the surface itched intensely. He stated positively that the

lesions were dry, pointing out some similar to them; in other words, papules, except on the soles, where they consisted of bullæ the size of a small pea. All treatment seemed to be without effect, and the nervous strain he was under continuing and increasing in degree, in a few weeks (October) bullæ, pea-size to that of a hen's egg, formed about the ankles, and the legs became œdematous from the knees down. At the end of a couple of days subsidence of the œdema occurred, and bullæ began cropping out all over the legs. At the end of a week the thighs had become similarly affected, and a little later the buttocks and forearms. Over the remainder of the body only few bullæ formed, papules largely predominating. The outbreak of these lesions had invariably been preceded by the most intense pruritus, which would cease when the bullæ had been ruptured. The mucous membranes had at no time been affected. The onset of the bullous eruption had been accompanied by more or less elevation of temperature and constitutional disturbance.

*Status Præsens.*—Patient medium height, slight build, of energetic nervous temperament. Appetite and digestion good, bowels regular. He can walk only with great difficulty, *not*, however, from any loss of power, but on account of the inflammation about his ankles and the pain therefrom. On the flexor surface of the left wrist and on the upper portion of the right arm, as well as on the penis and scrotum, are large patches of vitiligo, which have developed since the inception of the cutaneous disease.

The entire surface of the body, except the forearms and legs from the knees down, is deeply pigmented, and quite thickly distributed over it are small crusts and groups of firm papules. On the legs and forearms are bullæ, in size from that of a large pea to that of a pigeon's egg; some tense; others flaccid, grouped, and discrete. Some large ones had been evidently formed by the confluence together of smaller lesions, which, in some instances, were seen grouped around and about the bullous elevation. Their contents were clear yellow, or had become turbid or even purulent. Where the fluid had dried, thin, yellowish, and blackish crusts were seen, but occasionally, instead of these, a ragged, irregular loss of tissue had been produced by the patient's scratching. About the ankles the crusting was very marked, the skin beneath deeply fissured, denuded, and bathed in a sero-purulent fluid, having a most offensive odor of decomposing pus. Acute inflammatory reaction had been set up, and the pain, as already mentioned, prevented him from walking. That no other cause produced the apparent inability to walk was later distinctly demonstrated by the fact that, when those morbid symptoms had been removed by proper antiseptic treatment, the patient was able to get up and go about with ease.

The record of temperature was not begun until November 18th. It was then 101.2°, and up to December 1st it varied between 99° and 102.2°, evening exacerbations and morning remissions. The pulse was rapid and small—98 to 144. These conditions of pulse and temperature can not, in my opinion, be ascribed to the disease dermatitis herpetiformis, but rather to septicæmic infection from absorption of the products of decomposing pus. The source of infection having been completely removed by November 28th, it was seen that the temperature fell to normal, and remained there during his stay in the hospital, except for a few days, when the temperature again rose to 100°, in consequence of a neglect of antiseptic precautions.

While the patient was under observation, numerous outbreaks occurred, and crops of bullæ, or papules, or papules and vesicles, or of all combined, appeared in more or less rapid succession. Bullæ, however, developed only on the legs, below the knees, or occasionally on the backs of the hands or on the wrists. Usually single and discrete, at times they were small

and grouped, or again around a central large one would be arranged a row of smaller bullæ.

The vesicles varied in size from that of a pin-head to that of a small pea, tense, rounded, or flat, or angular or stellate. They formed small groups and also large patches, the latter being composed of papules and vesicles arranged and aggregated together without regularity. The papules were firm and erythematous, occurring as above mentioned, and also in more or less large groups and patches.

These various lesions, when left to themselves, underwent involution in a few days, the vesicles and bullæ forming crusts, and the papules leaving marked pigmentation. A group of vesicles appeared at one time on the left cheek, near the nose, which, however, did not subside *in situ*, but progressed over the surface, and in a few days had the appearance of a reddened and infiltrated patch, bounded by a scalloped elevated border, upon which was a row of small vesicles and crusts.

The outbreaks of the eruption, of whatever character or extent, were always preceded by the most intense itching, and the pruritus persisted until the bullæ or vesicles had been ruptured, or the tops torn off from the papules. The patient remained in the hospital for some months, leaving February 8, 1890. He was then in good functional health, and had gained flesh and strength. The cutaneous surface, with the exception of deep pigmentation, was free from disease. Here and there were a few crusts and excoriated places, but no new lesions or crops had appeared in some time, and the itching had ceased entirely. He remained under observation for some months, and occasional bullæ dropped out on the legs, and small groups of papules and vesicles on the arms. These outbreaks finally subsided and no new relapse had occurred up to the end of 1890.

Whether he will or will not experience a return of the disease it is almost impossible to say. Possibly not, as he is no longer subjected to those influences which appear to have been active in the production of the primary attack of the process. Before this patient entered the Skin and Cancer Hospital he had been seen by Dr. Piffard. He has made a brief reference to the fact in an article on Pemphigus Pruriginosus, accompanied by two photographs of the case, which he published some time later. In this paper he says that while he does not believe that this and similar cases are in any way related to pemphigus vulgaris, while he denies their relationship to either of the affections termed herpes, though granting that Dr. Duhring would include the case in question in his dermatitis herpetiformis, he yet prefers to use the term pemphigus pruriginosus for want of a better one and until some correct title and more definite knowledge of the etiology and nature of such processes is obtained. I would agree with Dr. Piffard that the affection has no relationship with pemphigus vulgaris, and though this case would undoubtedly have been termed pemphigus pruriginosus by the older writers, in view of the presence of bulke and pruritus, yet that alone is not a reason why we should persist in the use of a designation misleading and unsatisfactory. Because it has been handed down to us from former times, is no guarantee of its correctness any more than bullæ, accompanied or not by itching, always constitute a pemphigus, qualified or not by the term pruriginosus, and no other cutaneous disease. In the case in question here (Case IV), as well as in other similar ones, moreover, the diagnosis should not be based upon the objective lesions seen at only one and a single consulta-

tion, but the whole course of the process—the various pictures presented by it, the morbid phenomena of all kinds which arose—should all be taken into consideration and properly estimated in reference to each other before the case is definitely catalogued. This patient, who was under my immediate observation for months, presented, as predominant lesions, frank inflammatory papules, persisting for days, some becoming papulo-vesicles, and finally disappearing, leaving marked pigmentation. Pure vesicles were at times present, but only exceptionally bullæ, and these latter limited to the surfaces below the knees and to the wrists. In other words, we found that the *sine qua non* of a pemphigus—bullæ—were greatly in the minority and limited in distribution, and under those circumstances it would seem only to cause confusion more confounded to regard it as in any way connected with pemphigus vulgaris. When, on the other hand, the case conformed in its course and clinical history so closely with the others recorded here, then its inclusion in the category, dermatitis herpetiformis, would appear to be perfectly justifiable in my opinion—one supported likewise by Dr. Bulkley, in whose service the patient was.

The clinical features presented by these four cases do not appear to me, however, to possess as much importance as do the etiology and the pathological course of each, owing to the fact that from the former many facts could be gleaned which, taken in conjunction with the latter, pointed very suggestively, and in truth strongly, to an intimate connection of the cutaneous disease with some disturbed state or condition of the nervous system. We thus find that each of the patients had been subjected for a more or less long period of time before any outbreak had occurred on the skin, to varying degrees of physical, but more especially of mental, overwork, or grave cares and responsibilities, severe worries and anxieties, and grief. The influence of these\* factors upon the individual was demonstrated by the production of such evidences of general nervous and cerebral exhaustion as neurasthenia, insomnia, night terrors, depression alternating with periods of excitement, attacks of melancholia, severe neuralgias, etc., and it was during the existence and continuance of the state of nerve exhaustion that the process developed on the skin, although there was no evidence that these conditions acted directly and causatively in the production of the disease. On the contrary, and as will be shown presently, entirely different factors immediately preceding the appearance of the dermatosis, and apparently ushering it in, they could be accused as the direct causes of its development.

Besides the four cases (I to IV) contained in this paper, there are four others which I would also include in my analysis, for the reason that in them the various influences, agencies, causes, etc., which made up their etiological history and which participated in the origin of the disease could be obtained from the patients. Of these four, two (V and VI in my analysis) have already been reported by me, while the remaining two (VII and VIII) are as yet unrecorded.

The investigation of the histories of these four patients (V, VI, VII, VIII) showed the following factors to have

been in existence prior to the development of the disease :

CASES V AND VI.—Both neuropathic from worry, anxiety, mental and physical excesses of longer or shorter duration, run down in health, and debilitated.

CASE VII.—A woman, aged forty-eight, a sufferer from intense neuralgias for twenty years, nervous, hysterical, and easily frightened, subject to attacks of melancholia.

CASE VIII.—A woman, aged fifty-three, of nervous temperament and nature, having a lacerated cervix and excessive leucorrhœa of twenty-five years' duration, anæmic and debilitated, accustomed to take cold baths every day during menstruation, but not at other times.

If we analyze the ætiological facts presented by these eight cases as having preceded the development of the cutaneous disease, we find that they may be summed up and separated into the following two categories :

I. Excessive mental and physical work, mental and moral emotions, anxieties, cares, responsibilities, grief, etc. (Cases I to VI inclusive)—six cases.

II. Nervous temperament and nature, hysteria, intense neuralgias, anæmia and debilitating conditions, etc. (Cases VII and VIII)—two cases.

From the histories of the patients we furthermore found, as already mentioned, that the effects of the factors contained in the first category were shown in I to IV by the production of neuropathic states of the general system—neurasthenia, insomnia, etc.—while in V and VI there was in addition a debilitated, run-down condition of the general economy. In VII and VIII the consequence of the facts mentioned in II were systemic debility, great increase in nervous and hysterical condition, in frequency of neuralgias and other evidences of disturbed innervation, a more or less apathetic state of the mind, the conditions existing pointing in general to lowered nerve tone, without any special feature being demonstrable. The morbid symptoms and states having been produced in these patients, they persisted for various periods of time—from a few weeks to years; but, nevertheless, every one of the cases, during their existence and continuance, however long it might have been, enjoyed complete freedom from any cutaneous process. Upon the supervention of an additional or new factor, however, which apparently swept away the last remaining barrier to its production, then the catastrophe was precipitated, the dermatitis herpetiformis developed, and the usual train of symptoms characterizing the process became immediately manifested. These we find to have been in three cases severe mental and moral shock and emotion; in two (V and VI) from a death; in one (IV) from a keen disappointment; in one (I) a great increase in mental and moral strain; in another (II) malarial intermittent fever; in two (VII, VIII) the menopause. In the two last the process developed almost synchronously with the cessation of menstruation, in the one (VII) having been preceded for a month by the most intense pruritus, and the cutaneous disease has lasted now in Case VIII two years and a half; in Case VII, two years. Case III was unable to furnish any positive or definite data in regard to the inception of the process, though possibly some occurrence in

his profession—he was a sheriff's officer—may have ushered it in.

If we make a brief *résumé* of the histories of these patients prior to the development of the dermatosis, we find, therefore, on the one hand, a whole series of factors acting detrimentally upon the general system, but not provoking the disease, and on the other, in seven of them the occurrence of some new and different one immediately followed by the process. The question which therefore arises is, What rôle does each of these play in the origin and production of the dermatitis herpetiformis?

In disease in general, whenever it has been possible, a most material difference has always been made between those influences, conditions, etc., which, not productive of a process, act only as favoring or contributive factors, and those others which, immediately followed by the disease, can be regarded as the exciting and determining causes; and, in my opinion, the same course should be followed in dermatitis herpetiformis. Therefore, since all the factors contained in Case I, notwithstanding their existence and continuance for more or less long periods of time, were productive of a neuropathic condition, an increased nervous susceptibility, a generally lowered systemic stability alone, but in no instance, as we have seen, of the cutaneous disease, then they would have to be regarded as occupying the position of favoring or contributive causes—those which produced in the patient that state to which the term predisposition may be applied. On the other hand, however, since the cutaneous disease developed immediately upon and after the supervention of some new and additional occurrence independent of those which had been for a more or less long time in existence, and represented in my cases by the mental and moral shock, the malarial fever, the menopause, etc., then these should, under the circumstances, be considered as the active and exciting causes of the process—the ones which were directly and actively productive of its development.

From the ætiological data furnished by these eight cases, it seems to me that we can properly make the above division, and we thus have on the one hand certain factors which predisposed the individual to the development of the skin affection, and on the other hand certain others which directly caused its appearance, presumably, however, in virtue of this state or predisposition already in existence. Of the two, it is the "predisposition" which would seem to be the most important portion of the subject. What is the predisposition, what are the conditions which constitute it, and what actual changes take place in the general system in its production? are questions of pre-eminent interest, but, unfortunately, to-day not any more facile of explanation in dermatitis herpetiformis than in many other diseases, local as well as general. With our present knowledge and as yet limited opportunities for ultimate investigations, it is utterly impossible to precise the actual pathological changes produced in the patient by the ætiological moments which held sway prior to the development of the process, and we can only judge from clinical data what portion of the general system has been affected by the influences at work and where the disturbances, whatever they

may be, are probably located. It is upon clinical grounds alone, therefore, that I have based the opinion I hold that whatever the actual changes are which arise and are produced in the general system and thus constitute the predisposition to the dermatosis, they are resident in and intimately connected with the nervous system. I would locate them there for the reasons that in all those of my cases from whom an intelligent history could be obtained, the aetiological factors which preceded the disease were such as exerted their influence only upon the nervous system, or the patients were by nature neuropathic, or owing to some pathological systemic condition presented more or less well marked indications of disturbed nerve tone. When, in addition, there were not any other moments which could be accused as participating in the production of the state of the individual, and the results of the aetiological data mentioned were seen and shown by the various neuropathic conditions which developed in each—the neurasthenia, etc.—then it appears to me that, though there is no actual demonstration of nerve changes, yet the clinical histories of the cases furnish sufficient grounds for the belief that the predisposition was constituted by some condition other than normal of the general nervous system.

Regarding the predisposed condition of the patient as the most important, then the character of the exciting or determining cause would not be of such incisive moment, nor would it need to be a constant one. On the contrary, it seems to me that under those circumstances almost any occurrence, agent, or factor would be sufficient to precipitate the production of the process, and this is precisely what was seen in my cases, in seven of which the exciting cause was of the most various nature, character, and intensity. I do not think it worth while here to speculate upon the manner in which these exciting causes acted in bringing about the dermatosis; we know nothing whatever in regard to this portion of the subject, and possibly we never will, for though, in some cases, evidences of peripheral nerve degeneration may be found, in others, graver central changes, yet when the clinical history and course of the great mass of the cases are considered, it can not but be surmised that the changes presiding at the birth and existing during the continuance of the disease must be for the most part transitory, probably functional, and certainly not organic.

The analysis of the eight cases of dermatitis herpetiformis contained in this paper and the data furnished by their clinical histories allow me, however, I believe, to formulate the following conclusions:

1. That in the production of the dermatosis there are two factors in operation—a predisposition of itself not productive of the process, and an exciting cause capable of provoking the disease on account of the existence of the former.

2. The predisposition, present by nature or acquired through the influence of various causes, is constituted by a state or condition other than normal of the nervous system.

3. The exciting factor need not be a constant one, but

may be of the most various character, nature, or intensity, its power to call the disease into existence being, however, dependent upon the state of predisposition of the patient. As a result of these conclusions, I would therefore regard dermatitis herpetiformis *not* as a specific disease, always the product of a single or specific agent or cause, but as the outcome of any number of causes of the most various character acting upon an individual possessing a certain degree of predisposition.

It appears to me that if we take the dermatosis upon this broad pathological basis, we can understand the contradictions in origin met with in successive cases and their apparent entire want of agreement. It can not be expected that the predisposition would always be of the same degree, but it probably varies within wide limits, so that in one case an intense exciting cause, while in another only a slight one, would be necessary to produce the disease. We see, for example, among my own cases that V and VI, in whom the influences producing the predisposition were of comparatively short duration and it was slight, a severe and intense shock developed the process, while in Case I, the predisposed condition being of long existence and marked, a mere increase in mental and moral strain was sufficient. In Case II, again, we see a man undergoing and resisting for years mental and moral shocks, grief, etc., sufferings of various kinds, and finally succumbing to an attack of malarial fever. It is in view of such facts that the opinions expressed by me have been formed, and they are advanced for the reason that they appear to me to suggest a satisfactory explanation for the various and divergent modes of origin seen in the disease and the want of agreement manifested in the development of the individual cases. I must confess that my views do not apparently seem to be borne out either by all of my own cases or by those recorded in the literature of the disease. Still I do not believe that this is due to the absence of predisposing and exciting causes in the genesis of the other examples of the process, but rather, to judge from my own experience, to the ignorance and forgetfulness or intentional concealment of facts on the part of the patient. This is met with in a large number of cases, while in others the aetiological factors may have been of such slight grade as not to have excited special attention, and certainly in some it may have been due to the observer, who failed to investigate carefully the antecedent history of a case coming under his care. I do not, however, intend to analyze from this point the literature of dermatitis herpetiformis, having preferred to base my opinion upon my own cases alone, of which ten—eight in this paper and two others unrecorded—out of sixteen furnished facts such as have already been related, and I would rather take up the question of the nature of the process, whether it is a dermatoneurosis or not. In view of the data derived from the study of the aetiology of the cases conjoined with the clinical and pathological course of each, I do not see what other conclusion could be made by me but that the process is a dermatoneurosis. While the patients were under my care and observation, it was constantly shown that the cutaneous phenomena were peculiarly and altogether subservient to every influence which acted in any way upon the nervous system,

or which produced a nerve disturbance of some kind or other, and that it was independent of those which acted upon other portions of the general economy. Every mental or moral shock or emotion of whatever grade, worry or anxiety, excitement or fatigue, mental activity and work, etc., were regularly followed by an increase in the objective and subjective symptoms or were productive of a fresh relapse. Some of them, especially Cases I, V, and VI, would be entirely free from any and all traces of the process, but would have an outbreak immediately after the occurrence of some one or other of the factors just mentioned, and yet during the intermission there had been functional disturbances, gastric or intestinal or of other nature, but nevertheless no reappearance of the eruption. Other factors, which can be mentioned, and which acted in the same manner as those above, were coitus, the excitement and fatigue of the theatre or of any social gathering, the occurrence of neuralgias, shooting pains, hemicrania, etc. In regard to these latter, it was also observed that, together with a great increase in the subjective symptoms, there would be an outcropping of lesions over the surface which had been the seat of the neuralgia, pain, etc., and not over some other portion of the body. As it has been my experience to make these observations continually and repeatedly, to see on the one hand that the cases offered in their aetiology facts and data all pointing to the nervous system, and on the other that the process once instituted was entirely under the control of that system, it therefore seems to me that any other conclusion but that the process is a neurosis, or, since all its phenomena occur in connection with the skin, that it is a dermato-neurosis, is impossible.

In conclusion, I would add a few words in regard to the treatment of the disease. My experience has certainly demonstrated to me that there is no remedy, drugs, or forms of treatment which exercise any specific influence over the process. On the contrary, the few good results obtained by me have been only in those cases in which there was an opportunity of either removing or of counteracting the aetiological influences which had been at work, and it appears to me that the course of treatment adopted should be based upon that principle. I have not seen any particular benefit derived from dietary changes, from internal remedies, or from the routine administration of alkaline treatment, or nerve sedatives, or tonics, etc., as long as the primary influences operating upon the patient continued. But when, as in Case I, the individual was able to go away and be free from all his cares and responsibilities, etc., or, in Case IV, all his mental and physical overwork, etc., were replaced by rest and freedom, or, in Case V, the patient was protected in her business and family life from emotions, shocks, etc., or, in Case VI, recuperation of the general normal tone was obtained and retained by constant care, then the patients got apparently well—that is, enjoyed entire freedom from the disease, though this freedom lasted only as long as the primary causes were absent; but, as was seen in all of them, the eruption returned in some degree when they again came into play. On the other hand, no improvement was seen when the aetiological causes were

still in existence, notwithstanding the use of arsenic, atropine, ergot, strychnine, valerianate or phosphide of zinc, potassium salts, mercury, etc., and the hygienic and dietetic and other means employed. This was seen in Case II, whose mental sufferings continued; in Case III, who, from his occupation and family troubles, was incessantly exposed to shocks, mental and moral, to excitement, etc.; in Cases VII and VIII, whose nervous conditions and states and systemic disabilities remained in existence. In these four cases the patients' circumstances, surroundings, etc., precluded the removal of the detrimental influences primarily operating in the production of the disease, and, in consequence, it is still in existence, varying in degree from time to time, but yet never absent. From this experience, the course of treatment which should therefore be followed ought, in my opinion, to be based upon the broadest principles and, as far as possible, guided and directed toward removing all of those influences which apparently produced the disease in any given case, and which brought about the occurrence of relapses. If this can be done by appropriate internal treatment, then the remedies indicated should be exhibited, or, if it requires change of scene, surroundings, occupations, etc., then recourse should, as far as possible, be had to these. At the same time, any functional or other systemic disturbance should be attended to, and the patient's condition be brought as far as possible up to the normal. In other words, the therapy of every case will have to be based upon the indications and conditions existing in each, and can therefore in no particular be a specific one or consist of any specifics.

The external or local treatment is also of great importance, and should be combined with the one just mentioned. Its principal object, in my estimation, is to give relief to the subjective discomfort, to remove the lesions already existing, and to prevent septic infection, which, on a surface presenting so many points of entrance as the scratched and torn and denuded skin of a case of dermatitis herpetiformis would occur most easily (*vide* Case IV). I have tried to attain these ends with the tars, carbolic and salicylic acids, camphor, resorcin, menthol, chloral, ol. hyoseyami cocti, etc.; the sulphur treatment recommended by Dr. Duhring has also been used by me; but none gave results in any way commensurate with that obtained from ichthyol, and the majority failed altogether to be of any use. The ichthyol in ointment form did not act as well as when used as a lotion—twenty-five grains to fifty grains in an ounce of water; but the best effects were observed when it was combined with ol. amygdal. dulc. and lime-water:  $\mathcal{R}$  Ichthyol. ammon., gr. xxx to xl; ol. amygdal. dule., aq. calcis,  $\text{ãã}$  3 ss. This was rubbed in thoroughly several times daily and allowed to remain on the surface, or sheet lint saturated in it was wrapped around and retained in place by bandages. The treatment was also combined with frequent baths of starch, or of starch and bicarbonate of sodium, to which, in case there was much hyperidrosis, as was at times observed, a decoction of white-oak bark was added. By these means the patient obtained at least considerable comfort, even though they did not act as distinctly curative agents.

## HINTS ON COUGHS: THEIR CAUSES AND TREATMENT.

BY WALTER F. CHAPPELL, M. D., M. R. C. S.

No symptom of a disease befalls the young practitioner more than the varieties of coughs which he is called upon to treat. No symptom receives more random guesses or more shot-gun prescriptions. It is not my intention to wade through the ancient history and literature of coughs, but simply to give some practical hints on the varieties, causes, and treatment of coughs as they occur in every-day practice.

A cough, as we all know, is a symptom of some irritation, mechanical or sympathetic, affecting the respiratory tract or organs. It is Nature's effort to remove the cause of irritation.

When thinking over the best way to present this subject, I found it difficult to make a classification which would separate and at the same time include the important forms of cough. A division based on their relative frequency seemed to make the subject fairly distinct.

*First Class.*—No doubt in this country the morning cough to remove the accumulation of mucus, caused by nasal obstruction, post-nasal catarrh, the different forms of pharyngitis, general enlargement of vessels and glandular tissue of the pharynx, base of tongue, and upper respiratory passages, is by far the most frequent.

These conditions sometimes occur singly, but often all are present in the one patient and constitute what is called "common catarrh." They cause increased secretion, which is disposed of almost as soon as it is formed during the day, but at night it accumulates in the post-nasal space, lower part of pharynx, and superior laryngeal region. These patients, on rising in the morning, have a feeling of fullness, sometimes dryness, in the throat. It causes them little annoyance at first, but after moving about and taking breakfast their trouble begins. The act of mastication and swallowing increases the blood supply to these regions and calls into activity the normal function of the glands. The resulting secretion liquefies the mucus which has accumulated during the night and causes it, as the patient will tell you, to rise in his throat. At first there is little difficulty in getting the mucus into the mouth and expectorating it. In half an hour or so, however, the hypersecretion seems exhausted, but some thick sticky mucus still adheres to the walls of the throat. The effort to get rid of this produces a violent hawking and gagging and a succession of short coughs before it can be dislodged.

In mild cases, after the throat has been cleared in the morning, there is little annoyance for the rest of the day. In more severe cases, however, the efforts to clear the throat and post-nasal space are most distressing. They come on after every meal, after exercise, or when the atmosphere is moist, or the patient excited. The feeling that something is slipping down behind the soft palate causes a deep inspiration through the nose, followed at once by a violent cough which usually brings relief; if not, there is a succession of coughs and gagging, and relief is obtained by vomiting.

Men frequently smoke, especially a cigarette, on rising or after breakfast, as they find that by this means they are able to relieve themselves more easily and rapidly of the accumulation. Of course the smoking produces a hyperstimulation of the glands and consequent secretion, and gives temporary relief; it, however, leaves a dry and irritable feeling in the throat. To fully appreciate these symptoms one has only to be a passenger in any of our public conveyances when people are going to business in the morning. If not a sufferer himself, he will at least soon realize what a sympathetic nervous system is. This form of cough, while less dangerous than any other, is most troublesome and annoying to the patient and his friends and difficult to treat.

*Second Class.*—The cough resulting from what we call a common cold may be classed as next in frequency. The symptoms in these cases usually begin with acute rhinitis or influenza and travel down to the trachea and bronchial tubes a day or so later. Some people have their first symptoms of an approaching cold in the chest, and the throat and nose are attacked subsequently, while in others the cold begins on the chest, and does not invade the upper respiratory passages at all. In those which begin as an influenza the nasal symptoms and general febrile condition last from two to three days, when some irritation is noticed in the laryngeal region and a slight cough appears; this increases daily until about the fourth or fifth day, when the nasal symptoms will be relieved and the patient tells you that the cold is now entirely on the chest.

The cough is often severe and comes on in paroxysms, especially when speaking, eating, taking exercise, or when changing from one temperature to another, or during any excitement. There is more or less of an aching or tight feeling under the sternum, and if the person is a frequent sufferer from colds, or, as he will tell you, "catches cold easily," you find he often complains of a distinct sore spot near the ensiform cartilage. Somebody has suggested that this is caused by a semi-inflamed condition of the mucous membrane at the bifurcation of the trachea. This place, of course, receives the direct current and pressure of the air at every inspiration. The expectoration is very scanty at first and consists of white mucus. A few days later the mucus becomes more profuse, and its character will depend a good deal on the history and age of the patient and the severity of the attack.

In young people, if it is only a mild attack, the mucus is rarely profuse and only slightly yellow. In older persons, or when there is a history of repeated attacks and some chronic bronchitis or a syphilitic history, the mucus is thick and yellow in appearance and abundant. The respiration is little interfered with in young people, but in older persons, where the mucous membrane is thickened, there is a good deal of shortness of breath whenever they take cold.

*Third Class.*—We next consider the different forms of coughs encountered in the various stages of phthisis. In the early stages of the disease we are consulted for a short, dry, hacking cough, which the patient can not refer to any special cause or place; he simply has a desire to cough. It is not violent, and attention is only called to it by its persistence. It is caused, in the opinion of many physicians, by a

deposit of tubercular material around the terminal branches of the pneumogastric nerves. Its course is insidious and often so short that the physician is not consulted until the disease has advanced to another stage, when the cough becomes loose and more bronchial in character. This change in the cough is due to a catarrhal condition of the mucous membrane of the bronchial tubes and terminal bronchioles, the result of localized bronchitis. The expectoration at first is white mucus tinged with yellow; a little later it becomes thick, yellow, and tenacious, and requires a good deal of coughing to get it up. This is most troublesome during the night and in the morning—in fact, during the day there is often little coughing. The increased cough at night is probably due to the change in position of the body, as then the mucus is made to occupy different parts of the bronchial tract, and until the mucous membrane becomes accustomed to this change it resents the intrusion.

In a still later stage of this disease, when softening is going on and a portion of the lung separating, the cough is violent and continuous; also, when cavities have been formed, they fill with mucus during the night; in the morning there is violent coughing until the cavity is emptied. The coughs in the later stages of phthisis are the result of such large accumulations of mucus and necrosed tissue that they are kept up night and day and wear the patient out. The mouth and throat are frequently tender and covered with a watery mucus at this stage of the disease, which adds to the frequency and severity of the cough.

*Fourth Class.*—Many persons complain of a cough which leaves them during the warm weather, but returns on the approach of winter. This "winter cough" may be due to several conditions—viz., bronchial catarrh or thickening of the bronchial mucous membrane, chronic bronchitis, and quiescent or arrested phthisis.

There is usually a history of previous severe colds, which for several winters had been most intractable to treatment; then the patient has noticed that the cough returned with the cold weather, probably without his having any special symptoms of having taken cold.

The disease is sometimes hereditary, occurring in children whose parents have been sufferers from winter cough for years. These persons are usually pale and anæmic. All their mucous membranes are flabby and prone to catarrhal inflammations, and their recuperative powers are weak.

Women, especially blondes, suffer more frequently than men.

The initial symptoms develop in early life, when the child takes cold in the chest on the slightest change of temperature. The symptoms are slight and catarrhal in character at first, but become more marked and persistent as age advances. The mucous membrane of the lower part of the trachea and large bronchial tubes is the chief seat of the trouble. This becomes thick and tumid, and the vessels permanently enlarged. As age advances, especially in neglected cases, the tubes become dilated, and in some cases small, pouch-shaped depressions are found in the walls of the bronchial tubes and trachea. When the cough comes on, the patient has a feeling of slight oppression or wheezing over the sternal region, some aching between the

shoulders, and a sore or tender feeling through the chest, mostly on the right side.

This sore feeling is often complained of during the warm weather if there is a sudden change of temperature. Hot flashes of the face and upper extremities are common, also cold perspirations. Excitement, exercise, and sudden changes from one temperature to another aggravate the symptoms, and in some produce an asthmatical attack.

The cough in the early cases is not severe or paroxysmal, and would be called a slight bronchial cough. It is worse at night and during the early morning hours. The mucus expectorated is white and frothy. As age advances, the cough becomes violent and paroxysmal in character, and troublesome during the day as well as at night. The mucus is abundant, thick, yellow, and tenacious.

If this condition lasts for years, as it sometimes does, and nothing arrests its progress, the right heart becomes enlarged, and the general venous system sluggish. The thickened condition of the bronchial mucous membrane extends to the lung tissue and produces contraction and hardening, until both lungs are in a fibroid state, resembling, if not identical with, that of true fibroid phthisis.

This, of course, is an extreme picture, and would probably only occur in a few predisposed or neglected cases. The great majority, however, end in chronic bronchitis, which continues for years, and death may result from some other disease.

*Fifth Class; Nervous Coughs.*—This class is probably more common here than in any other country. It causes a great deal of trouble on account of its persistency and from its nature being frequently overlooked. Its nature is sometimes only discovered after many cough mixtures and other remedies have been employed for its relief. Scarcely an organ in the body has escaped the accusation of originating a nervous cough, and many of them have certainly been guilty.

In one class of cases it is the general nervous system which is at fault, while in others some particular organ originates the trouble. These coughs are characterized by short, dry hacks, which the patient takes in rapid succession. They are paroxysmal, and sometimes violent and barking in sound. During excitement they become almost continuous, and the sufferer complains of a fear of strangulation. If this continues for any time the laryngeal mucous membrane becomes red and the muscles of the neck and chest have a sore, tired feeling. Sometimes there is a dry, burning sensation through the throat. There is always a history of nervous troubles of various kinds extending over some period. Some cases entirely recover, while in others the cough extends through life and is spoken of as a habit. There is also the hemming cough of puberty, so well described recently by Sir Andrew Clarke.

It is sometimes difficult to trace the reflex form of nervous cough to its origin, and every organ may have to be examined before determining this. I think, however, when we decide that we have a reflex cough to deal with, there are usually symptoms which point to its probable origin.

*Sixth Class.*—We are all familiar with the following history: A short, plethoric person calls and tells you that

he has a bad cough, which attacks him in paroxysms, that he can not bring up any phlegm, has a full, stuffy feeling over the trachea, a little shortness of breath, and is husky at times. Appetite not good. Tongue very red or large, white, and flabby, and marked with the indentations of the teeth. Bowels probably constipated, although they may be loose. Urine high-colored, scanty, and thick. Morning nausea common. He has probably had the cough some time and taken a good many things for it without benefit. On examining this patient's throat, you find the mucous membrane of the fauces and walls of the pharynx mostly of a deep-red color, but in places it is dark blue, relaxed, and bathed in a watery mucus.

This condition extends to the laryngeal region and as far down the trachea as we can see. The congestion of these regions is produced by over-indulgence in food and alcoholic beverages. In people with a rheumatic or gouty tendency it takes very little to produce this result, while in others it comes on after a spree or steady drinking, extending over a long period.

*Treatment.*—When consulted about a cough, the first thing to decide is whether it originates in the respiratory tract or is due to some nervous disturbance.

If the former is at fault, the next decision is whether the cough is a useful or useless one, or excessive for the amount of good we might expect from it. If it is evidently doing good service, our object should be to assist it to complete its work as soon as possible. In useless coughs we consider whether they are so excessive as to require a sedative, and then direct our efforts to remove the cause. It is easy to see how important it is that all these points should be made out before we write our prescription or decide on a course of treatment. If we reply to this cry for relief by the indiscriminate use of sedatives, we may carry our patient into a dangerous position from which we can not extricate him. It is a wise course never to give opiates until you have found the cause of the cough and are satisfied that it is so excessive that it is wearing the patient out or is endangering the lung tissue. The latter is most likely to happen in the very young and in advanced life.

Some of the milder forms of sedatives may be employed with less caution, but we should always make the selection with care, as certain sedatives are specially suited for a certain class of cases and patients. In every cough resulting from acute disease an aperient will be of service, with a reduction in the quantity of nitrogenous food and a liberal supply of fluids, especially of alkaline waters.

Another general direction is the matter of dress. Probably no country in the world is subject to greater and more sudden changes than this; especially is this true of this vicinity. It would seem that in so changeable a climate the people would, as a national custom, wear next their bodies a material which would be a poor heat conductor. Some do protect themselves with woolen garments, but the vast majority wear underclothing of a material which does not retain the surface heat of the body as well as wool. Thick overcoats and other thick external garments are supposed to keep in the warmth, but this is a mistaken idea, as the warmth needs to be next the skin.

As a class, no people wear thinner boots than Americans. Women especially indulge in thin boots or slippers at times when only the thickest should be worn. Their hosiery, too, is often of the thinnest material.

It is extremely important that in persons subject to catarrhal affections of the respiratory tract special attention be given to their clothing; otherwise no amount of medication will prevent taking cold.

*The treatment of the cough* described under the first class would, of course, differ according to the cause of the accumulation of mucus or the pharyngeal irritation. When the mucous membrane of the nasal passage is at fault, as in hypertrophies, etc., there are many methods for its reduction—viz.: electric cautery, cutting, removal with snare, and various caustics. Of the latter, chromic and monochloroacetic acid are the most useful, as physicians with ordinary experience and care can use them. Monochloroacetic acid seems preferable, as it can be applied in the mild cases to the surface of the membrane, and does not make a deep sear and soon heals. When the mucous membrane is very much hypertrophied, monochloroacetic acid is also the most useful, as by submucous injection sufficient tissue can be destroyed to make the reduction permanent.

If deviated septum, spur, or any form of growth obstructs the nasal passages, only operative measures can give relief. Enlarged tonsils and hypertrophied glandular tissue at the base of the tongue must also be treated; the latter, either by the galvano-cautery or the instrument I have suggested for this purpose.

It is impossible to lay down a strict rule for the treatment of the different forms of chronic pharyngitis, but the following has given me good results. Every night spray the nose and throat, and inhale while spraying with—

℞ Acid. carbolic..... gr. ij;  
Sodii biborat..... gr. vj;  
Aquæ.....ad ʒ ij. M.

After the parts have been well cleansed with this solution, I spray them with—

℞ Liq. hydrastis..... ʒ ij;  
Benzoinol.....ad ʒ ij. M.

The following morning use spray No. 1 before breakfast and No. 2 after breakfast. Every sixth or seventh day I direct the patient to paint the post-pharyngeal wall with—

℞ Iodine..... gr. v;  
Pot. iod..... gr. x;  
Glycerin.....ad ʒ j. M.

This can easily be done with a long brush, the patient standing before a looking-glass.

Internally give one tablet sulphur co., which is composed of—

Sulphur..... gr. v;  
Cream tartar..... gr. j,

twice a day after meals. When the follicles in the pharynx are much enlarged, touch them once in two weeks with a cautery point or the nitrate-of-silver stick. Of course, every case treated in this way is not cured, but it gives very satisfactory results. To obtain success, the treatment must be carried out for from three to six months. Sum-

mer is the most suitable season for treatment. If the patient shaves, I frequently advise him to wear a beard. This may seem trivial, but it is only by the closest attention to details that a successful result can be expected.

When the pharyngeal irritation and accumulation of mucus are due to atrophic rhinitis in the stage when there is a great accumulation of dried mucus, I direct the patient to spray the nasal cavities night and morning with alkaline spray No. 1, and at night introduce, by means of a camel's-hair brush, an ointment of—

℞ Euphœn. . . . . ʒ ij;  
Ung. aquæ rosæ. . . . . ad ʒ j.

M. Ft. ungu.

During the night the ointment finds its way into the posterior nares and pharynx and keeps the mucus from getting dry and hard, and acts as a stimulant and disinfectant. After breakfast I direct the patient to blow into each nostril a small quantity of powdered euphœn.

We next consider the coughs arising from a common cold. Any one can tell when he has taken cold before any symptoms are apparent to others. This knowledge, when possible, should be treated by a good rubbing with a rough towel over the entire body, a saline purge, and as much rest as possible. In a few hours more definite symptoms appear, and the indication will then be to quiet the excitement of the central nervous system, to soothe local congestion and hyperæsthesia of the nasal mucous membrane, and arrest the discharge. There is nothing, in my opinion, which acts so promptly as the tablet triturates recommended by Dr. Lincoln. If used in the proper way, no one can fail to be impressed with their action. They consist of—

℞ Quinina sulph., }  
Camphoræ, } . . . . . āā gr. ¼;  
Ext. belladon. fl. . . . . gr. ⅛. M.

One of these should be given every fifteen minutes until there is beginning dryness of the mouth and throat, and then one every hour or two, as required. Besides this, I direct the patient to inhale from boiling water—

℞ Mentholi, }  
Camphoræ, } . . . . . āā ʒ ss.

M. Sig.: One teaspoonful to a quart of water.

Also to hold a sponge, wrung out of hot water, over the bridge of the nose. If seen early, four hours of this treatment will positively stop the sneezing and running from the nose; twenty-four hours completes the cure. If rest is not possible, I advise the patient to exercise very little, dress warmer than usual, drink little, avoid change of temperature, and continue the inhalation twice a day.

Should a bronchial irritation appear, I give—

℞ Potassii nitratis. . . . . ʒ ij;  
Ammonii bromid. . . . . ʒ iij;  
Syrup. simplicis. . . . . ʒ j;  
Aquæ . . . . . ad ʒ iij.

M. Sig.: One teaspoonful every three hours in Vichy.

If the patient is not seen until the rhinitis has been present forty-eight hours, the tablets are not so efficacious, and we have to rely more on the inhalation and ammonium-bromide mixture.

The third variety, or coughs of phthisis, requires different treatment according to the stage of the disease.

The short, dry, useless cough of the initial period of phthisis is not often troublesome enough to require treatment; when it is, one four-hundredth of a grain of sulphate of atropine, or ten drops of tinctura gelsemii, twice a day, will afford relief, or one two-hundredth of a grain of hyoscyamine is equally efficacious. Later, when there is bronchitis and considerable coughing and expectoration, creasote, taken internally and by inhalation, gives some relief. I have not had the uniform success with creasote which Dr. Beverley Robinson reports from its use. On account of its effect on the stomach, it is impossible, excepting in rare instances, to give the large doses of creasote which some observers recommend. The largest dose I have given was ten minims three times a day.

Dr. William H. Flint's creasote pill is an excellent method of administration. Hot milk, lime water, and whisky, added together, make a good vehicle. No one remedy can be relied upon for these coughs, and the greatest success may be expected from a judicious change from time to time of the remedies. Menthol, given in three-grain doses an hour after meals, is useful when the expectoration is excessive. In the latter stages, when rest is greatly disturbed, opiates are our best remedies. When the cough is due to efforts to empty a filled cavity, it should not be forgotten that the position of the patient will materially assist in doing this, and trials should be made to determine the most favorable position. Change of climate is one of our most certain remedies for the relief of these coughs, and great care must be exercised in determining what climate would be most suitable in each case.

*Treatment of Winter Coughs.*—The conditions which cause winter coughs are usually well established when the physician is consulted. The first step will be to take an inventory to determine what damage the respiratory tract has sustained, also if there is any emphysema or other lung trouble and the condition of the heart. We also inquire for any hereditary diathesis. On the result of the examination and inquiries our course of treatment will depend.

Climatic conditions influence these coughs more than anything else, and must always be considered in their treatment. A warm, dry, even temperature, free from high winds—in other words, where there is summer weather the year round—is most favorable for a cure. When this can be obtained without too great a sacrifice, it should always be taken advantage of.

Many persons, from business or other reasons, can not avail themselves of the advantages of change of climate, and we have to do the best we can for these patients at home. They should wear flannel the entire year, thin in summer and thick during the winter. Sponge the chest with cold water morning and evening, and follow it up with dry friction. Thick-soled boots should be worn, and the night air avoided as much as possible. Cold sleeping-rooms and breathing through the mouth must be guarded against; also sudden changes of temperature. Should these precautionary measures prove useless and the sufferer finds he has taken cold, or that the cough is simply returning, we must

endeavor to give as much relief as possible. This is best done by daily inhalations of vaporized Dobell's solution, or some other soothing vapor. The whole list of balsams are more or less beneficial, but their effect on the stomach is so disastrous that they can not be taken for any length of time. Each case will require a special selection of drugs. Terpin hydrate and creasote have given me the most satisfaction. The soreness and aching over the trachea and sternum are greatly benefited by—

℞ Olei sinapis sem. . . . . ℥x;  
Spt. vin. rect. . . . . ad  $\frac{3}{4}$  ss.

M. Sig.: Apply with camel's-hair brush twice a day.

Attention must be paid to the physical condition, and the organs kept in the best possible health.

Success with these cases depends more on the general management of the patient and persistency in treatment than on internal administration of drugs directed to the cough.

Nervous coughs must be treated according to their kind and cause. The accompanying symptoms and general history will decide this. When there is a local or reflex cause, the treatment must be directed to allay or remove the irritation. In one case I removed a piece of coal, weighing five grains, which had been imbedded in the external auditory canal against the tympanum for thirteen years. This cured the cough and asthmatical attacks from which the patient had suffered.

Abrasions of the nasal mucous membrane and also pressure in the nose frequently causes reflex coughs. It is usually not difficult to relieve these coughs, if the diagnosis has been correct.

The neurotic cough in girls with chlorosis and boys at the age of puberty is successfully treated with iron and sulphate of magnesia. Judicious bathing, exercise, and friction of the skin must also be employed. Counter-irritation in the ovarian region is sometimes useful, and a sea voyage may be necessary in some cases.

In adults, when the cough is due to a general neurasthenic condition, many plans may be tried without success. Tonics, combined with prolonged rest or a sea voyage, is the most satisfactory. Oxalate of cerium, if kept up for a long time, has relieved some cases. When the cough seems to have become a habit, there is little use of trying to stop it.

The coughs resulting from excessive indulgence in food and alcoholic beverages are benefited by a moderation of the cause.

Aperients and plenty of alkalies and alkaline drinks must be given. Spraying the throat twice a day with—

℞ Acid carbol. . . . . gr. j;  
Liq. hydrastis . . . . . ʒ j;  
Benzoinol. . . . . ad  $\frac{3}{4}$  j. M.—

allays the irritation. If there is any rheumatic or gouty history, it must receive attention in the treatment.

22 EAST FORTY-SECOND STREET.

**The Manhattan Dispensary.**—A new hospital building, at West One Hundred and Thirty-first Street and Tenth Avenue, was opened to inspection by an invited company on Thursday afternoon of this week.

## THE PHYSICIAN'S RESPONSIBILITY IN THE TREATMENT OF FRACTURES.\*

By GEORGE W. KING, M. D.,  
SURGEON TO THE MONTANA COMPANY (LIMITED), HELENA.

EVERY one who practices the healing art is expected to assume the responsibility of treating fractures; and no matter how serious or complicated the injuries, or under what adverse circumstances they occur, the exacting public require him to conduct his cases to a successful issue in every instance.

Accidents involving fractures are of common occurrence; and the majority of these cases naturally fall into the hands of the nearest or most available physician. He can not avoid them if he would. If he attempts to shirk the responsibility, when called upon to take charge of a broken limb, his skill in other lines of practice is questioned, and the inference quickly drawn that he is not a safe man to trust in any event. There is, therefore, no choice upon the physician's part—he must do the best he can, even though he knows he will be held personally liable for any defect in the healing of the injuries he undertakes to treat.

While the management of broken bones is usually regarded by the non-professional as a very simple affair, it is in reality one of the most difficult duties we have to perform. There are no other class of cases which furnish so many suits for malpractice, none in which the physician is so unjustly persecuted. There is certainly a wrong sentiment prevailing in every community in regard to the extent of the physician's liability. Who is to blame for this error? The physician himself, in so far as he fails to deal candidly with his patient, is to blame for promising to do what the ablest surgeons in the profession, with all the facilities at their command, have declared their inability to do—to blame for claiming more than the resources of his art will warrant. The consequences of so unwise a course are injurious in the extreme.

The patient who has been deceived by his physician in regard to the prognosis of his case becomes dissatisfied, and believes that he has been unskillfully treated, and very likely seeks advice elsewhere, and is probably told that better results could have been obtained by proper treatment. Are we not all too ready to encourage the public in believing that perfect results ought to be obtained after simple fracture, and that anything short of a complete cure is the physician's fault?

This belief, shared in a measure by physicians themselves, imposes an unnecessary hardship upon us all. When we come to understand, and are willing to admit, that deformity, with more or less impairment of function, is a common result after simple fracture under the most skillful treatment, less will be expected of us and impossible cures no longer required at our hands.

Unfortunately, in the treatment of fractures, the deficiencies of our art become more apparent than in other departments of our work. A failure to cure diseased condi-

\* Abstract of a paper read before the Medical Association of Montana, May 29, 1891.

tions of the human system by medical means is never considered sufficient ground for damages against the physician; but whoever is so unfortunate in his practice as to get a badly deformed limb, is doomed to be ever shadowed by its possessor (for he never dies, but remains waiting and watching in the hope that the doctor will accumulate property enough to make it worth while to bring a suit for damages).

What can the surgeon really do in the treatment of fractures? What are the limitations of his art? These are important questions, and have a direct bearing upon the physician's responsibility in law. Men of limited experience, who may have had the good fortune to treat a few cases of simple fracture, without displacement, and who have obtained good results, are misled by their success, and imagine themselves authorities upon the subject; and by their ignorance of the real conditions to be met with in more complicated cases, are capable of doing harm when they attempt to dictate to juries what should have been the proper treatment in a given case. Such evidence is manifestly incompetent; but it often has greater weight with the court and jury than the highest authorities in the land.

It is not to the ignorant and inexperienced that we look for guidance, but to those men whose opportunities for observing and experience in treating fractures give them the right to be heard. They all agree that shortening, with some deformity, after the fracture of long bones is the rule in practice, regardless of any of the plans of treatment now in use. Such statements from recognized authorities indicate what we may expect under the most improved methods of treatment, and we have only to refer to our individual experiences to confirm this statement in full.

It is certainly discouraging, after applying all the improved methods, to find that, somehow or other, broken limbs will unite with deformity when we have done our best to keep them straight, and, after all our care and anxiety, very likely involve us in costly litigation, because we were unable to restore the part to its original perfection. Were it possible to join broken bones as the artisan does wood and steel, by mathematical rule, there might be some excuse for so rigid an enforcement of the law. But instead of that we have a human being to manage, diseased conditions to treat, muscular action to overcome—conditions that in many instances are absolutely beyond our control. The more common deformities following fractures, such as are liable to occur in the practice of any one, are the cases that are paraded in court and exhibited to juries to enlist their sympathies and influence them to return a verdict against the physician.

Perfect results are seldom obtained by any or all methods now in use; but the law requires impossibilities of no man, only a reasonable performance of what he undertakes. The same rule applies to lawyers, engineers, machinists, and all other classes who transact business requiring special skill. The requirements of the law, as applied to the physician, are: First, that he possess "that reasonable degree of learning, skill, and experience ordinarily possessed by others of his profession"; second, that he use ordinary care in the treatment of the cases committed to him; third, that he use his best judgment in matters of doubt. He is not

responsible for want of success unless it is proved to result from want of ordinary skill or ordinary care. He is not responsible for errors in judgment or mere mistakes in matters of reasonable doubt.

These are the principles of common law, and if strictly adhered to would protect the medical profession from unjust and malicious persecution. We admit the fundamental principles of the law, but have a right to complain at the unjust discrimination in its practical application to physicians. Individuals of all other trades or professions can be guilty of negligence or want of skill, and are never punished. Should disease invade your home by reason of defective plumbing, should your carriage collapse suddenly from faulty construction and cripple you for life, would you expect to recover damages? Certainly not; such a case would be ruled out of court. Quacks and impostors ply their vocation in every community unmolested, while the skilled physician, who has spent years of study to qualify himself for his work, is held strictly accountable for every act, and his treatment overhauled in a court of justice upon the slightest provocation.

The facilities for bringing suit for malpractice are so great that no physician, however eminent, is safe. A pauper, a hungry attorney, and a quack doctor can get a case into court without the expenditure of a dollar.

The whole system by which the physician is tried is prejudicial to his interests. The jury is usually composed of ordinary men who think only upon ordinary subjects, and can not be expected to judge correctly upon matters pertaining to medical science. The attorney for the prosecution summons as experts those who will swear for his side, regardless of their standing in the profession—men who care nothing for truth or science, but who can, with assumed wisdom, assert their opinions with a positiveness that, in spite of all evidence to the contrary, is apt to secure a verdict for the plaintiff.

It is certainly an unsatisfactory application of law that compels the members of an honorable profession to suffer the indignity of being confronted in courts of law by ignorant pretenders, their good names tarnished, and the earnings of a lifetime squandered in defending themselves.

How can we, as an association, remedy this evil, or, at least, secure a better recognition of our rights? I believe that by united effort much may be accomplished. Do you know that every case of malpractice that comes into court is instigated by physicians or so-called doctors, who really prosecute the case for the plaintiff? This ought not to be; rather should each one strive to elevate the profession to which he belongs, and gladly lay aside all local jealousies to rally to the aid of a fellow-physician when unjustly assailed.

During the past year a verdict has been obtained against a member of this association. Of its injustice there is not the slightest doubt. Competent physicians testified as to the correctness of the treatment. There was no proof of a want of ordinary care and skill. Having established his innocence of these charges, nothing more in the line of defense is possible. The law requires no more, and yet the jury returned for the plaintiff, with damages of \$500. This is the kind of justice that physicians are con-

stantly receiving in our courts. Some modification in the system of trying malpractice suits is imperatively demanded. A board of arbitration, consisting of physicians and attorneys, men of scientific attainments, and, above all things, honest, is the only proper tribunal. Legislation requiring plaintiff to give bonds for costs is only a matter of simple justice to the physician. A committee, composed of members of the association who are willing to devote the time necessary to becoming thoroughly conversant with medico-legal technicalities, and to assist in defending those who require such aid, would prove much more satisfactory than the bungling manner in which these suits are usually conducted.

To one engaged in the unequal struggle of maintaining his right before the law, the sympathy of his professional brethren becomes a grateful assurance. It should be freely given to every worthy physician. Those who practice dishonorably, whose ways are dark and mysterious, have no claim upon us. These are the men who bring discredit upon the profession, and by their sharp methods create a feeling of distrust against all physicians.

In "the great conflict that is constantly going on between science and ignorance," it is to be hoped that the Medical Association of Montana will take the aggressive, and endeavor to protect the people and the profession by enforcing a higher culture that shall make the distinction so great that all may recognize the true physician from the impostor.

## HOT BLANKET PACKS IN THE TREATMENT OF FEVERS.

BY W. W. BREMNER, M. D.

THERE has lately been a considerable amount of discussion in regard to the Brandt treatment of typhoid fever, by which a patient is put into a bath of water of a temperature of 70° F., and, while the reported results seem fairly favorable, yet the treatment is apparently harsh and often difficult of application.

As, week by week, the great number of febrile diseases is reported by the Health Department, and with such a large proportion of deaths, I have felt impelled to bring before the profession a simple method of treatment for typhoid fever and any other febrile disease (especially scarlet fever and measles in children) which has been very successful in my hands and which is perfectly safe, comfortable, and easy of application, either in private or in hospital practice.

Take a blanket, just large enough to completely envelop the patient; fold it lengthwise twice; then roll it up into a moderately tight roll. Boil until dissolved two ounces of good soap in two quarts of water. Pour the boiling solution slowly into the center of the ends of the roll of blanket, stopping at intervals to clap the outside of the blanket to facilitate its thorough saturation. Either a cot beside the patient's bed, or half of the bed on which he lies, should be prepared by laying on it a Mackintosh sheet, over which is placed a large double blanket dry, so arranged as to come half-way up on the pillow, and thus be ready to completely and thoroughly surround the patient's neck. The patient should be undressed and have a loose blanket thrown over

him. All being in readiness, the roll should be laid at the bottom of the bed and quickly unrolled from below upward and spread out on the dry blanket. In about two or three seconds, judging the heat by the hand, place the patient upon the center of the hot wet blanket; two ordinary attendants can easily do this even when an adult is delirious. Wrap him up, with the arms inclosed, from both sides; first with the wet blanket and then with the double dry one, taking great care to make the dry one fit closely round the neck, and fastening it in position with a safety-pin. The feet must be well tucked up, and, if they are inclined to be cold, a hot-water bottle should be applied and inclosed in the outer coverings. If the room is cold, another quilt may be thrown over these coverings. A handkerchief squeezed out of cold water should be placed on the temples and renewed every few minutes, or an ice-bag applied to the whole head. The patient should be supplied with cold water to drink as often as desired.

The pack should be continued from one to two hours, according to the state of the temperature and the feelings of the patient; children often fall asleep during the application. The temperature will usually fall after it has been applied a little time, and, if the patient is delirious or comatose, intelligence will return more or less completely. The pack should be repeated twice or thrice daily until the temperature falls permanently below 101° F. When it is removed, the patient should be gently rubbed with a soft towel and replaced in the ordinary bedding.

The medicinal treatment in typhoid consisted in small doses of well-diluted hydrochloric acid, and the treatment of any symptoms that arose according to their indications: occasionally, when the diarrhoea was very troublesome, copious enemata of warm water were given once daily with marked benefit. In some cases the temperature seemed to be very little affected, but the same beneficial results followed. One very severe case of typhoid fever treated in this way in 1888 was that of a child fourteen months old. The case was given up by one of the leading physicians. The temperature was 105° F., and the child was comatose. The first pack was put on very wet and left on for three hours; it reduced the temperature to normal, and restored the child to sensibility. In about five hours the temperature again rose to 105° F., and insensibility returned; three packs daily, averaging two hours each, were given for eleven days before the temperature was reduced to stay below 101°. This child made a good recovery.

In scarlet fever and measles, to commence their treatment by one or two packs of this kind generally seems to quite break up the disease, and in a large private practice I can only recollect one death from scarlet fever during several years, when treated in this way, though in some epidemics there were very many deaths in the same district among children not so treated. This method of treatment has all the advantages of the cold-water applications without any of their drawbacks. There is no shock to the patients, and children have no fear of it; in fact, rather seem to enjoy it. The temperature can be lowered just as certainly as by the application of cold water, evaporation takes place from such a large surface.

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ASCENDING GONORRHOEA IN WOMEN.

If gonorrhœa in the male still presents many points upon which pathologists differ, the same affection in the female scarcely possesses a point upon which they agree. Ever since the promulgation of Noeggerath's famous dictum as to the relation existing between pelvic affections in women and latent gonorrhœa in men, pathologists have busied themselves in the attempt to trace the gonococcus of Neisser from its entrance into the vagina up to the uterus, the Fallopian tubes, the ovaries, and the pelvic peritonæum, and to explain the pathological processes found in these various organs as due to its presence. Many obstacles have surrounded these investigations, and some of them have appeared insurmountable. For instance, it has generally been held that the gonococcus had not the power of penetrating into pavement epithelium, and consequently had no power of exciting disease in serous structures. To explain, therefore, the pathological changes found in the peritonæum covering the tubes in cases of pyosalpinx undoubtedly due to the gonococcus, as shown by its presence in the tubes, it was assumed that there was a "mixed infection," and that *Staphylococcus aureus* and *Streptococcus pyogenes* were the pathogenic factors of the peritoneal affection. Experimental researches on the lower animals, which are usually of such great aid in similar investigations, were not resorted to, because it was known that the mucous membrane of the lower animals was not susceptible to the action of the gonococcus. The same immunity was inferred to exist in the case of the peritonæum.

If we are to accept Wertheim's investigations, published in a recent number of the *Archiv für Gynäkologie*, this inference was erroneous. He has succeeded quite readily in exciting peritonitis in mice and guinea-pigs by injecting pure cultures of Neisser's gonococcus into the abdominal cavity. Rabbits and rats were found to be less susceptible, and dogs quite insusceptible. In two cases, after laparotomy done on women, Wertheim found gonococci in the tubes, the ovaries, and the peritoneal tissues. Previous to that, no one had succeeded in finding gonococci in the inflammatory products of the peritonæum. The gonococci, according to this observer, pass to the peritonæum either directly through the walls of the Fallopian tubes, or through their abdominal openings. He has detected gonococci in every layer of the tubal tissues, and thinks he is justified in assuming that they may pass directly through these tissues to the peritoneal surface. It has also been hitherto maintained that the gonococcus was incapable of exciting inflammatory action in connective tissue. Wertheim's researches on the lower animals contradict this assertion. He has succeeded in several instances in setting up a virulent in-

flammation by injecting pure cultures of the gonococcus directly into the connective tissue of the lower animals experimented upon. In a few cases of pyosalpinx and ovarian abscess gonococci were the only bacteria found. On the strength of his experiments and investigations, Wertheim concludes that gonorrhœa in women does ascend to the uterus, to the tubes, to the ovaries, to the peritonæum, and into the tissues of the broad ligaments.

MINOR PARAGRAPHS.

"SUNDOWNERS."

This term, as our readers have been informed, is applied in Washington to physicians who, being employed during the day-time in some of the Government offices, devote their evenings to what medical practice they may succeed in picking up. These gentlemen are accused of "cutting rates," and in that and other ways they seem to have incurred the hostility of the other medical practitioners of the city. Perhaps as a consequence of this feeling, the Medical Association of the District of Columbia, we learn from the Washington newspapers, has incorporated in its by-laws the following declaration: "No graduate of medicine shall be eligible to membership in the association who shall not devote his entire time to the practice of medicine." The association has, of course, a perfect right to limit its membership in any such way as this, but it seems to us that the limitation, if strictly carried out, will deprive the association of the company of many gentlemen who would be an ornament to any medical body, and it is quite imaginable that some of the genuine "sundown doctors" might be of the number.

OIL OF EUCALYPTUS.

This oil has grown into such great demand in Europe that over twenty thousand pounds were exported from California in 1891. A sketch of the rather remarkable history of this commodity is given in the *Independent*, which dates the beginning of the cultivation of the tree in California from 1869. In that year fifty acres, near Haywards, were planted, chiefly for lumber purposes. Since then enormous numbers of the tree have been planted. About ten years ago the discovery was made that a decoction of the leaves of eucalyptus had the property of removing the scales of incrustation from boilers. While the engineers were preparing their anti-scale fluid they appeared to be cured of their ailments, such as bronchitis and asthma, and they started a factory or works for the extraction of the oil at San Lorenzo. From this, as a beginning, a very considerable industry has sprung up.

METHYLENE BLUE IN MALARIAL FEVER.

In the *Bulletin of the Johns Hopkins Hospital* for May there is a report by Dr. W. S. Thayer of seven cases of malarial fever treated with methylene blue. He concludes that it has a definite action in the disease, accomplishing the destruction of the specific organism, though less efficacious than quinine and failing in many cases in which the latter drug is efficacious. Methylene blue acts rapidly, the chills disappearing, and the temperature falling to normal in the first four or five days, though if a sufficient number of organisms resist the drug they develop again rapidly during its administration, and the malarial symptoms return. The drug seems to have no advantage over quinine that would warrant its further employment in malarial fever.

## THE UNIVERSITY OF VIRGINIA.

THE annual circular of this institution shows the organization of a summer faculty, for the private instruction of intending medical students and practitioners who desire to refresh their knowledge during the months of July and August. The courses of study are also arranged to suit the needs of those who are about to undergo an examination for the army or navy medical staff. The summer instruction is carried on both by lecture and by laboratory work.

## THE SUDDEN DEATH OF A BICYCLIST.

A YOUNG Englishman is reported to have died recently of cardiac angina, after overstrain in riding his "wheel." He had shortly before covered forty miles in very quick time, and was in training for a competitive or record-breaking contest; so that the competition rather than the bicycle must be held accountable for his death.

## ITEMS, ETC.

The **Massachusetts Medical Society** will hold its one hundred and eleventh annual meeting in Boston on Tuesday and Wednesday, June 7th and 8th, under the presidency of Dr. Amos H. Johnson, of Salem. The programme gives the following titles:

The Relations of Bacteria to Influenza, by Dr. Henry Jackson, of Boston; Pneumonia in the Recent Epidemics, by Dr. W. E. Fay, of Boston; The Nervous and Mental Sequelæ of Influenza, by Dr. P. C. Knapp, of Boston; A Revision of the Medical Nomenclature employed in the Vital Statistics of Massachusetts, by Dr. S. W. Abbott, of Wakefield; Bacteriological and Clinical Investigations into the New Antiseptic Dermatol, by Dr. A. K. Stone, of Boston; The Diagnosis and Treatment of Pott's Fracture of the Ankle, by Dr. L. A. Stimson, of New York; Acute Intestinal Obstruction (the Symptoms and Diagnosis, by Dr. F. C. Shattuck; the Surgical Aspects, by Dr. John Homans, Dr. J. C. Warren, Dr. G. W. Gay, Dr. M. H. Richardson, Dr. J. C. Irish, and Dr. A. T. Cabot); Résumé of 100 Cases at the Knowles Maternity, Worcester, by Dr. G. O. Ward, of Worcester; Alexander's Operation, by Dr. W. M. Conant, of Boston; Hydatidiform Moles, by Dr. G. A. Craigen, of Boston; The Treatment of Inflammatory Diseases of the Falloppian Tubes, with Cases, by Dr. Edward Reynolds, of Boston; the Shattuck Lecture, by Dr. J. F. Alleyne Adams, of Pittsfield; The General Practitioner as a Gynæcologist, by Dr. W. H. Pierce, of Bernardston; An Outbreak of Trichinosis in Colerain, by Dr. F. H. Drew, of Shelburne Falls; The Treatment of Compound Fractures by Modern Methods, with a Demonstration of "putting up" adapted to Private Practice, by Dr. H. L. Burrell and Dr. E. W. Dwight, of Boston; and The Annual Discourse, by Dr. Frank W. Draper, of Boston.

The **Medical Society of the County of New York**.—The programme for the meeting of Monday evening, May 23d, included a paper on Plaster Models of Skin Diseases and of Pathological Objects, by Dr. W. S. Gottheil; a Note on the Treatment of Cholera, by Dr. C. L. Dana; and a paper on Infant Feeding, with Special Reference to Hot Weather, by Dr. H. D. Chapin.

The **New York Dermatological Society**.—At the annual meeting, on Tuesday evening of this week, officers for the ensuing year were elected as follows: President, Dr. George T. Elliot; secretary and treasurer, Dr. Hermann G. Klotz; members of the executive committee, Dr. George H. Fox, Dr. Robert W. Taylor, and Dr. Daniel Lewis.

A **Monument to Dr. Coste**, according to the *Union médicale*, was recently inaugurated in a little village of the department of the Ain. Our contemporary does not mention which Coste it is whose memory is thus honored, but it speaks of him as the friend of Voltaire, of Choiseul, of Washington, and of Goujon. From this we infer that it is Jean François, who figured in the American Revolution, and not the great embryologist.

The **Death of Dr. John K. Ambrose**, formerly of Staten Island and Brooklyn, took place at his home on Madison Avenue on May 17th. He was a native of Ireland, and about fifty-six years old. He was a graduate of the Long Island Medical College. He served as coroner in Richmond County for six years. Until quite recently he was a medical sanitary inspector of the board of health.

The **Death of Professor Wilhelm Braune, of Leipsic**, is announced in the *Lancet* as having taken place on the 29th of April. He was in his sixty-first year.

The **Death of Dr. Pliny Earle**, of Northampton, Mass., on the 17th inst., removes one of the foremost of American alienists. He was born at Leicester in 1809. In 1837 he was graduated from the University of Pennsylvania. He entered into practice in Philadelphia, but soon afterward accepted the post of resident physician to the Friends' Asylum for the Insane at Frankford. In 1844 he was called to the Bloomingdale Asylum, and a few years later became visiting physician to the county buildings on Blackwell's Island. In 1848 he published his well-known history and statistics of Bloomingdale Asylum. In 1864 he received his appointment as superintendent of the State Asylum at Northampton, where he made a name for himself in psychopathic medicine wider than his State and country. His contributions to medical literature have been numerous, chiefly but not solely in the field of the treatment of the insane. Many of his papers were published in the *American Journal of Insanity* and the *American Journal of the Medical Sciences*. Some of these papers have been republished in book and pamphlet forms. He was a member of many scientific societies at home and abroad, also president of the New England Psychological Society. He was one of the early members of the American Medical Association.

**Change of Address**.—Dr. Horatio F. Wood, to the Masonic Temple, corner of State and Randolph Streets, Chicago.

**Army Intelligence**.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from May 15 to May 21, 1892:*

LIPPITT, WILLIAM F., Jr., First Lieutenant and Assistant Surgeon, upon being relieved from duty at Fort McPherson, Georgia, will report in person to the commanding officer, Camp Eagle Pass, Texas, for duty at that post, relieving RAFFERTY, OGDEN, First Lieutenant and Assistant Surgeon. First Lieutenant OGDEN Rafferty, on being relieved by First Lieutenant Lippitt, Jr., will report in person to the commanding officer, Alcatraz Island, Cal., for duty at that post.

BAILY, JOSEPH C., Colonel and Surgeon, is granted leave of absence for six months, on surgeon's certificate of disability, with permission to leave the Department of Texas.

PURVIANCE, WILLIAM E., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Riley, Kansas, and will report in person to the commanding officer, Jefferson Barracks, Missouri, for duty at that post.

WINTER, FRANCIS A., First Lieutenant and Assistant Surgeon, is relieved from duty at Jefferson Barracks, Missouri, and will report in person to the commanding officer, Fort Riley, Kansas, for duty at that post.

HUNTINGTON, DAVID L., Major and Surgeon, is relieved from duty in New York city, to take effect on the final adjournment of the Army Medical Board, and will then proceed to Los Angeles, Cal., and report in person to the commanding general, Department of Arizona, for duty as Medical Director of that department, relieving SMITH, JOSEPH R., Colonel and Surgeon. Colonel Smith, on being relieved by Major Huntington, will proceed to San Francisco, Cal., and report in person to the commanding general, Department of California, for duty as medical director of that department.

A board of medical officers, to consist of FORWOOD, WILLIAM H., Lieutenant-Colonel and Surgeon; GIBSON, JOSEPH R., Major and Surgeon; and TERRILL, HENRY S., Captain and Assistant Surgeon, is appointed to meet at West Point, N. Y., June 1, 1892, or as soon thereafter as practicable, for the physical examination of the cadets of the graduating class at the U. S. Military Academy, and such other cadets of

the Academy and candidates for admission thereto as may be ordered before it.

- KIMBALL, JAMES P., Major and Surgeon. The leave of absence granted is extended one month.
- SHAW, HENRY A., First Lieutenant and Assistant Surgeon, is granted leave of absence for two months, to take effect June 25, 1892, or as soon thereafter as his services can be spared.
- SETER, WILLIAM N., Assistant Surgeon, to be Assistant Surgeon with the rank of Captain, May 16, 1892, after five years' service, in accordance with the act of June 23, 1874.
- DE WITT, THEODORE F., First Lieutenant and Assistant Surgeon, resigned May 16, 1892.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending May 21, 1892:*

- BABIN, H. J., Surgeon, and DRENNAN, M. C., Passed Assistant Surgeon, ordered to Naval Academy to examine the physical condition of candidates for admission to Naval Academy.
- BIDDLE, CLEMENT, Passed Assistant Surgeon. Ordered to Marine Rendezvous, Philadelphia, Pa.
- ECKSTEIN, H. C., Surgeon. Detached from Marine Rendezvous, Philadelphia, Pa., and to wait orders.
- WELLS, HOWARD, Surgeon. Ordered to the training-ship Portsmouth.
- STOUGHTON, JAMES, Assistant Surgeon. Detached from the Portsmouth and ordered to the Constellation.
- MARSTELLER, E. H., Passed Assistant Surgeon. Detached from the Naval Academy and ordered to the Constellation.
- FIELD, JAMES G., Assistant Surgeon. Granted one year's sick leave.
- HORWITZ, P. J., Medical Director (retired). Granted six months' leave to go abroad.
- LOVERING, P. A., Surgeon. Detached from the U. S. Steamer Philadelphia and granted two months' leave of absence.
- CRANDALL, R. P., Passed Assistant Surgeon. Detached from the Naval Laboratory, Brooklyn, N. Y., and ordered to the U. S. Steamer Philadelphia.
- BOGERT, E. S., Jr., Assistant Surgeon. Detached from the Coast Survey Steamer Blake and ordered to the Naval Laboratory, Brooklyn, N. Y.
- GUTHRIE, J. A., Assistant Surgeon. Detached from Port Royal Station, S. C., and ordered to the Coast Survey Steamer Blake.
- ECKSTEIN, H. C., Surgeon. Granted leave of absence for six months.

**Marine-Hospital Service.**—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the two weeks ending May 21, 1892:*

- MURRAY, R. D., Surgeon. Granted leave of absence for fifteen days. May 14, 1892.
- HAMILTON, J. B., Surgeon. Granted leave of absence for eleven days. May 20, 1892.
- GASSAWAY, J. M., Surgeon. Granted leave of absence for ten days. May 10, 1892.
- GODFREY, JOHN, Surgeon. When relieved as Medical Inspector of Immigrants, to resume command of station at New York. May 11, 1892.
- IRWIN, FAIRFAX, Surgeon. To proceed to New Bedford, Mass., on special duty. May 17, 1892.
- CARTER, H. R., Surgeon. To proceed to Gallipolis, Ohio, on special duty. May 18, 1892.
- WHEELER, W. A., Surgeon. Detailed as Medical Inspector of Immigrants, port of New York. May 11, 1892.
- BANKS, C. E., Passed Assistant Surgeon. To assume command of service at Portland, Maine. May 11, 1892.
- DEVAN, S. C., Passed Assistant Surgeon. To assume command of service at Norfolk, Va. May 11, 1892.
- PERRY, T. B., Passed Assistant Surgeon. To assume charge of Cape Charles Quarantine Station. May 14, 1892.
- WOODWARD, R. M., Passed Assistant Surgeon. Granted leave of absence for five days. May 16, 1892.
- VAUGHAN, G. T., Passed Assistant Surgeon. Detailed as recorder of Board for the physical examination of candidates, Revenue-Marine Service. May 9, 1892.

WERTENBAKER, C. P., Assistant Surgeon. Granted leave of absence for seven days. May 10, 1892.

HOUGHTON, E. R., Assistant Surgeon. To assume command of service at Vineyard Haven, Mass. May 11, 1892.

**Society Meetings for the Coming Week:**

TUESDAY, *May 31st*: American Surgical Association (first day—Boston); Medical Association of Central New York (Syracuse); Medical Societies of the Counties of Queens (annual—Mineola) and Rockland (annual), N. Y.; Boston Society of Medical Sciences (private).

WEDNESDAY, *June 1st*: American Surgical Association (second day); Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Societies of the Counties of Cattaraugus (annual) and Richmond (Stapleton), N. Y.; Penobscot, Me., County Medical Society (Bangor); Orleans, Vt., County Medical Society (annual); Bridgeport, Conn., Medical Association; Philadelphia County Medical Society.

THURSDAY, *June 2d*: State Medical Society of Arkansas (first day—Little Rock); Oregon State Medical Society (first day—Portland); Rhode Island Medical Society (first day—Providence); American Surgical Association (third day); New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, *June 3d*: State Medical Society of Arkansas (second day); Oregon State Medical Society (second day); Rhode Island Medical Society (second day); Baltimore Clinical Society.

SATURDAY, *June 4th*: American Academy of Medicine (Detroit); State Medical Society of Arkansas (third day); Oregon State Medical Society (third day); Clinical Society of the New York Post-graduate Medical School and Hospital; Miller's River, Mass., Medical Society; Manhattan Medical and Surgical Society (private).

**Answers to Correspondents:**

No. 332.—See an article by Dr. Vaughan, in the *Transactions of the Ninth International Medical Congress*.

## Proceedings of Societies.

### NEW YORK ACADEMY OF MEDICINE.

SECTION IN ORTHOPÆDIC SURGERY.

*Meeting of April 15, 1892.*

Dr. HENRY LING TAYLOR, Chairman.

**Hip-joint Disease.**—Dr. LEWIS A. SAYRE said that in his paper read at the last meeting (see page 477) he had referred to a case of hip disease that he had seen in consultation with Sir James Paget and Mr. Adams, of London, in which it had generally been considered that recovery could not take place without ankylosis and deformity. He was fortunate in having the opportunity of presenting the patient at this meeting. The man could place the feet on a table, could squat down, and, in fact, could perform every motion so well that it was difficult to tell which had been the diseased hip.

**The Effect of Persistent Motion.**—Dr. JOHN RIDLON exhibited a girl, nine years old, who had come to him at the Vanderbilt Clinic on April 23d. Eight months previously she had received an injury to the right elbow, which was diagnosed as a "fracture of the coronoid process of the ulna, and a dislocation backward of the radius and ulna." She was attended by a well-qualified practitioner. The arm was immobilized for

about four weeks, and then passive motion was begun. Twice daily the forearm was flexed and extended on the arm to the limits of tolerance, and twice weekly, under an anæsthetic, the forearm was flexed and extended to the normal limits of motion. This treatment was faithfully continued for seven months, during which time the range of motion gradually became more restricted, the joint more and more swollen and more painful under the attempts at motion. Examination showed the forearm flexed on the arm to a right angle, much swelling about the joint, enlargement of superficial veins, and atrophy of the muscles of the arm and forearm. The swelling had a pulpy feel, but no point of fluctuation could be detected. The bony points were so obscured that the exact nature of the injury could not be determined. There was no motion at the joint, and attempts at motion caused pain and intense muscular spasm. In the treatment adopted the head was bent down, and the wrist put into a "halter" made of a roller bandage knotted around the wrist and neck. The slack of this was taken up as the rigidity yielded, and at the end of two weeks the joint could be flexed completely. In this position the joint was held without motion being once permitted or tested for eleven months. The pain disappeared, the swelling gradually subsided, and when the halter was removed there was found to be free, painless motion from a right angle to normal flexion. Since then there had been no treatment, and the range of motion in the direction of extension was gradually increasing.

Dr. W. R. TOWNSEND said that this girl had been brought to the Hospital for the Ruptured and Crippled about two years ago by her attending physician, who said that passive motion had been made under ether anæsthesia about three times a week since the fracture to prevent ankylosis. Dr. W. T. Bull, who had seen the case in consultation, had agreed with the speaker in advising rest. The attending physician dissented from this view, but finally said he was willing to give the joint rest for a limited time if he was relieved from all responsibility as to the result. The case was accordingly treated in the hospital with a plaster-of-Paris splint for about four weeks, when the mother objected to a continuance of this treatment. Dr. Bull again saw the case in consultation, and the opinion was then expressed that there was a beginning osteitis, and that if motion was kept up, the child would undoubtedly have a stiff elbow. The patient and doctor dissented again, and wished passive motion made; so she was then discharged from the hospital outpatient department.

Dr. S. KERON said that if the arm was moved beyond a certain point, especially in rotation, there was reflex spasm, and he thought there was still some active disease in the elbow joint. He asked if the halter allowed of pronation and supination.

Dr. RIDLON replied that the halter did not prevent these motions, but, so far as his experience with it had gone, when properly applied under the clothes, the children, as a matter of fact, did not attempt to make these motions.

**A Case for Diagnosis** was presented by Dr. RIDLON. A man, thirty-four years old, had come to him at the Vanderbilt Clinic on February 15th. For two weeks he had been stooping and stiff in the lumbar spine, with pain in the back and lower abdomen, and, at times, down the front of the thighs. Seven years before, he had had a similar attack, at which time, after suffering for four weeks, he went to the dispensary of an orthopædic institution in New York, where the diagnosis was made of Pott's disease and a Taylor spinal brace applied. He remained in bed for two months, wearing the brace, but without any relief. He was then admitted into the St. Francis Hospital, where a blister was applied, and the pain was immediately relieved. At the end of two weeks he was quite well again, and

had remained so up to the present attack. Examination revealed the whole lumbar spine curved backward and rigid; there was psoas contraction on the left side, but none on the right; and there was a doubtful fullness in the left iliac fossa. He was treated with antirrhematic remedies, and soon showed improvement, and in the course of a few weeks felt entirely well. There was now no spinal curvature, no rigidity, no psoas contraction, and the patient was quite well, except that at times after long sitting over a bench at his work he felt some stiffness of the back.

**An Inexpensive Head Support.**—Dr. ROYAL WHITMAN showed a support that he had devised for a child with mid-dorsal disease, in whom there was a tendency for the shoulders and the whole body to droop forward. The support consisted of a curved piece of steel attached to the back of the brace used in connection with lateral pads for holding the shoulders back, a form of apparatus which he had already exhibited and described.

Dr. V. P. GIBNEY then exhibited a series of operative cases, including one of ankylosis of the hip after typhoid fever, one of excision of one hip in a case of double hip disease where sacro-iliac disease was first diagnosticated, one of excision of the hip, a case for diagnosis (probably one of subacute rheumatism), and one of atonic knock-knee.

**Some of the Indications for Operative Interference in Orthopædic Surgery.**—A paper with this title was read by Dr. GIBNEY. The paper dealt first with the range of orthopædic surgery as held by the majority of surgeons practicing this specialty throughout the world. The author commented on the brilliant results obtained by general surgeons in many cases that were strictly orthopædic, and emphasized the importance of supplementing operative procedures with mechanical appliances. It was suggested that orthopædic surgery might be advanced if as much time was devoted to the clinical history and the pathology of the disease which produced deformity as to the devising of splints and modifications of splints. The importance of devising splints to suit individual cases and to meet certain conditions was regarded as an important part of orthopædic surgery. It was stated that the orthopædic surgeon seldom had an opportunity of putting a splint on a patient in the very first stage of the disease; that many of the cases of what was called early hip disease were not early cases, but that deformity had already arisen when they came to mechanical treatment. The same was true of Pott's disease of the spine. Some of the indications for operative interference were mentioned, such as the correction of deformity in these early hip cases by manual force under ether anæsthesia, by division of tendons and muscles, if the correction were difficult; and in the advanced cases, where the disease was fully arrested, osteotomy below the trochanter minor was suggested as a valuable addition to therapeutics. With regard to abscesses, incision was urged if four or five aspirations failed to relieve. It was further suggested that old sinuses and pockets of pus should be treated by operative interference. Operative interference in spinal disease was not recommended except where a severe trauma had fractured the lamina and where pressure had resulted. In these cases laminectomy was advised, but it was suggested that in many instances of this kind the ordinary mechanical treatment proved of valuable service. In disease of the knee partial arthroectomy was advised in preference to complete arthroectomy or to excision, especially in children. In the internal derangements of the knee operative interference was advised rather than the prolonged use of apparatus and fixation splints. In synovial disease, pure and simple, an occasional aspiration of the joint, with strapping, was regarded as good practice.

Dr. L. A. SAYRE said that the paper covered too broad a field to admit of discussing it in detail, but in general the author had expressed his own views most accurately.

Dr. RIDLON did not consider that the element of time was very important, except in those uncommon cases where it was the difference between a few weeks and several years. On the principle of leverage, he had been able to reduce the deformity in some of the very worst cases of hip-joint disease in a few hours or a few days as safely by mechanical means as by operation. It was only the question between a few days following an operation and a few days more with mechanical treatment, and under these circumstances we should not think of doing a cutting operation. In all cases of disease of the hip or of the knee leverage reduction would accomplish the result as well as an operation.

Dr. KETCH said that, while theoretically the orthopædic surgeon should be a good general operating surgeon, in practice he was not frequently called upon to perform operations, and hence could not be expected to be as skillful manually as surgeons who were constantly operating, and on this a natural division of labor was founded. He inferred from the paper that the author must have met with a class of cases in which it was unusually difficult to reduce the flexion, for, as a rule, there was no special difficulty about reducing this deformity, provided sufficient time was allowed. Forceful leverage or stretching added an unnecessary risk, as there was no way of accurately gauging the amount of force employed, and hence there was danger of inflicting traumatism which would result in lengthening the course of the disease and causing a speedy return of the deformity.

Dr. TOWNSEND thought there was one class of cases in which mistakes were likely to follow mechanical treatment, but which yielded brilliant results after operation—viz., the so-called peri-articular abscesses. Such an abscess situated outside of the hip joint often gave rise to symptoms simulating hip disease, and if it was not treated by operation there was great danger of its opening into the joint.

Dr. L. W. HUBBARD indorsed what Dr. Ketch had said about the treatment of deformity in the early stages; he had found that the reduction was usually quite rapid. He had never seen a case of hip disease in any stage, where there was motion, in which the deformity could not be reduced by position and traction in a short time, usually not over six or eight weeks. He could not see the force of the remarks just made about peri-articular abscesses, for they were just as likely to open externally as internally, and, as a rule, they healed quickly without operation.

Dr. H. W. BERG said that had it not been for careful attention to mechanical details such important orthopædic appliances as the plaster jacket, the long splint, and the Taylor brace would not have been known; yet orthopædic surgery should be broad enough to include within its scope both mechanical and operative treatment.

Dr. N. M. SHAFFER thought that many of the conditions described should necessarily come under the care of the general, and not the orthopædic, surgeon. We were all agreed, however, that the orthopædic surgeon should be competent to perform all the operations of general surgery, just as he should be able to diagnosticate typhoid fever, the exanthemata, etc. But it did not follow, because the orthopædist was prepared to perform these operations, or to diagnosticate the diseases coming under the care of the physician, that he should do either the one or the other, unless circumstances made it absolutely necessary. The speaker would have orthopædic surgeons devote themselves to the science and art of the mechanical treatment of deformities, using operative surgery as an adjunct to the mechanical work, rather than, as many were prone to do, make the me-

chanical part a sort of kite-tail to operative surgery. There was so much to be learned and so much to be developed in the continually broadening field of mechanical treatment that there seemed to be no excuse for the present tendency of orthopædic surgery to invade the well-recognized boundaries of general surgery. The tendency ought to be the other way, if orthopædic surgery was to succeed as a specialty.

Dr. R. H. SAYRE said that orthopædic surgeons should be competent to take charge of a case from the beginning to the end, whether it required mechanical or operative treatment. Limiting orthopædic surgery to the use of apparatus was like limiting the oculist to the application of glasses for the correction of refractive errors.

Dr. WHITMAN was unable to see the force or the application of Dr. Shaffer's remarks on the paper of the evening. A specialist was one by reason of the class of cases he treated, not because of the means he employed. The broadening field for this specialty was the study of the ætiology, development, and cure of deformities; the study of the course, complications, and ultimate results of joint diseases. Treatment must vary with the social environment of the patient and the severity and duration of the disease or deformity, and the most successful surgeon was the one who could best adapt the means to the end to be accomplished. Early diagnosis and efficient treatment would to a great extent obviate the necessity for operations, and it was proper for one who could select his cases to devote himself exclusively to mechanical treatment. On the other hand, many chronic and desperate cases of disease and deformity were brought to the institution with which he was connected. These patients would be neglected at home and rejected at general hospitals. Mechanical treatment alone in this class was ineffective, unless supplemented by an operation, which was often a necessary and a life-saving procedure. This exaltation of mechanics was opposed to the best interests of the patients, since, in the minds of many, mechanical and operative treatment, which were mutually dependent, were contrasted and opposed to one another; thus, on the one hand, patients were subjected to early and unnecessary operation and afterward neglected, and, on the other, the benefits of legitimate surgical interference were not appreciated. Why a broader and, as it seemed to him, more rational view of the subject need prevent the study and appreciation of mechanical supports was not apparent. Believing that disease was to be treated in its entirety, and not in phases, he was unable to accept the limitations that Dr. Shaffer would impose on the future development of orthopædic surgery.

The CHAIRMAN said that, if the orthopædic surgeon must be familiar with operative methods, as undoubtedly he must, he should also be a competent neurologist, for just as serious mistakes would follow ignorance of this subject as ignorance of operative surgery. Certain limitations were naturally placed upon one's practice, depending upon whether it was private or dispensary or hospital practice, for in the latter it was often not the best ultimate result, but the best that could be obtained within a limited time or with limited means, that must decide the plan of treatment to be adopted. The author's directions in regard to the reduction of the deformity in joint disease, and especially in certain stages of hip disease, while perhaps successful with him, would be exceedingly dangerous if followed by the general practitioner.

Dr. GIBNEY said that the great drawback to letting the general surgeon operate in orthopædic cases was that one frequently lost sight of the patients, and they were accordingly allowed to go without the use of protective apparatus and that careful treatment after operation which was necessary to insure a good result.

## NEW YORK SURGICAL SOCIETY.

*Meeting of December 23, 1891.*

The President, Dr. ARPAD G. GERSTER, in the Chair.

**Excision of the Hip for Disease.**—Dr. V. P. GIBNEY presented two cases. The first was that of a boy, four years and a half old, admitted into the hospital on June 30, 1888, with disease of a year's standing. At that time he was unable to walk, and stood with his weight on the left limb, with the right leg flexed at the hip and knee and adducted. There were two deep cicatrices on the posterior aspect of the hip, with two open sinuses having everted edges, and there was marked induration about the hip. The angle of greatest extension was  $135^\circ$ , that of greatest flexion  $120^\circ$ , and there was adduction over an arc of about  $24^\circ$ . The distance from the anterior superior spinous process of the ilium to the lower border of the inner malleolus was sixteen inches on the right side, seventeen inches and a quarter on the left side; the distance from the umbilicus to the lower border of the inner malleolus was sixteen inches on the right side and nineteen inches and three quarters on the left side. He had been operated on six months before in Worcester, Mass. His general health was poor. Excision was performed on July 17th, the femur being divided below the trochanter major. An effort was made to remove all the diseased bone within reach, and the acetabulum was thoroughly curetted. The limb was put up in plaster of Paris after a full antiseptic dressing. The highest temperature was  $102.4^\circ$  F. This was on the second day. It fell a point on the third day and after that did not rise above  $101.2^\circ$ . The splint was kept on for three months. On the 25th of August there remained a small sinus. On November 25th, the sinuses persisting, the patient was etherized and the tract of the sinus was curetted and injected with an ethereal solution of iodoform. By the 4th of January, 1889, the sinuses had closed. They opened again on the 8th and remained open until the 29th of May. On the 26th of January his limb could be extended to  $180^\circ$  and flexed to  $140^\circ$  without using force. Shortly after this he was attacked with measles and was sent to the Riverside Hospital, where he remained until the 22d of February, wearing his splint during the whole time. On the 13th of July the power of flexion was not quite so good, and that of extension was not equal to what it had been at the last measurement. The limb was parallel with its fellow and the cure seemed about complete. He spent the summer in the country, and in September the splint was removed. At the date of his discharge, October 10th, the angle of greatest extension was  $180^\circ$  and that of greatest flexion  $130^\circ$ ; adduction, abduction, and rotation were about half normal. The distance from the anterior superior spine of the ilium to the lower border of the inner malleolus was seventeen inches and a half on the right side and eighteen inches and three quarters on the left side; the distance from the umbilicus to the lower border of the inner malleolus was twenty inches and a half on the right side and twenty-one inches and a half on the left side. In other words, he had an inch and a quarter of real shortening and one inch of practical shortening. The thigh was three quarters of an inch shorter than its fellow, the knee half an inch, and the calf half an inch. The speaker had examined him again on December 19, 1891, and found his general condition excellent; he walked with a limp, but freely. The distance from the anterior spine of the ilium to the lower border of the inner malleolus was twenty inches and a half on the right side and twenty-two inches and a half on the left side; the distance from the umbilicus to the lower border of the inner malleolus was twenty-four inches and a half on the right side and twenty-five inches and a quarter on the left side; that is, there were two inches of

real shortening and three quarters of an inch of practical shortening. His thigh was an inch and a half smaller than its fellow, the knee three quarters of an inch, and the calf an inch. The angle of greatest extension was  $160^\circ$  and that of greatest flexion  $110^\circ$ . He had had no relapse since leaving the hospital.

The second case was that of a boy, four years and a half old, admitted into the hospital on February 13, 1890. His disease dated from June, 1888. In August, 1888, a splint had been applied in the out-patient department and had been worn since that date. A blow upon the hip in January, 1890, had done much injury, to all appearances, and he came into the hospital with the hip flexed at an angle of  $100^\circ$ , with great pain, and allowing of no motion. [A photograph was exhibited, showing his attitude at the time of admission.] The distance from the anterior superior spine of the ilium to the lower border of the inner malleolus was sixteen inches and a quarter on the right side and the same on the left side; the distance from the umbilicus to the lower border of the inner malleolus was seventeen inches and a quarter on the right side and seventeen inches on the left side; the right thigh was nine inches in circumference, the left thigh eight inches and a half; the right knee eight inches and three quarters, the left knee seven inches; the right calf six inches and three quarters, the left calf six inches. He was put to bed and a weight-and-pulley apparatus was applied with an inclined plane, but at the end of the month his condition was worse. The inflammation was very active, and on the 16th of May excision was done. Half an inch of the upper end of the femur was removed, along with what remained of its head, and the acetabulum was thoroughly curetted. Care was taken to remove with the scissors the soft tissues wherever they seemed to be affected. A counter-opening was made, a drainage-tube was inserted, and the hip was put up in full dressing with a plaster-of-Paris spica. On July 2d, less than two months after the operation, the operation wound had healed and a hip splint was applied. It was found that the knee was in marked recurvation, and a piece was attached to the splint whereby this could be corrected. The distance from the anterior superior spine of the ilium to the lower border of the inner malleolus was seventeen inches and a quarter on the right side and seventeen inches on the left side; the distance from the umbilicus to the lower border of the inner malleolus was nineteen inches and three quarters on each side; that is, there was three quarters of an inch of real shortening, but no practical shortening. The thigh, knee, and calf were each half an inch smaller than on the opposite side. He went to Saratoga for the summer and returned in the autumn, when the measurements were unaltered. On October 1st the angle of greatest extension was  $135^\circ$ , that of greatest flexion  $160^\circ$ . On November 5th a convalescence hip splint was applied. On February 25, 1891, the splint was removed and a shoe was employed with the sole a quarter of an inch thicker than that of the other shoe. On the 23d of March the boy had a fall, striking on his hip, and this caused some pain after a few days. On the 25th he was attacked with whooping-cough. In May, 1891, he had a sub-maxillary abscess, which was opened and soon healed. While he had the whooping-cough his splint was reapplied, and it was removed again in June. He seemed so weak in his hip that the convalescence splint was retained and he was discharged on the 9th of September. At that time the angle of greatest extension was  $150^\circ$ ; very little motion was presented; there was a little reflex spasm, also some tenderness. The distance from the anterior superior spine of the ilium to the lower border of the inner malleolus was eighteen inches and a quarter on the right side and seventeen inches and a half on the left side; the distance from the umbilicus to the lower border of the inner malleolus was twenty inches and a quarter on the right side and

nineteen inches and three quarters on the left side; that is, there was half an inch of both real and practical shortening. The thigh was three quarters of an inch smaller than its fellow, and the knee and calf each half an inch. He had been very active since leaving the hospital, and was examined again on the 19th of December. At that time the distance from the anterior superior spine of the ilium to the lower border of the inner malleolus was eighteen inches and a half on the right side and eighteen inches on the left side; the distance from the umbilicus to the lower border of the inner malleolus was twenty-one inches on the right side and twenty inches on the left side; the right thigh measured eleven inches and the left thigh eight inches and a quarter; that is, the left thigh had lost two inches and three quarters in circumference and the knee and calf each half an inch. The angle of greatest extension was  $155^{\circ}$  and that of greatest flexion  $140^{\circ}$ . There was some genu recurvatum.

**External Urethrotomy as a Preliminary to an Operation for Inguinal Hernia.**—The PRESIDENT presented a child on whom he had operated for the cure of double inguinal hernia after doing a preliminary external urethrotomy, which prevented contamination of the dressing by the urine. The urethral opening had proved a distinct advantage and the case was very satisfactory, as there was no sign on either side of a return of the hernia. Silver-wire sutures had been used to approximate the pillars of the ring. These had been removed from one side on account of suppuration due to an attack of scarlet fever; on the other side they had not produced any irritation.

Dr. F. LANGE recommended silkworm gut as a substitute for silver or copper wire for the closure of the ring. It was stronger, softer, and more elastic, consequently not so apt to cause mechanical irritation.

**Fæcal Fistula following Perityphlitis.**—Dr. CHARLES McBURNEY showed a patient on whom he had operated for the cure of a fæcal fistula resulting from a perityphlitic abscess. The operation had resulted in a complete cure.

**Perityphlitis.**—The PRESIDENT emphasized the necessity of early diagnoses and operations in perityphlitis. He observed fæcal fistula resulting from this affection only where the abscess was allowed to persist for a comparatively long time. The intestine forming part of the abscess wall was apt to slough if subjected to great tension by the abscess contents. Only recently he had observed a fatal and very extensive necrosis of the ascending colon, where a very large abscess was allowed to extend upward until the pus bathed the lower surface of the liver. Though the abscess was incised and drained on the tenth day after the inception of the trouble, the patient died with intensely septic symptoms, as the cause of which post-mortem examination revealed a slough of the colon three square inches in extent.

Dr. LANGE thought that the case narrated by the President had been one of those in which, on account of the anatomical position of the appendix, the abscess had developed behind the colon and had perforated into the retroperitoneal tissue. It was possible to approach these abscesses, even before their perforation, by a lumbar incision parallel to the crest of the ilium, which he had done in several cases. He had also operated in two cases in which, after infection of the retroperitoneal tissue, extensive sloughing had taken place. In one of these, for some time after the operation, fæcal extravasation of moderate amount had occurred, but the patient had eventually recovered. The other patient had been operated upon about four weeks ago and was now doing well and out of danger. In this case suppuration had extended as far up as the diaphragm. The speaker emphasized the advantage of proceeding against perityphlitic abscess, if possible, without opening into the free peritoneal cavity. He also mentioned one very severe case, still

under his care, which he had seen on the 25th of November, in consultation with Dr. Nicolai, thirty hours after the onset of the symptoms. This patient had septic peritonitis advancing so rapidly that in the course of an hour the physician had been able to observe a decided increase in the exudation. The pulse was 160, the temperature more than  $104^{\circ}$ , and the patient weak. Such patients were most apt to go into collapse after laparotomy and a radical operation. In this case he had perforated the rectovesical recess of the peritonæum through the anterior wall of the rectum, and had given vent to several ounces of stinking pus. The symptoms abated promptly and sufficiently to admit of laparotomy two days later, with removal of the appendix, which showed perforation near the point of its insertion into the colon. Fourteen days later a third operation was done for an encysted abscess below the lower border of the liver, and since then the patient had been without fever and was doing well. He had had fæcal discharges from the first abdominal wound for about a week, owing, probably, to the cutting through of the ligature of the appendix, which had had to be applied almost within the wall of the colon, on account of the perforation being so close to the latter. To the speaker this case had been very instructive in his effort to gain time, by a quick process which was not fraught with danger, for a radical interference, which the patient most probably would not have borne when suffering under the depressing effect of the acute process.

**Statistics of Operations upon Tuberculous Hip Joints.**—Dr. CHARLES T. POORE read a paper with this title (see page 449).

Dr. LANGE asked whether the author or any other member of the society had found symptoms which pointed to the localization of the osteitic process before perforation into the joint, so that one could say whether the femoral or the iliac constituent of the joint was affected. Dr. Poore had trephined the neck through the trochanter in a number of cases. What had led him to suppose that he would find the focus there? The speaker's own experience had convinced him that acetabular coxitis was observed almost as frequently as femoral, and he had tried to approach such foci in three cases without opening into the joint. In these cases tenderness on deep pressure and a slight tumefaction over the rim of the socket had been present, but the movements of the joint were comparatively free in spite of the fact that the disease was of considerable duration. In one case an intrapelvic abscess existed, which could be felt as a hard swelling through the rectum. This patient got well without removal of the head of the femur, though the joint was opened into during the operation and several years of mechanical treatment had to follow. The second patient had passed from his observation after having done well for a number of months. Later on he had seen the patient with all the symptoms of destructive joint disease and spontaneous dislocation of the head of the femur upon the ilium. He had not treated him since. The third patient he had operated upon at the German Hospital five or six years ago. In this instance the joint had to be opened to get at the focus, which was at the top of the socket. The femur was then replaced. He was unable to say what the final results in this case had been, but up to the date of the patient's discharge from the hospital he had done well. Theoretically, this method of procedure was rational, and it was a great functional advantage to the patient if the head of the femur could be preserved. His experience had been too limited to permit him to form a decided opinion.

Dr. POORE, in reply, stated that in his experience primary disease of the acetabulum was exceedingly rare, that he did not see how it could be detected, because the joint itself must become involved very early in the course of the disease, and the symptoms would be those of trouble within the articulation.

The vast majority of cases of tubercular disease of the hip began in the femoral portion of that articulation. The symptoms of articular osteitis were so well marked that he did not think the diagnosis was attended with any difficulty. He was satisfied that, if one intended to trephine, it should be done early, not after spasm had existed for a long time, for in the latter case the joint itself was probably involved.

## Miscellany.

**The Nature of Hysteria.**—The May number of the *Edinburgh Medical Journal* gives the substance of a communication to the Royal Medical Society by Lim Boon Keng, Queen's Scholar of the Straits' Government; Curator of the Library of the Royal Medical Society; Student of Medicine, Edinburgh University.

The subject, says Mr. Keng, is probably as old as medical literature itself. Yet the account given of it in our ordinary text-books is far from being satisfactory, in spite of the fact that most medical writers, from Hippocrates downward, have attempted to solve the problem. Indeed, a reference to the literature of this "neurosis" is not likely to give one much encouragement in the study of its nature. Instead of finding our difficulties solved, we are at a loss to know how to effect an escape from the tangled web of ancient, mediæval, and modern theories, whose number is legion! The doctrines of Hippocrates and his followers, founded on those of Pythagoras and Plato, are interesting enough; while the teaching of Galen, embodying as it does the essence of the humoral pathology of the older school, shows a decided advance, inasmuch as Galen and Aetius deny that the uterus moves from its place. According to Hirsch, in the Brahminical hymns hysteria is referred to as a disease of the nervous system. But in the Middle Ages science was in such a condition that demonology, which the Coan sage successfully discarded from medicine, again occupied the attention not only of the ignorant, but also of the learned. The credit belongs to the much-maligned Paracelsus for boldly asserting, amid much opposition, that the epidemic dancing manias were not due to the influence of evil spirits or such like. When the anatomy and physiology of the nervous system became better understood from the works of Willis, Sylvius, Descartes, Haller, and others, numerous authors began to regard the nervous system as the seat of hysteria. But from the time when the uterus was regarded as a roving animal, down to the eighteenth century, hysteria had been regarded as a malady peculiar to women. Sydenham was among the earliest observers to show that this neurosis was also seen in men, although he did not seem to make a distinction between hysteria and hypochondriasis. Without attempting to consider the views of Piso, Lepois, Stahl, Hoffmann, Cullen, Pinel, and a host of well-known writers, we pass to the most widely accepted theory in the present generation. Some thirty or forty years back, Romberg, Bright, Copland, and others associated the uterus with the nervous system in explaining the nature of hysteria; but no authority now maintains that uterine irritation or congestion is an essential element.

The favorite theory accepted nowadays is, of course, more scientific and rational than that of Piso or any of his contemporaries. It explains, however, as little as did "the animal spirits" of Sydenham and his school. The result is, therefore, no progress is made in the study of hysteria. In hospitals, cases of this affection are well recorded, but nothing is done in the way of research that is calculated to increase our knowledge of the pathology of hysteria. So long as no attempt is made to investigate this complex disease beyond staring, as it were, at our patients, no advancement need be expected. What line of research, then, is open to us? The answer will appear quite obvious when we have discussed the nature of hysteria in the light of modern physiology.

Hysteria is often described as a neurosis resulting from defective inhibitory power, or caused by a perverted will. The emotion and imagination have, as it were, rebelled against common sense and judg-

ment. But does this theory of "faulty inhibition" really inform us as much as to the nature of the malady; does it not rather tend to cover our ignorance? How often one hears "a general neurosis" or "functional disease" mentioned in reference to hysteria! These words mean nothing more than this—the disease exists, but we are ignorant of its nature. Unfortunately for some of us, these terms are sometimes employed as if they imply pathological entities. The perverted will, the exalted emotion, the erotic condition, the loss of controlling power, or the diminution of mental activity, can not, properly speaking, be the cause of hysteria any more than can we say that apoplexy is due to the loss of nerve power on one side of the body. The undue activity of the ideational centers and the diminution or perversion of volitional power are surely only the manifestations of the hysterical constitution. They presuppose a morbid condition which produces them rather than are in themselves causal factors in the production of hysteria.

The symptoms of mild cases of hysteria point to a morbid condition of the functions of the higher parts of the brain. They are capable of being explained by some *functional* disturbance, truly so called, of the cells concerned in ideation. The habit, education, and mode of life of the individual may be sufficient to produce this neurotic condition. It is more common in women than in men, simply because females are more easily excitable and more emotional than men. The perversion and exaltation of imagination may come on gradually or suddenly, according to the nature of the exciting cause. But the activity or sluggishness of the mental functions depends upon the same laws as those that regulate the functions of other tissues. The whole question, therefore, of the action of nerve cells—sensory, psychical, motor, or organic—is at bottom a chemical problem. The amount and character of the work done by the cells of the cerebral cortex determine, no doubt, the extent of waste products discharged into the circulating medium, and also the properties of these effete or transitional compounds. These cells must, like other cells, possess a maximum and minimum limit to their activity. Within this range their metabolism may be increased or diminished, and likewise the waste products of this intracellular change will vary, but they are not likely to produce obvious evil effects. They, no doubt, are largely concerned in causing the multitude of subjective phenomena complained of by hysterical patients. But it must be remembered that the perverted psychical functions are quite sufficient to give rise to nearly all the symptoms. Bad moral training, undesirable environment, sentimental reading, undue emotional or sexual excitement, especially if often repeated, aided by idleness or late hours, or both, may so disturb the psychical processes that the nervous system becomes exhausted. In this condition, those parts of it which have been little or not at all influenced by the will may be the first to indicate the *irritability* of the nervous system. But if the will, as is so often the case, has never been put to much use, then the weakness tells principally on the cells concerned in volition. In other words, this breakdown shows itself through the weak points. The inherited neuropathic diathesis is therefore an important element in the causation of hysteria. But even in one without a neurotic hereditary history constant undue attention to trifling sensations will and must, according to the law of summation of stimuli, produce in the end mischievous results by altering the modality of the normal processes in the nervous system. As surely as each additional link in a chain adds to its length, so does each response to central or peripheral stimulus augment the cell-activity occurring between the arrival of the afferent and the discharge of the efferent impulse. Thus ovarian irritation, fright, and so on, produce in such persons, neuropathic or otherwise, the characteristic features of hysteria. The constant association of this condition with movable kidney lends some countenance to our view. As an example of how a diminution of action in the nerve cells will explain certain cases of hysteria, it will suffice to point out the effects of the use or non-exercise of the will. Every one is aware of the difficulty of getting up early in the morning, especially if unaccustomed to do so. A person may lie wide awake—may feel he has something to do—but can not, rather will not, muster up enough courage to rise. The perversion of the will in certain cases of hysteria is an example of this condition in an exaggerated form. Under an unusual stimulus the greatest sluggard will be too glad to get out of his bed hours before the usual time. In like manner, by an unusually active stimulus we may bring these patients suffering from mild forms of hysteria to their common sense. No

doubt, as Dr. C. H. Jones remarked, a good whipping will sometimes do more good in these cases than all the antispasmodics, and will prove as efficacious as the much-vaunted hypnotic influence. In short, a moral treatment is what is required. This is much emphasized by Dr. Reynolds. In Dr. Wyllie's female wards in the Royal Infirmary a stomach siphon-tube hanging by the bedside sometimes acts as a charm in preventing vomiting which, perhaps, can not be easily controlled by sedative medicine.

But hysteria may show itself in much graver forms than we have hitherto considered. Besides subjective phenomena, it may produce symptoms that closely simulate those of organic disease. Sir J. Paget's chapter on Nervous Mimicry brings out this point very well. In these cases, which we must regard as the graver manifestations of hysteria, the *histokinesis* may be supposed to have passed beyond the usual range, or may have been otherwise perverted. In consequence, abnormal transitional products are thrown into the blood, and affect those parts most, or first, or solely, according to their affinities for them. In this way, probably, are produced the convulsions, paralysis, hallucinations, delusions, erotomania, visual aberrations, coma, and other phenomena, which are more or less permanent, until the patient has received proper treatment. In these cases, too, the purely nervous action is not ignored, but it is maintained that, apart from the perversion of nervous function, waste products, the result of this state of the nervous system, aggravate the condition. What the nature of these poisonous bodies may be is a subject for investigation. It is in the blood and body fluids that they must be looked for. Possibly they may be of the nature of albumoses or proteids of some kind. At any rate, the researches of Gautier justify our supposition, which is made only as a basis for purposes of investigation. In short, this assumption opens up a new line of research which, even if it does prove our supposition to be entirely fallacious, must tend to throw more light on the subject.

In conclusion, the nature of hysteria may be briefly said to be a psychico-chemical disturbance of the nervous system. The constant presence of nervous symptoms in chronic metallic poisoning, in malaria, lithemia (Murchison and Fagge), some forms of diabetes mellitus, and other diseases of allied nature, point to the importance of suspecting the presence of chemical bodies in the blood. Dr. Weir Mitchell's method of treatment is so valuable and efficacious because it insures the removal from the body of waste products whilst it tones up the nervous system. If this paper seems too wildly speculative to those who decry hypotheses based even on established facts, then the writer may ask what we know of the nature of diseases like diabetes, gout, rheumatism, and other forms of blood poisoning. Dr. Ferrier, on a recent occasion, referred to the value of speculations, and defined their proper sphere. In his great work he adopts a passage from Lewis as his motto—"Indeed every discovery is a verified hypothesis." The writer only hopes that this imperfect paper may lead some who have the opportunities to make a rational research into the nature of hysteria; so that in the treatment of this common malady it may not be said of us: "*Medicus nihil aliud est quam animi consolatio.*"

**The Song of the Bacilli of la Grippe.**—Dr. S. K. Davis, of Libertyville, Iowa, has sent us the following verses:

We're a band of jolly rovers;  
We have come, but not to stay.  
Though you think our visit lengthy,  
We will leave you by next May.

Like the icy winds of winter,  
You may feel us down your back;  
Or the raging heat of summer,  
When you think your head will crack.

But to see us, please remember,  
You had just as well be blind,  
For we're not on exhibition,  
We're not of the showy kind.

You may scan our field of labor,  
Bring the microscope to bear,  
But you'll only find the foot-prints  
That we left behind us there.

Scientists of every nation,  
Skilled in hunting down the germs,  
Have been thwarted in the efforts  
Made to bring us to their terms.

Doctors, too, of skill and knowledge,  
Have been seeking us to kill,  
But as yet they're undecided  
Just what thing will fill the bill.

Charlatans with vague conceptions  
How toward victims we behave,  
Have attributed our departure  
To the mixtures vile they gave.

But, intrenched in mucous membranes,  
At their efforts we grin in glee,  
Feast and fatten on quinine powders,  
And warm our feet in ginger tea.

Antifebrin, though so deadly  
To our friends the fever germs,  
Has no terrors for us fellows,  
For we're on the best of terms.

Phenacetin, though much lauded  
By the firms where it is made,  
Has been by progressive doctors  
Tried, and then laid in the shade.

In fact, we've waged bitter warfare  
With all drugs to science known,  
But have never yet retreated  
Till we made our victim groan.

Though to kill we've no ambition,  
Yet, to hear the stories told,  
You would think that all the graveyards  
Would not half our victims hold.

That many die is not denied;  
But here suspicion takes a breath  
And hints that drugs in heroic doses  
May, and do sometimes, cause death.

Antipyrine, though so potent  
To deplete the doctor's purse,  
Has outrivaled us in favor  
With the man that runs the hearse.

Old moss-backs of ancient laurels,  
Advocates of leech and lance,  
With "ten and ten" and antimony  
Seize the prize ere we've a chance.

If our victim treats us kindly,  
Stays indoors and keeps us warm,  
We will make our visit shorter,  
And will do him little harm.

But in cold and stormy weather,  
Should he take us out to freeze,  
He will soon regret the treatment,  
For we'll surely make him sneeze.

We will make his back and head ache,  
And his muscles pain him sore,  
And the tears run down his cheeks  
As they never did before.

We may shake him like an ague  
Till he's cold enough to freeze;  
Then we'll penetrate his lungs  
Till we make him cough and wheeze.

Or perchance attack the pleura  
Which all lungs are with supplied,  
And will penetrate this membrane  
To the cavity inside.

Sometimes we invade the sanctum  
 Of the thinking part of man,  
 And inflame the dura mater,  
 Though not usually our plan.  
 Instances, too, are recorded  
 Where our army did invade  
 The renal regions, and a siege  
 To Malpighi's tufts was laid.  
 In fact, there is no tissue  
 Of man's body, that we know,  
 But which we can, if needs be,  
 Take refuge in and grow.  
 But the membrane rich in mucus  
 Is the place that takes our eye:  
 There we grow and flourish best,  
 And our numbers multiply.

**Mortality in Cities in the United States.**—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for May 20th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—												
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Variceloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.		
Chicago, Ill.	May 7.	1,099,850	484	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chicago, Ill.	May 14.	1,099,850	456	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Philadelphia, Pa.	May 7.	1,046,964	454	46	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brooklyn, N. Y.	May 15.	806,343	375	45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Louis, Mo.	May 14.	451,770	178	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston, Mass.	May 14.	448,477	210	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baltimore, Md.	May 14.	434,439	166	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Francisco, Cal.	May 7.	298,997	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cincinnati, Ohio.	May 13.	296,908	98	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland, Ohio.	May 14.	261,353	90	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Orleans, La.	Apr. 16.	242,039	154	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Orleans, La.	Apr. 23.	242,039	159	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Orleans, La.	Apr. 30.	242,039	139	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Orleans, La.	May 9.	242,039	161	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington, D. C.	May 14.	230,332	85	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit, Mich.	May 14.	205,876	91	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Milwaukee, Wis.	May 14.	204,468	97	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Minneapolis, Minn.	May 14.	164,738	44	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rochester, N. Y.	May 14.	144,834	49	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kansas City, Mo.	Apr. 9.	132,716	31	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kansas City, Mo.	Apr. 16.	132,716	35	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kansas City, Mo.	Apr. 23.	132,716	30	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kansas City, Mo.	Apr. 30.	132,716	28	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Providence, R. I.	May 14.	132,146	51	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Toledo, Ohio.	May 13.	81,434	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Richmond, Va.	May 7.	81,288	30	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Richmond, Va.	May 14.	81,288	39	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nashville, Tenn.	May 14.	76,168	23	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fall River, Mass.	May 13.	74,598	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Manchester, N. H.	May 7.	44,126	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Erie, Pa.	May 14.	40,634	19	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Portland, Me.	May 14.	36,425	20	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Binghamton, N. Y.	May 14.	35,005	10	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mobile, Ala.	May 7.	31,076	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Altoona, Pa.	Apr. 2.	30,337	20	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Altoona, Pa.	Apr. 9.	30,337	22	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Altoona, Pa.	Apr. 16.	30,337	18	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Altoona, Pa.	Apr. 23.	30,337	17	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Altoona, Pa.	Apr. 30.	30,337	13	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Galveston, Texas.	May 5.	29,034	16	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Auburn, N. Y.	May 14.	25,858	10	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Newton, Mass.	May 7.	24,379	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Diego, Cal.	May 7.	16,159	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pensacola, Fla.	May 7.	11,750	5	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

**Results of the Application of Lannelongue's Sclerogenic Treatment in Tuberculous Affections.**—The *Lancet's* Paris correspondent says: At the French Surgical Congress M. Coudray furnished a highly interesting report on the results of the application of the new method of treating surgical tuberculous diseases devised by Professor Lannelongue. His report is founded upon sixty cases, including thirty-one of affections of the larger joints, nine of the lymphatic glands, six of the foot and fingers, and four of the spine. The results are stated to be excellent, recovery from the local lesion being the rule, and the propagation of the bacillus to distant parts being prevented through the formation of the sclerogenic barrier due to the chloride of zinc. What is the fate of the bacilli in their conflict with the new elements generated around the territory occupied by them? M. Coudray opines that they perish, or that, at any rate, their activity is paralyzed. This opinion is based upon three

microscopical examinations he has conducted on extirpated masses, and on the negative results of inoculations. M. Lannelongue explains the apparition of certain abscesses some time after the injection of the chloride-of-zinc solution by supposing that the bacillus colony is encapsuled temporarily. It is also possible that certain lesions may accidentally escape the action of the remedy. In a previous letter I wrote of the treatment of congenital dislocation of the hip joint by Lannelongue's method. M. Coudray tells us that a little girl of three years, thus treated five months ago, has now begun to walk, her lameness having diminished considerably. The femoral head now reaches during adductory and internal rotatory movements only to a point one centimetre above the line of Nélaton-Roser, instead of three centimetres, the point reached before treatment. M. Coudray has also essayed the method in the combating of such hopeless diseases as malignant tumors. Applied in three instances (two generalized malignant lymphadenomata and one cancer of the breast), the size of the growths seemed to be materially diminished and their development arrested. The difficulty is to circumscribe the infected lymphatic glands. MM. Ivesco, of Paris, and Dubois, of Cambrai, cited cases of surgical tuberculosis cured by them by means of the sclerogenic method, the practice of which will, doubtless, in time diffuse itself all over the civilized world.

**To Contributors and Correspondents.**—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

OBSERVATIONS ON  
THE EXCRETION OF URIC ACID  
IN HEALTH AND DISEASE.\*

By C. A. HERTER, M. D., AND E. E. SMITH, Ph. D.,†  
NEW YORK.

THE study of the end-products of nitrogenous metabolism, urea and uric acid, through which nitrogen is excreted from the body, has for a long time occupied the attention of investigators and to a less extent that of practicing physicians. The practitioner has concerned himself especially with the question of uric-acid excretion in its relation to disease, but the usefulness of his observations has usually been impaired, even for clinical purposes, by a very serious deficiency. This is that he has not had at his command any method of estimating, with even reasonable accuracy, the amount of uric acid in a specimen of urine. The presence of a considerable number of uric-acid crystals in the sediment of a urine has commonly been regarded as evidence of excessive uric-acid excretion. The important fact has been overlooked that the separation of uric-acid crystals or of urates depends more on the degree of concentration of the urine and its acidity than on the presence of uric acid in excess. In other words, such separation does not necessarily depend on an excess of uric acid. Nor, on the other hand, does the non-deposition of uric acid constitute evidence that a urine does not contain uric acid in excess. We do not wish to be understood that the separation of crystals of uric acid from the urine has no significance. Such a separation is more likely to occur when uric acid is in excess than when it is not, and when it occurs in the course of a few hours in a urine of which the specific gravity is less than 1.025 may perhaps be regarded as creating a presumption that there is an excess. The use, however, of such a criterion as this is responsible for many erroneous statements.

But supposing that the methods at the command of the physician could give him a reasonably accurate knowledge of the amount of uric acid present in a given urine, he would still be somewhat in the dark as to the significance of the result unless he was conversant with the variations in uric-acid excretion that occur in health. We propose in this paper to show what these variations are and upon what they depend, with a view to establishing a criterion for the use of those who wish to know the state of uric-acid excretion in special cases. We shall endeavor to point out especially the following facts:

First. That the absolute quantity of uric acid excreted varies chiefly with the character of the diet, being high on a highly nitrogenous diet and low on a diet of carbohydrates principally. In health the quantity of urea excreted depends on the quantity of nitrogenous food ingested.

\* Read before the New York Neurological Society, May 3, 1892.

† The determination of uric acid, and the chemical work generally, have been done by Mr. Smith at my request.—C. A. H.

Hence in health both urea and uric acid totals vary widely with the quality and quantity of the food.

Second. That the chief clinical criterion as to whether uric-acid excretion is normal, is not the absolute amount of uric acid excreted, but the ratio of the uric acid to the urea excreted.

Third. That the ratio of uric acid to urea in the twenty-four hours' urine from the same individual in health is fairly constant.

Fourth. That this ratio is not so constant for different individuals at different periods of life, but varies between 1 to 45 and 1 to 75.

We shall give the facts from which these conclusions have been reached. They are derived largely from original observation. In many respects our results merely confirm and extend those of other workers. We shall, however, call attention to certain facts regarding deviations from normal uric-acid excretion which, so far as we are aware, have been hitherto unnoted.

It is not easy to present the facts we wish to touch upon in simple and logical order. It is convenient to consider them under the following heads:

1. The Methods used in determining Uric Acid and Urea.
2. The Variations in Total Uric-acid Excretion under the Influence of Diet, Exercise, etc.
3. The Variations in Total Urea Excretion under the Influence of Diet, Exercise, etc.
4. The Quantitative Relation of Uric Acid and Urea in Health.
5. The Excretion of Uric Acid as influenced by Drugs.
6. The Excretion of Uric Acid in Disease.

1. THE METHODS USED IN DETERMINING URIC ACID AND UREA.

It is exceedingly important that we should mention briefly the methods employed in our work, since the character of the results and the reliance to be placed on them depends largely on correct methods. The error in much of the work that has been done on uric-acid excretion is due to the use of inaccurate methods of determining uric acid.

Of the numerous methods used in determining uric acid, that known as the Ludwig-Salkowski \* method is undoubt-

\* A good description of this method can be found in the last edition of Neubauer's and Vogel's work on the urine. The following modification of the method is employed by us: 200 c. c. of urine are treated with 20 c. c. each of the standard magnesian mixture and silver-nitrate solution, after the usual manner. With concentrated urine, of from 1.022 sp. gr. and upward, especially where highly colored, it is more satisfactory to take only 100 c. c., using 20 c. c. each of the standard solutions as before. After filtering and washing with ammoniacal water, the precipitate of phosphates and silver urate is removed from the filter paper into the beaker by the aid of a stream from the wash bottle, the paper being retained for subsequent filtration. Instead of using sodium sulphide for decomposing the silver urate, we employ a solution of potassium iodide, as suggested by Graves (*Jour. of Phys.*, 12, 1891). Occasionally, however, silver iodide appears in the filtrate, in which case it is necessary to redissolve the separated uric acid in weak sodium hydroxide and filter hot, when the urate is obtained in solution quite free from weighable traces of silver. For weighing, filter papers of 7 cm.

edly deserving of the greatest confidence and is the one employed by us. It is a gravimetric method of great accuracy.\* The drawbacks to it are the number of manipulations involved and the fact that it usually takes several days to get a result. It is not adapted for clinical work, and, unfortunately, there is as yet no method which is.

It is customary to calculate the urea of the urine from its total nitrogen content. This is accomplished either directly by the Kjeldahl process or the well-known hypobromide method, or, indirectly, by Liebig's urea method. The method used by us is Pflüger's modification of Liebig's method,† a volumetric process that has been well indorsed for clinical and research work. Among its advantages are its ready applicability and the relatively simple apparatus required. The method, however, only approximates a urea method, since other nitrogenous substances which are contained in the urine are estimated as urea. The chief of these are uric acid, creatin, creatinin, xanthin, and other extractives. These substances are contained in the urine in amounts that are small as compared with urea, but they make the results on urica determinations higher than they should be. We shall return to this point.

But while the Liebig method approximates a total nitrogen method, it differs from it in one important respect—namely, this: that it does not include the nitrogen of the ammonium salts. These are present normally in only small amount, but when administered for therapeutic purposes they appear in the urine in increased quantity, and hence increase the nitrogen as estimated from the total nitrogen present. On the other hand, the use of salicylates in large amounts leads to an overestimation of the urea as determined by the Liebig method, since the salicylic acid that appears in the urine is precipitated as urea.

## 2. THE VARIATIONS IN TOTAL URIC-ACID EXCRETION UNDER THE INFLUENCE OF DIET, EXERCISE, ETC.

Uric acid is the medium by which in man the largest amount of nitrogen, next that eliminated as urea, is excreted from the body. Recent investigations have made it probable that uric acid is formed chiefly in the liver and spleen; there appears to be no satisfactory evidence that it is formed in the kidney. The most interesting work that has been done on the source of uric-acid production is that of Schröder‡ and Minkowski.§ Schröder found that after the removal of the kidneys in birds uric acid continues to be formed and accumulates both in the blood and liver. He found, further, that the quantity of uric acid in the liver could be greatly increased after the removal of that organ from the body by passing blood through it.

diameter are employed, which are dried and weighed in small weighing bottles. The crystals are washed with about 30 c. c. of water and the usual correction for dissolved uric acid added to the weight actually found.—E. E. S.

\* Ludwig recovered about ninety-eight per cent. of uric acid from pure solutions. Two parallels on the same urine gave us 0.390 gramme and 0.382 gramme for the twenty-four hours.

† The chlorides are removed with a standard solution of silver nitrate.

‡ Ludwig's *Festschrift*, 1887, p. 89.

§ *Archiv f. experimentelle Pharmakologie und Pathologie*, xxi.

Minkowski's results confirmed those of Schröder. This observer removed the liver from geese and studied the effect of this removal upon the urine. He found that the urine, instead of containing sixty or seventy per cent. of uric acid, as it normally does, contained only two or three per cent. Coincident with this fall in uric acid there was a great increase in the amount of ammonia. Furthermore, the urine contained lactic acid. Minkowski thinks it probable from these facts that the liver is the chief agent in the formation of uric acid, and suggests that uric acid may be derived in the liver by the synthesis of lactic acid and ammonia.

The quantity of uric acid excreted daily by a normal adult varies considerably, and this variation depends more upon the character of the diet than upon any other factor. A highly nitrogenous diet increases the excretion of uric acid. A diet poor in nitrogen greatly diminishes it. A healthy man weighing one hundred and fifty pounds usually excretes between seven and ten grains (0.5 and 0.75 gramme) of uric acid daily. But it is a very important fact, and one which we wish to emphasize particularly, that the mere total quantity of uric acid in the twenty-four hours' urine gives no knowledge as to whether this quantity is or is not excessive. In order to obtain this knowledge it is essential that we should know what is the total quantity of urea (or the total nitrogen) excreted during the twenty-four hours in which the uric acid is estimated. We shall refer to this point again.

Exercise increases somewhat the quantity of uric acid excreted, but the influence even of vigorous and prolonged exercise is inconsiderable. The differences in uric-acid excretion at different ages are not exactly proportioned to the body weight of the individual. Thus, from the second year of life to the time of puberty the quantity of uric acid contained in the urine is distinctly greater in proportion to the body weight than in adults. This is due apparently to the greater relative assimilation of nitrogenous food at this period of life. It is said that during the first year of life the uric-acid excretion is more nearly proportioned to the body weight.

## 3. THE VARIATIONS IN THE TOTAL UREA EXCRETION AS INFLUENCED BY DIET, EXERCISE, ETC.

Urea is the chief end product of nitrogenous metabolism. Probably nearly ninety per cent.\* of the nitrogen that leaves the body is in the form of urea. Of course, the urea in the urine is not derived directly from the food taken into the body; it is necessary that the food should be first assimilated and its nitrogen become part of the tissues of the body before the ingested nitrogen enters into the formation of urea. Nevertheless, the quantity of urea excreted is, in a general way, proportioned to the amount of nitrogenous food assimilated. This is a most important fact, for it thus happens that the quantity of urea excreted is an index of the activity of the nitrogenous metabolism of the body. If an adult (of 150 pounds weight) is regularly ex-

\* Camerer gives this figure. See *Zeitschrift f. Biologie*, xxiv, p. 306. Other observers give somewhat lower figures.

erecting a large amount of urea daily,\* say 50 grammes or thereabouts, this is good evidence that there is extensive tissue waste, and if the individual is not losing weight we know that he must be assimilating a large amount of nitrogenous food. If, on the other hand, he is excreting a small amount of urea daily, say 12 or 15 grammes, it is safe to infer that a small amount of nitrogenous food is being assimilated, provided the weight is reasonably constant.

The influence of food on urea is well illustrated by the following observation: A man weighing 170 pounds, in good general health, and who was somewhat cautious about the use of nitrogenous food, passed in five consecutive days the following amounts of urea daily: 21.490, 22.591, 19.514, 19.649, and 19.989 grammes. He was then put upon a highly nitrogenous diet and the urea excretion jumped at once to the following figures: 28.701, 29.076, 19.799, 29.350, 37.268, 39.731, 41.203, 39.161, 38.126, 41.392, and 36.602 grammes. The subject returning to a less liberal nitrogenous diet, the urea fell at once to the following figures: 27.795, 29.191, 24.143, 23.034, 24.292, 26.549, 25.085, 23.150, 24.901, 22.362 grammes.

It is thus plain that the quantity of proteids ingested is the great factor in determining the amount of urea excreted. Other influences are of relatively little importance. Exercise, which was once thought to exert an important influence in increasing the urea elimination, has been shown to have little effect. The observations of Voit † on a dog made to turn a tread-mill, and those of Fick and Wislicenus ‡ in the ascent of the Faulhorn, are well known. More recently Parkes, § experimenting on soldiers, and North, || experimenting on himself, have shown that the increase of urea from exercise is exceedingly small as compared with the loss of body weight or the work done.

What has been said of the disproportionately large excretion of uric acid in childhood is true also of the excretion of urea. Thus reference to Table I will show that a child eighteen months old, and weighing twenty-eight pounds, excreted about 12 grammes of urea per day, while a child ten years old, and weighing one hundred pounds, excreted regularly between 25 and 30 grammes. This relatively greater excretion of urea in childhood than in adult life depends probably on the more active metabolism of child life.

We have already spoken of the importance of using the urea excretion as a standard in deciding whether the excretion of uric acid is normal or abnormal. We may now pass to a more minute examination of the quantitative relation

\* A normal man weighing 150 pounds and varying only slightly in weight excretes from 25 to 40 grammes of urea per day if he is on a mixed diet—i. e., his urea averages somewhere in the neighborhood of one ounce.

† *Untersuch. über der Einfluss des Kochsalzes, des Kaffees und der Muskelbewegungen auf der Stoffwechsel.* Munich, 1860.

‡ *Vierteljahresschrift d. naturf. Gesellsch. in Zürich*, 1865.

§ *Proceedings of the Royal Society*, xi, 339.

|| *Journal of Physiology*, i, 171.

of uric acid and urea in health, and subsequently to their relation under the influence of drugs and in disease.

#### 4. THE QUANTITATIVE RELATION OF URIC ACID AND UREA IN HEALTH.

We have stated that the quantity of uric acid excreted by a normal individual depends chiefly on the character of the diet, and we have stated that the quantity of urea excreted depends chiefly on the same factor. If we increase the assimilation of nitrogenous food beyond the average required, there is an increase both of uric acid and urea in the urine, and this increase in the two end-products is in a general way proportional. According to some observers, the uric-acid excretion increases a little more rapidly than the urea excretion. Other observers have found the urea output to increase a little faster, proportionally, than that of the uric acid, when nitrogenous food is increased. Our experience, so far as it goes, confirms the latter view, but it is possible that more extended observation would show that no general statement can be made as to this point.

The quantity of nitrogenous food assimilated by an individual in health who lives on a mixed diet and leads a reasonably regular life, of course varies a little from day to day, but not enough to cause a wide variation in the quantitative relation of uric acid and urea in the urine.\* We have analyzed the twenty-four-hour urines of a considerable number of persons, and have found the relation between uric acid and urea to be fairly constant from day to day, even though no effort was made to keep the quantity of nitrogenous food daily ingested even approximately the same. Reference to Table I will illustrate the truth of this statement.

But, while the relationship between uric acid and urea is thus fairly constant in the same individual, there is a much more considerable variation among different individuals of the same and different ages. It is difficult to give figures stating what is the average relation in health. We may say that in our experience the relation varies between 1 to 45 and 1 to 65 in adults. A relation higher than 1 to 45 we look upon with suspicion, unless it is known that it is a habitual relation, and that the individual is in good health. A relation lower than 1 to 70 is probably not met with in normal adults on a mixed diet. On a bread or milk diet, however, the relation may easily run as low as 1 to 80, or even lower, in health. Thus, Bunge † mentions the case of a young man whose urine showed a relation of 1 to 48 while he was on a meat diet, and a relation of 1 to 82 while he was on a diet of bread. In one case of *petit mal* the relation of uric acid and urea ran as follows on a mixed diet: 1 to 32.5, 1 to 36.8, 1 to 39.2, 1 to 43.2, 1 to 39.2. On an exclusively milk diet the relations ran as follows: 1 to 61.4, 1 to 66.1, 1 to 76.5, and 1 to 85.8. The absolute reduction in the excretion of uric acid was in this case even more striking than the relative reduction, for the total excretion of urea was distinctly reduced by the milk diet.

\* Of course, twenty-four-hour samples of urine must be used for comparison. It is also desirable that the patient should take little or no alcohol during the period of observation.

† *Lehrbuch d. physiolog. Chemie*, 1889.

TABLE I.

Showing the Ratio of Uric Acid and Urea in Health.

No.	Age.	Weight.	Sp. gr.	Vol- ume.	NaCl.	P <sub>2</sub> O <sub>5</sub> .	Urea.	Uric acid.	Ratio.
				C. c.	Grammes.	Grm.	Grammes.	Grm.	
1	12 mos.	22	1.010	244	.69	.4045	3.701	.0696	1 : 53.9
"	19 "	28	1.017	470	.....	1.166	12.095	.206	1 : 55.7
"	19 "	"	1.014	685	.....	1.099	11.508	.207	1 : 55.5
2	2½ yrs.	33	1.028	375	.....	.....	4.437	.141	1 : 81.1
3	3 "	36	1.022	580	.....	.....	12.702	.166	1 : 76.5
4	4 "	40	1.013	615	3.268	.6815	12.979	.1752	1 : 74
5	4½ "	39	1.021	510	.....	.....	12.495	.200	1 : 62.4
6	5 "	43	1.019	715	.....	1.736	16.016	.208	1 : 77
7	6 "	45	1.024	450	.....	1.591	17.55	.259	1 : 67.7
8	6½ "	50	1.027	765	.....	2.681	25.245	.328	1 : 76.9
9	7 "	55	1.024	530	5.754	1.028	13.606	.251	1 : 54.2
"	7 "	"	1.021	540	4.247	1.026	15.040	.282	1 : 53.1
10	8 "	60	1.016	1,065	6.854	1.271	21.244	.396	1 : 54.1
11	10 "	74	1.015	1,385	5.674	1.888	31.294	.418	1 : 74.6
"	10 "	"	1.010	1,300	.....	.....	25.410	.351	1 : 72.4
12	12 "	76	1.024	695	.....	1.906	24.116	.398	1 : 60.6
13	12 "	"	.....	.....	.....	.....	19.904	.329	1 : 60.5
14	15 "	150 (?)	1.028	825	.....	2.086	25.905	.465	1 : 55.7
15	19 "	"	1.021	600	5.838	1.211	12.230	.226	1 : 54
16	21 "	150	1.022	1,195	.....	2.330	30.233	.424	1 : 71.3
"	21 "	"	1.020	1,780	.....	.....	38.445	.587	1 : 65.5
17	21 "	190	1.027	965	.....	.....	31.555	.595	1 : 52.6
"	21 "	"	1.025	1,370	.....	.....	37.401	.682	1 : 54.9
"	21 "	"	1.018	1,640	.....	.....	34.768	.657	1 : 52.9
"	21 "	"	1.020	1,485	.....	.....	32.224	.643	1 : 50.1
18*	21 "	141	1.016	1,280	.....	.....	33.380	.749	1 : 44.30
"	21 "	"	1.017	1,200	.....	.....	30.486	.708	1 : 47.29
"	21 "	"	1.014	1,340	.....	.....	33.947	.739	1 : 45.82
"	21 "	"	1.018	1,030	.....	.....	33.058	.753	1 : 45.21
"	21 "	"	1.017	1,150	.....	.....	34.502	.779	1 : 44.28
"	21 "	"	1.015	1,250	.....	.....	32.619	.723	1 : 45.13
"	21 "	"	1.023	880	.....	.....	33.440	.741	1 : 45.11
"	21 "	"	1.013	1,590	.....	.....	34.370	.694	1 : 49.52
"	21 "	"	1.016	1,250	.....	.....	33.334	.777	1 : 42.98
19	24 "	160	1.031	1,035	12.398	2.317	25.890	.446	1 : 58
"	24 "	"	1.029	1,000	.....	.....	27.805	.490	1 : 56
"	24 "	"	1.030	895	.....	.....	23.244	.462	1 : 50.3
"	24 "	"	1.031	710	.....	.....	30.569	.514	1 : 59.4
"	24 "	"	1.030	635	.....	.....	26.218	.482	1 : 54.3
"	24 "	"	1.029	800	.....	.....	28.538	.540	1 : 52.8
"	24 "	"	1.028	755	.....	.....	22.692	.448	1 : 50.5
20	24 "	90	1.019	660	.....	.....	11.748	.258	1 : 45.5
21	25 "	145	1.024	1,585	20.456	3.312	42.671	.789	1 : 54
"	25 "	"	1.028	840	9.980	2.239	28.59	.549	1 : 52
22	26 "	...	1.026	955	11.525	2.774	38.82	.738	1 : 54
"	26 "	...	.....	.....	.....	.....	39.88	.715	1 : 55.7
23	27 "	160	.....	.....	.....	.....	27.30	.620	1 : 44.1
"	27 "	"	.....	.....	.....	.....	32.95	.740	1 : 44.5
24	28 "	130	1.017	1,970	.....	1.741	27.97	.329	1 : 52.8
"	28 "	"	1.022	2,880	18.27	2.436	35.74	.764	1 : 46.8
25	30 "	103	.....	.....	4.785	1.211	12.77	.246	1 : 51.9
27	53 "	165	1.020	1,045	.....	2.070	27.06	.509	1 : 53.1
28	57 "	170	1.023	1,130	11.69	1.956	25.38	.489	1 : 51.9
29	74 "	104	1.026	420	.....	.....	11.55	.215	1 : 53.7
"	74 "	"	1.020	500	.....	.....	12.010	.253	1 : 47.4

It will be noted on examining the table that there is apparently little difference in the quantitative relation of the two end products at different times of life. Upon the whole it would appear that in children the average ratio is a little lower normally than in adults, but our observations are not sufficiently numerous to enable a definite conclusion to be drawn as to this point.

Newly born children are an exception to the general equality that holds for different periods of life.† It has been shown that during the first few days of life the relation of uric acid to total nitrogen excretion is much higher

than at any other period; but this exception is of no practical interest to us.

We have, then, in the quantitative relation between uric acid and urea a standard of practical utility by which it is possible to determine with confidence the state of uric-acid excretion. It is of course essential that twenty-four-hour samples be used, for the ratio between the two substances varies at different times of day, and a partial sample may not be a reliable index to the condition of the twenty-four hours' uric-acid excretion.\* Thus, a partial sample taken two or three hours after a meal rich in nitrogen might show a suspiciously high relation—say, 1 to 40—whereas the twenty-four hours' urine from the same individual might show a relation of 1 to 50, which would be, presumably, normal.

The variations that occur in health in the relation of uric acid and urea at different periods of the day have not been studied so carefully as could be wished. Camerer † has shown that, after a meal rich in nitrogen, the uric-acid excretion is at its highest during the hours immediately after the meal, while the excretion of urea is at its highest eight or nine hours after the meal. But Camerer's observations were made in cases where only one nitrogenous meal was taken in the twenty-four hours, and these cases did not conform in this and other respects with ordinary conditions.

It is necessary that we should say a word about the figures given in our table. As already stated, the Liebig method of determining urea is not, strictly speaking, a urea method; it is more nearly a total nitrogen method. Hence the ratios given in the table are lower than they would have been if obtained by the use of an ideal urea method. According to Camerer, ‡ about ninety per cent. of all the nitrogen the urine contains is present as urea; according to Bohland, § the amount is smaller, being about eighty-five per cent. of the total nitrogen. We might therefore have corrected our figures by the subtraction of ten or fifteen per cent. from the figures which we give for urea, but have preferred to give our first figures for what they are, and allow others to make a correction of this kind if they wish.

Haig || follows Garrod in giving 1 to 33 as the relation of uric acid to urea in health. There is thus a wide discrepancy between this ratio and the limits in health as given by us—namely, 1 to 45 to 1 to 65. This difference is not to be accounted for by the facts mentioned in regard to the urea method we have employed, since, even with the correction above suggested, there is still a wide difference between the figures. Moreover, the urea method used by Haig is open to precisely the same objection as that used by us. There can be little doubt that the reason for Haig's high figure is that the method used by him for determining uric acid (Haycraft's method) is faulty and regularly gives high results. This is conclusively shown by Herring-

\* *Zeitschrift f. Biologie*, 1889, 26 (p. 109).

† *Ibid.*

‡ *Loc. cit.*

§ *Pflüger's Archiv*, xliii.

|| *Brain*, 1891. This view seems to be based chiefly on one case. See also *Journal of Physiology*, vol. viii, 1887.

\* The figures from this case are taken from Chittenden and Taylor. *Studies from the Laboratory of Physiological Chemistry* (Yale), 1889.

† See Martin, Ruge, and Biedermann, *Contrib. f. d. m. Wissenschaften*, 1875, p. 387. See, also, Hofmeier (*Virch. Arch.*, 89, p. 493).

ham and Groves\* in a recent paper. We have no hesitation in stating that a relation of 1 to 33 in a twenty-four-hour sample of urine is pathological. The ratios given by us for health correspond closely with the figures of Bunge, Vogel, Salkowski, and Pfeiffer.

5. THE EXCRETION OF URIC ACID AS INFLUENCED BY DRUGS.

From a practical point of view, no observations on the excretion of uric acid are of more interest than those which relate to the effect of drugs. Observations have been made upon the action of a variety of drugs, and in some instances conclusions have been reached that may be regarded as definitive; but much that has been written is of little or no value, owing to the inaccuracy of methods used in determining uric acid, or to more or less glaring defects in the conditions under which the experimental work has been done. In the case of some drugs there are conflicting opinions as to their influence upon the elimination of uric acid. We shall touch briefly upon the results of the work which, in our estimation, is most to be trusted. We may conveniently consider, first, the drugs that are supposed to increase the excretion of uric acid, and, secondly, those that are supposed to diminish it.

*Alcohol.*—As to the effect of moderate doses of alcohol upon uric-acid excretion the evidence is conflicting. According to von Jaksch, alcohol, in other forms than beer and wine, diminishes the excretion both of uric acid and urea. We have made some observations which bear on this question. A healthy young man, weighing one hundred and ninety pounds, was given whisky in increasing doses for three days. The first day the quantity taken was two ounces; the second day, three ounces and a half; the third day, six ounces. The urine was examined before and after the trial. The results are shown in the table:

TABLE II.  
*Showing Influence of Whisky upon Uric-acid Excretion.*

	Urea,	Uric acid,	Ratio of uric acid to urea.
First day before experiment, no alcohol.....	31.555 gm.	.599 "	1 : 52.6
Second day before experiment, no alcohol.....	37.401 gm.	.682 "	1 : 54.9
Third day before experiment, moderate use of beer and champagne.....	29.052 gm.	.601 "	1 : 48.3
First day on whisky, 2 oz. ....	36.425 gm.	.697 "	1 : 52.2
Second day on whisky, 3½ oz. ....	33.534 gm.	.620 "	1 : 54
Third day on whisky, 6 oz. ....	33.460 gm.	.630 "	1 : 53.1
First day after experiment, no alcohol.....	34.768 gm.	.657 "	1 : 52.9
Second day after experiment, no alcohol.....	32.768 gm.	.643 "	1 : 50.1

Inspection of this table makes it evident that in this case the whisky taken exerted no appreciable effect upon the excretion of uric acid. The relations between uric acid and urea on the days when whisky was taken co-

\* Herringham and Groves. *Journal of Physiology*, 12, 1891. These observers used the Ludwig-Salkowski method, but their normals give much wider variations than do ours.

incides with those of the days before and after, when no alcohol was taken. The slight change in ratio on the day before the use of whisky was begun may have been due to the use of beer and champagne on that day. With a view to seeing whether the influence of champagne (in quantities containing alcohol in amount approximately equivalent to that contained in the whisky) differed from that of whisky, another observation was made. The subject was given champagne in increasing amounts for three days. On the first day the quantity taken was eight ounces; on the second, sixteen ounces; on the third, twenty-four ounces. The results are shown in the table:

TABLE III.  
*Showing Influence of Champagne on Uric-acid Excretion.*

	Urea,	Uric acid,	Ratio of uric acid to urea.
First day, 8 oz. champagne.....	31.699 gm.	.754 "	1 : 42
Second day, 16 oz. champagne..	29.758 gm.	.655 "	1 : 45.1
Third day, 24 oz. champagne...	32.172 gm.	.686 "	1 : 46.8
Fourth day, no alcohol.....	32.947 gm.	.643 "	1 : 51.2

It is evident from these figures that while whisky had no effect upon the ratio of uric acid and urea, champagne in quantities containing an equivalent of alcohol caused a decided deviation from the habitual ratio owing to an increase in uric acid. It is interesting to note that the ratio returned at once to the habitual on the discontinuance of the wine. A single observation like this proves nothing, but is not without suggestiveness.

There is good reason to believe that doses of alcohol which in health cause no effect upon the excretion of uric acid, increase this considerably and disturb the normal relation to urea in persons with the uric-acid diathesis—*i. e.*, in persons who tend habitually to excrete uric acid in excess.

The best work that has been done upon the influence of large doses of alcohol is that of Chittenden and Smith,\* whose observations were on dogs in a state of nitrogenous equilibrium. There is no doubt as to the effect, at least in dogs, of the doses employed by these observers. While the total excretion of nitrogen was somewhat diminished, the elimination of uric acid was greatly increased, the increase amounting to about one hundred per cent.

*Sodium Salicylate.*—There has been some difference of opinion as to the effect of this drug, but recent observers

TABLE IV.  
*Showing Influence of Sodium Salicylate upon Uric Acid.*

	Urea,	Uric acid,	Ratio of uric acid to urea.
Day before salicylate.....	26.458 gm.	.478 "	1 : 55.3
First day on salicylate, 3 gm. taken.....	26.684 gm.	.555 "	1 : 48.1
Second day on salicylate, 3 gm. taken.....	31.420 gm.	.615 "	1 : 51.1
Third day on salicylate, 3 gm. taken.....	27.784 gm.	.730 "	1 : 38
Day after salicylate.....	27.805 gm.	.490 "	1 : 56

\* The Influence of Alcohol on Proteid Metabolism. *Journal of Physiology*, vol. xii, No. 3, 1891.

agree that salicylate of sodium causes a decided increase in uric-acid excretion as compared with urea. We have made the following observations on this drug: A young man in good health was given three grammes of sodium salicylate three times daily for three days. The urine was studied on these days, and on the day before and the day after. The results are given in Table IV.

In this case the effect of the salicylate of sodium was decided. The increase in uric acid was greatest on the third day of the trial, when the ratio to urea was 1 to 38. On the day after this the relation went back to 1 to 56—that is, to about where it was on the day before the salicylate of sodium was first taken.

Two similar observations were made upon persons who are subject to migraine. In the first case five grains of salicylate of sodium, t. i. d., were taken for three days. After this, ten grains, t. i. d., were taken for three days. The results were quite inconclusive. In the second case the quantity taken was three grammes daily for three days. The results in this case were also inconclusive. It is interesting that in both cases the use of the drug was accompanied by headache, which in the first case lasted several days and was general in distribution; and in the second case was a typical migraine paroxysm coming on at the end of the experiment.

*Alkalies.*—Alkaline waters are said by some to increase and by others to decrease the excretion of uric acid. Which of these views is correct we are unable to say. The question appears to call for reinvestigation.

*Quinine.*—In recent times the influence of quinine upon metabolism has been studied by Kerner,\* Prior,† and Sassetzky.‡ Kerner found that doses of 9·3 grains of quinine hydrochloride, continued for three days, reduced very considerably the excretion both of urea and uric acid. But while urea was decreased twelve per cent., uric acid was decreased fifty-four per cent. These small doses of quinine, therefore, greatly diminished uric-acid excretion, both absolutely and relatively. The experiments of Prior gave equally striking results as regards the diminution of uric-acid elimination, and Sassetzky, experimenting with fever patients, was able to confirm Kerner's observations.

Kerner's results have been criticised by Oppenheim,§ who found that a dose of 30·8 grains of quinine increased the elimination of urea by four grammes a day. Oppenheim believes that the results obtained by Kerner were due simply to interference with the proteolytic action of the gastric and pancreatic juices, which the use of quinine certainly causes. Prior has shown, however, that such interference does not satisfactorily account for the unquestionable retarding influence of quinine on proteid metabolism.

Chittenden and Whitehouse,|| working with cinchoni-

\* Pflüger's *Archiv*, vol. iii, p. 104.

† Ueber den Einfluss des Chinin auf den Stoffwechsel des gesunden Organismus. Pflüger's *Archiv*, vol. xxiv, p. 237.

‡ Ueber den Einfluss fieberhafte Zustände, etc. Virchow's *Archiv*, vol. xciv, p. 485.

§ Pflüger's *Archiv*, vol. xxiii, pp. 476–477.

|| Influence of Cinchonidine Sulphate on Metabolism. *Studies from the Laboratory of Phys. Chemistry*, Sheffield Scientific School of Yale College, 1884-'85.

dine sulphate, found that small doses of the drug diminished the excretion of urea and that large doses (fifty grains) diminished both urea and uric-acid, the latter out of proportion to the former.

It is probably safe to conclude that the various salts of quinine in moderate doses diminish uric-acid excretion out of proportion to the urea excretion, but it is greatly to be desired that more extended observations on quinine should be made.

*Antipyrine.*—Only a few of the observations that have been made on the influence of antipyrine on nitrogenous metabolism include the study of uric acid, and these observations give contradictory results. Thus Umbach,\* experimenting both on himself and on a dog, found that four grammes of antipyrine in two days diminished slightly the excretion of total nitrogen, but had no perceptible effect on uric acid. Chittenden and Adams,† working on a healthy man, found that antipyrine in doses of thirty to sixty grains had a marked effect in checking the excretion of uric acid and urea, which were diminished nearly proportionately. More recent experiments by Kumajawa‡ are directly opposed in their results to those of Chittenden and Adams. This observer found that in a dog large doses of antipyrine (fifty-one grammes in sixteen days) produced no effect upon the excretion of urea, but increased the excretion of uric acid on the average to sixty-five per cent. above the normal. Obviously more work needs to be done before we can reach definitive conclusions regarding the effect of antipyrine upon uric-acid excretion.

*Antifebrine.*—The best work that has been done on the action of antifebrine on uric-acid excretion is that of Chittenden and Taylor.\* It was found by these observers that, in a healthy man, doses of antifebrine, varying from six to forty grains a day, slightly increased the excretion of urea, but decidedly diminished that of uric acid. The conditions of the experiments were such in this case that there is good reason to think that doses of more than fifteen grains daily of antifebrine have a specific effect in lessening the excretion of uric acid. This effect of the drug is of considerable interest in connection with the fact that in chorea and migraine, both of which conditions are associated with an excessive elimination of uric acid, antifebrine has been used successfully as a therapeutic agent.

Thallin,|| iron, lead, and mineral acids<sup>Δ</sup> are said to decrease uric-acid elimination; but the observations on which this opinion is based are not of a character sufficiently serious to require consideration here.

\* Ueber den Einfluss der Antipyrine auf die Stickstoffausscheidung. Abstract in *Jahresbericht f. Thierchemie*, 1886, p. 418.

† The Influence of Urethane, Paraldehyde, Antipyrine, and Antifebrine on Proteid Metabolism. *Studies from the Laboratory of Phys. Chemistry*, 1887-'88.

‡ Virchow's *Archiv*, Bd. cxiii, p. 192.

§ The Influence of Urethane, Paraldehyde, Antipyrine, and Antifebrine on Proteid Metabolism. *Loc. cit.*

|| See Robin. *Berliner klin. Wochenschrift*, March, 1889.

<sup>Δ</sup> Variations in the Excretion of Uric Acid and Urea produced by the Administration of Acids and Alkalies. A. Haig. *Journal of Physiology*, vol. viii, 1887.

## 6. THE EXCRETION OF URIC ACID IN DISEASE.

We have seen that there is some lack of agreement on the part of writers regarding the influence of drugs upon uric-acid excretion. When we pass to the consideration of the relation of disease and uric-acid excretion we find an uncertainty about fundamental matters that opens our eyes anew to the imperfections of our knowledge.

Before referring to our own somewhat fragmentary work, which deals especially with nervous disease, we may advantageously review some of the more general aspects of the uric-acid question.

Not long since an English writer, Dr. Haig,\* attempted to show that uric acid is in some way the cause of a long and almost suspiciously varied list of diseases, including gout, rheumatism, migraine, epilepsy, mental depression, etc.

The idea of Dr. Haig is that these conditions are due, not to an increased formation of uric acid, but to its retention in the organism. Certain kinds of food, according to this view, render the blood less alkaline than normally, with the result that the uric acid formed is less perfectly dissolved than it should be, and is hence stored up in the tissues, instead of being removed from them.

This process of storing up continues until, as the result of an error or peculiarity in diet, the blood becomes more alkaline than before, and, in consequence of this increased alkalinity, the uric acid stored in the tissues is dissolved out into the blood. The blood (and consequently the urine) now contains a great excess of uric acid (uric acidæmia), and the patient suffers from uric-acid poisoning. This uric-acid poisoning is shown, in a general way, by a contraction of the peripheral arterioles, with increased blood-pressure and hard and slow pulse. The effects of the poison may, however, be shown in even a more striking way, as by an epileptic paroxysm, a migraine headache, or great mental depression, according to the particular predisposition of the patient. After a time the kidneys eliminate the excess of uric acid in the blood, and the blood ceases to acquire uric acid from the tissues, either because the tissues have no more uric acid to give up, or because the blood has grown less alkaline. When this elimination has occurred, the patient is once more relieved of his acute symptoms.

We believe this to be a fair general statement of the attitude of Dr. Haig regarding the relation of uric acid and disease. It will, however, repay us to examine his position somewhat critically.

Dr. Haig's views are based upon theoretical considerations and upon observation. Of the theoretical considerations on which these views rest, there are two which it is especially important to bear in mind. The first is that there is a varying condition of the uric-acid constituent of the blood, due to the varying alkalinity of the blood. The second is that the varying uric-acid excretion depends on corresponding variations in the storage of uric acid in the tissues, and not on changes in the formation of uric acid.

As to the first proposition, it may be said that, while it may safely be considered probable that the uric-acid con-

tent varies with the alkalinity of the blood, it must be admitted that there is no proof whatever that this is so. We know that uric acid is more soluble in highly than in weakly alkaline fluids, and there is nothing unreasonable in the supposition that a more alkaline blood would dissolve more uric acid, if it were accessible, than a less alkaline blood. But, if there is really a definite relation between the uric-acid content and the alkalinity of the blood, it is a fact susceptible of direct demonstration such as we might very properly demand. Yet, so far as we are aware, we have not even satisfactory evidence that the uric-acid content of the blood does actually vary in the same individual. Neither have we satisfactory information about the varying alkalinity of the blood in the same individual in health and disease. The point we wish to make is that the proposition of which we are speaking may be and probably is true, but that it is, after all, a mere supposition at present. We may use it, if we choose, as a working hypothesis, but we must not forget, as Dr. Haig appears to do, that it has not been shown to be a fact.

The second proposition—namely, that the variations in uric-acid excretion depend on the varying storage of uric acid in the tissues and not upon changes in uric-acid production—appears to be without any foundation and seems improbable. It is difficult, in the first place, to suppose that uric acid is produced in any definite quantitative relation to urea, as held by Dr. Haig. Both urea and uric acid result from cell activities, which must be undergoing such continual changes in intensity as to make it in the highest degree improbable that they are produced under all circumstances of health and disease in even approximately the same relation.

There is likewise no evidence whatever that uric acid is stored in the tissues and redissolved when the blood grows more alkaline. The formation of urate-of-sodium tophi in gout has been regarded as positive evidence that in gout, at least, there is such a storage. But the fact of the formation of tophi is susceptible of explanation in another and perhaps more satisfactory way. According to this view, the local mechanical deposition of sodium urate depends on local necrotic changes, which, in turn, depend on an excess of uric acid in the blood and not in the tissues.

We may now consider for a moment the character of Dr. Haig's observations on uric-acid excretion in disease. At the outset we are struck with the scantiness of the actual observations. On the urine of migraine a good many observations were made, but they were chiefly on one person and were made with an inaccurate method of estimating uric acid.\* The urine in epilepsy was examined, so far as we can find, in only two or three cases.† Yet Dr. Haig has no hesitation in elaborating a uric-acid theory of epilepsy on the strength of his facts. And so it is with mental depression, suicide, gout, uræmia, Raynaud's disease, and a long list of conditions which Dr. Haig refers to uric-acid poisoning. In each of these cases there is a huge superstructure of hypothesis upon a scarcely discernible basis of fact. We do not, however, wish to be understood

\* Hayeraft's method.

† *Uric Acid as a Factor in the Causation of Disease*, etc., 1892.

\* *Uric Acid as a Factor in the Causation of Disease*, 1892, Blakiston.

as contemning Dr. Haig's work absolutely. It is only just to say that his writings contain many interesting suggestions, and that his observations, though obtained by an untrustworthy method, are probably not without value. Indeed, we may say that Dr. Haig's work upon the fluctuations of uric-acid excretion in migraine is of much interest, notwithstanding its deficiencies, and contains the best observations that have been made on this aspect of the disease. What we especially condemn in Dr. Haig's writings are the sweeping conclusions that are drawn from so small a store of facts; we do not object to his ideas as suggestions, but we take exception to them as conclusions in fact.

It is instructive to examine briefly the state of knowledge regarding two conditions which are of wide general interest in connection with the uric-acid question—namely, uric-acid excretion in fever and in gout.

As regards uric acid in febrile conditions, it is generally assumed by authors that uric acid is excreted in excessive amount in fever from any cause, but especially in the case of fevers that are the result of conditions which produce embarrassed respiration (such as pneumonia, bronchitis, pleurisy with effusion, or pericarditis). There appears to be considerable doubt whether the uric-acid excretion is merely absolute or whether it is both absolute and relative as regards urea. Probably many of the statements that there is an increase of any kind in fever are based on the well-known separation of urates from fever urines. Scheube\* states that in the case of pneumonia he found both an absolute and relative increase in uric acid. On the other hand, Bartels† has shown that in many cases of acute febrile disease the uric acid excreted was present in normal proportion to the urea. It is thus plain that our knowledge regarding the influence of fever is in a most unsatisfactory state. It has been thought that the supposed increase of uric acid in fever urines was due to the defective oxidation of nitrogenous substances, but there is no support for this view. Thus Senator‡ and Nunyn and Riess# produced experimental dyspnoea in animals with a view to studying the effects of imperfect oxidation, but were unable to satisfy themselves that there was any alteration in uric-acid excretion. It has been often held that respiratory diseases in man cause increased uric-acid excretion, but there is no satisfactory evidence that this is so. The results that many writers have obtained are rendered worthless by the imperfections of their methods and their ignoring of the influence of diet. Bunge|| makes a very positive statement that in diseases of the respiratory organs the uric-acid excretion varies, in its relation to the excreted urea, within limits that are to be unhesitatingly considered normal. It is an interesting fact in this connection that in birds, whose respiration is the most active of any class of animals, nearly all the nitrogen excreted is in the form of uric acid. Indeed, nitrogen may be introduced into the body of a bird

in almost any form—as urea,\* as leucine, as glycocoll, as ammonium carbonate,† or as hypoxanthin‡—and the nitrogen reappears in the urine as uric acid and not as urea. It must be owned, however, that we should not allow these facts, whose significance is not clear, to weigh too much with us in the consideration of the relation between defective oxidation of nitrogenous tissues and excessive uric-acid excretion. We may, nevertheless, conclude that there is no good reason for referring excessive uric-acid excretion, in febrile or other conditions, to defective oxidation.

One might reasonably expect that in the case of gout there should be some well-established facts regarding the uric-acid excretion, since it is in this connection that most has been said and written about uric acid as a cause of disease. But when we come to examine the actual observations on the occurrence of uric acid in the urine in gout we find that most of them are of an unsatisfactory nature. According to Garrod, whose views have been widely accepted, there is an increase of uric acid in the blood during the paroxysmal period, due either to its over-production or defective elimination. For a long time this opinion was based entirely on the results of the well-known thread experiment, which is said by recent writers to be unreliable. Von Jaksch,# however, has recently shown, by actual analysis, that there is an excessive accumulation of uric acid in the blood in gout. Coincident with this increase in the blood there occurs, according to Garrod, a decided diminution in the excretion of uric acid by the urine. Recently Ebstein|| has attacked this view of Garrod and stated that it is in the highest degree improbable that there is any diminution in the uric acid excreted. He refers the results of Garrod to the use of imperfect methods. It certainly is difficult to believe that an excess of uric acid in the blood can be associated with a diminution of it in the urine. It is much more probable that whenever the blood contains an excess of uric acid there is a prompt increase in the elimination of uric acid by the kidney.

Probably the most satisfactory work that has been done in late years on uric acid in gout is that of Pfeiffer.<sup>Δ</sup> According to this observer, there is a decided diminution in the excretion of uric acid in all cases of gout, except during a paroxysm. This diminution he considers characteristic of gout, even in its earliest stages. When the cachexia of gout develops there is also a great diminution in the excretion of urea, and we are not clear whether or not, according to Pfeiffer, there is then merely an absolute diminution of uric acid or a relative diminution also.

During a paroxysm of gout there is regularly, according to Pfeiffer's view, an increase in uric-acid excretion, at least as compared with the excretion before and after the paroxysm. In some cases the diminution which regularly

\* *Archiv d. Heilk.*, 1876, xvii, p. 185.

† Von Ziemssen's *Handbuch*, ix.

‡ Virchow's *Archiv*, 42, p. 1.

# Dubois-Reymond's *Arch.*, 1869, p. 381.

|| *Lehrbuch*, p. 301.

\* Meyer and Jaffé. *Ber. d. deutsch. chem. Ges.*, Bd. 10, S. 1930, 1877.

† Schröder. *Zeit. f. physiol. Chemie*, 1878.

‡ W. von Mach. *Arch. f. exper. Path. u. Pharmak.*, Bd. 24, S. 389, 1888.

# *Deutsch. med. Woch.*, 1891.

|| *Verh. d. Congr. f. innere Med.*, 1889, viii, p. 133.

<sup>Δ</sup> *Ibid.*

precedes the attack may persist during the first and second day of the attack, but in every case there is, contrary to Garrod's view, an increase during the paroxysm. Pfeiffer believes that in gout there is not necessarily any increased formation of uric acid, but rather a retention of it in the tissues and body fluids, owing to its being present in an insoluble form. We shall not, however, concern ourselves further with this question, which is largely one of theory. The observations of Pfeiffer appear to be well made, and his conclusions are consistent with what we know about uric-acid excretion. The one criticism it is necessary to offer on his work is that he employed a notoriously poor method of determining uric acid. We can not say to what extent this deficiency may have impaired the value of his results.

We have referred to the state of our knowledge as to uric-acid excretion in gout and in fever partly to illustrate the uncertainty that still exists regarding such common conditions. How little we actually have known until recently about uric-acid excretion in disease is shown by the remark of Bunge, in his recent work,\* that up to the present time (1889) there is only one disease in which it has been positively shown that there is an excessive excretion of uric acid—namely, leucæmia. But at the present time this statement would scarcely hold, for we have proof that there are several functional forms of nervous disease in which uric-acid excretion is abnormally large. We may pass to the consideration of these conditions.

Our own work refers especially to chorea, epilepsy, neurasthenia, and migraine, and we shall confine our attention especially to these forms of disease.

So far as we are aware, no observations have hitherto been made on uric acid in chorea, and our own work is not so extensive as could be desired. In four cases of chorea in which we have studied the urine there was a continuously excessive excretion of uric acid. This excess appeared to be proportional to the severity of the choreic movements, and grew less under the influence of treatment and in proportion as this was effective. We shall elsewhere give our data in full.

Not long since Haig advanced the proposition that epilepsy and certain kinds of headache, especially migraine, depend on temporary uric acidæmia. Haig's claim is that the epileptic paroxysm is preceded by a diminished excretion of uric acid, that the paroxysm itself coincides with an excessive excretion of uric acid, and that after the paroxysm the excretion falls quietly back to the normal.

This view appears to rest chiefly on the fact that in one case of epilepsy, recorded in the *Neurologisches Centralblatt* for 1888, Haig observed a diminution of the ratio to 1 to 50 (which he considers abnormal, 1 to 33 being his normal) before paroxysms, and of 1 to 20 immediately after them. Haig states that he has investigated other cases, but does not give figures that are satisfactory. He appears to recognize in some degree the insufficiency of the facts on which he bases his hypothesis, for he says that he would have liked to examine a large number of cases, but found the difficulties too great. Being, as he admits, unable to extend

his observations to his satisfaction, he abandons his investigations and retreats from fact to speculation. "I now look upon many other signs and symptoms," says he, "as more or less satisfactory evidence of uric-acid causation."

A similar indication of the insecurity of Dr. Haig's position is that he constantly attempts to support it by leaning on purely clinical considerations. He thinks, for example, that the uric-acid theory of epilepsy must be correct because there is a close clinical relationship between epilepsy and migraine, and he believes that he has shown migraine to be a "uric-acid headache."

We have made an extended series of observations on the state of uric-acid excretion in epilepsy. The detailed presentation of these observations and the conclusions that follow from them we propose to defer to another occasion. We may, however, say here that we have as yet obtained no grounds for the view that the *grand-mal* paroxysm of idiopathic epilepsy is regularly or even usually preceded by a diminished uric-acid excretion. On the other hand, our results support the view of Haig to the extent that we find the paroxysm to be usually succeeded by an increase in the uric acid of the urine. In many cases the increase is greatest on the second day after the seizure.

This latter fact suggests that the increase in uric acid is the result of conditions that are associated with, and perhaps determine, the paroxysm, and that this increase is not itself a cause.

We have made some observations which suggest that the uric-acid factor is of more significance in cases of *petit mal* than in cases of *grand mal* of idiopathic type. Thus, while the *grand-mal* cases in general have shown merely an increased excretion of uric acid after the paroxysm, the *petit-mal* cases have shown a large and persistent excess in the uric acid of the urine. That this excess has been in some degree related to the *petit-mal* seizures in three cases which we have examined repeatedly, was shown by the cessation or reduction in frequency of the seizures by the use of a diet which has lessened uric-acid elimination. This suggestion is further based on the repeated examination of the urine in seventeen cases of *grand mal*, many of which were placed at our disposal by the courtesy of Dr. Fisher. Up to the present time we have made one hundred and fifty-six determinations of uric acid in these cases of epilepsy.

Analysis of the urine from nine cases of pronounced neurasthenia showed in each instance but one an excess of uric acid. In this case the ratio was on the border line. In four of the cases the neurasthenic symptoms were referable directly to sexual excess. As a group these cases show nothing distinctive. A marked feature in some of the neurasthenic cases was a tendency to rather sudden variations in the ratio of uric acid and urea.

In all the cases that are tabulated below, organic disease of every kind was so far as possible excluded. The influence of alcohol was also barred out.

Our observations on migraine are few in number. In one case two paroxysms were studied; in another case only one paroxysm was studied. In each paroxysm a considerable excess in the excretion of uric acid was observed im-

\* *Lehrbuch*, 1889, p. 301.

mediately after the period of headache. No diminution of uric acid was found in the samples of urine passed immediately before the period of headache.

Table showing Uric-acid Excretion in Neurasthenia.

No. of case.	Symptoms.	Quantity.	Sp. gr.	Chlorine.	P <sub>2</sub> O <sub>5</sub> .	Urea.	Uric acid.	Ratio of uric acid to urea.
		C. c.					Grm.	
1	Headache,	1,585	1.024½	12.398	3.312	42.671	.789	1 : 54
"	general debility,	1,310	1.022	8.945	2.177	29.977	.654	1 : 45.8
"	loss of memory.	1,235	1.026	9.813	2.678	35.742	.844	1 : 42.3
2	Pressure sensation on vertex,	1,670	1.017	5.610	2.103	29.893	.731	1 : 40.9
"	mental depression.	1,305	1.016½	.....	.....	25.839	.698	1 : 37.1
3	.....	720	1.019½	.....	1.170	14.832	.326	1 : 45.5
"	.....	2,654	1.020	.....	4.099	41.400	1.067	1 : 38.8
"	.....	1,818	1.021½	.....	.....	38.905	.773	1 : 50.3
"	.....	1,907	1.022½	.....	4.238	46.340	1.100	1 : 42.1
"	.....	2,010	1.023½	.....	4.880	47.838	1.257	1 : 38
"	.....	2,277	1.020	.....	3.819	47.435	1.100	1 : 43
4	Headache,	1,950	1.011½	3.631	2.619	23.999	.637	1 : 37.6
"	mental depression.	1,950	1.011½	3.510	2.6775	22.637	.493	1 : 46
"	depression.	2,070	1.09½	4.627	2.142	22.689	.568	1 : 39.7
5	Headache, debility.	840	1.018	5.319	.727	11.873	.4074	1 : 29.1
6	Hypochondriasis.	1,150	1.026	4.7118	2.586	35.162	.9953	1 : 35.3
7	Headache,	1,005	1.024	6.239	2.150	30.148	.669	1 : 45
"	hypochondriasis, debility.	1,000	1.024	6.338	2.030	25.768	.558	1 : 46.7
8	Irritability, debility.	650	1.030	4.578	2.069	24.393	.648	1 : 37.5
9	Irritability, depression.	1,640	1.027½	12.1	3.431	48.543	1.417	1 : 34.2

In two cases of paroxysmal vomiting in children we have made observations which we believe to be unique. Both the cases were under the care of Dr. L. E. Holt, from whom the histories were obtained. The first case is that of a boy, aged seven, who, since his third year, has had occasional periods of persistent vomiting, usually with headache and some rise in temperature. The paroxysms could not be referred to any intelligible cause. In the intervals the boy enjoys what is apparently perfect health. A twenty-four-hour sample of urine obtained in an interval of health showed a ratio of uric acid to urea of 1 to 56—i. e., a normal relation. A twenty-four-hour sample from the first day of a period of uncontrollable and repeated vomiting showed a ratio of uric acid to urea of 1 to 159. During the second day of the attack the relation was 1 to 134. On the third day the vomiting ceased and all the symptoms cleared up. The ratio on this day was 1 to 50, but it is certain that this relation is too low, as only the uric acid in the sediment was included in the analysis.

Fourteen weeks after this attack the patient had another. On the first day of the seizure the ratio was 1 to 164.8; on the second day it was 1 to 157. On the following day, as the symptoms wore away, the ratio was 1 to 24.9. We have in this case an example of an acute paroxysmal disorder, characterized especially by persistent vomiting, in which the attacks coincide in time with a very great diminution in the excretion of uric acid and are followed by a period in which its excretion is increased.

The second case which we have to relate belongs apparently to the same clinical type. In this case the patient, a healthy girl, aged four years and a half, developed symp-

toms which during two days justified a suspicion of tubercular meningitis. There were present the following conditions in the course of four days: persistent vomiting, obstinate constipation, marked retraction of the abdomen, irregular breathing and pulse, and, on the first and third days, slight fever. The urine of the first and fifth days was studied.

On the first day the ratio of uric acid to urea was 1 to 83.5—that is, distinctly low. On the fifth day it was 1 to 21—that is, very high. A normal specimen obtained some time later gave a ratio of 1 to 42.1. It is to be regretted that the examination did not extend over the entire time of the attack in this case, but the results, such as they are, are suggestive. A detailed presentation of these cases is given below:

Table illustrating the State of Uric-acid Excretion in Two Cases of Persistent Vomiting.

	CASE I.	Ratio of uric acid to urea.	
1st paroxysm.	Urine before paroxysm (normal).....	{ Urea, 13.606 grm. } { Uric acid, .2515 " }	1 : 54.2
	First day of paroxysm.....	{ Urea, 17.249 grm. } { Uric acid, .11 " }	1 : 156.9
		{ Urea, 12.023 grm. } { Uric acid, .0912 " }	1 : 131.8
	Second day of paroxysm....	{ Urea, 11.713 grm. } { Uric acid, .2345 " }	1 : 50
	Directly following paroxysm	{ Urea, 15.040 grm. } { Uric acid, .2827 " }	1 : 53.1
2d paroxysm.	Urine after paroxysm (normal)....	{ Urea, 12.576 grm. } { Uric acid, .0763 " }	1 : 164.8
	First day of paroxysm.....	{ Urea, 13.824 grm. } { Uric acid, .088 " }	1 : 157
		{ Urea, 21.07 grm. } { Uric acid, .839 " }	1 : 24.9
	Second day of paroxysm....		
Directly following paroxysm			

	CASE II.	Ratio of uric acid to urea.
First day of paroxysm .....	{ Urea, 12.285 grm. } { Uric acid, .147 " }	1 : 83.5
Fifth day of paroxysm.....	{ Urea, 10.428 grm. } { Uric acid, .495 " }	1 : 21
After paroxysm (normal).....	{ Urea, } { Uric acid, }	1 : 42.1

We have touched upon some of the aspects of the uric-acid question which relate to clinical medicine. We have shown that in the investigation of a particular case it is necessary to study especially the quantitative relation that exists between urea and uric acid, for we can place little reliance on the totals themselves, which vary with conditions which we can not hope to control in clinical work. Since, as we have further shown, the variations in this relation are slight in the same individual in health, it follows that any considerable derangement of the normal relation is readily appreciable. The degree and persistency of any derangement in the relation may afford us a valuable index of the severity of condition with which we have to deal—a better index, perhaps, in some cases than the symptoms themselves, which may, as in the case of neurasthenia, be chiefly subjective. In many cases the variations in the quantitative relation, as the morbid condition progresses, may be advantageously noted with a view to watching the effects of treatment and of obtaining in this way facts for the establishment of a rational prognosis. We have ourselves been able to use some of our observations to advantage for this purpose.

But while we have thus dwelt upon some of the more practical relations of uric acid in health and disease, we have ignored the question which, of all the interrogatives of the uric-acid problem, is of the greatest interest. That question is, What is the significance of the excessive excretion of uric acid which is a concomitant of disease? Or, in other words, What is the relation of this uric acid excess to the cause of the morbid process? We doubt whether it is possible, at the present time, to give a satisfactory reply to this query, but shall endeavor to show, though it be but imperfectly, what are the considerations that should weigh most with us in trying to approach it.

The first fact to bear in mind in this connection is that excessive uric-acid excretion is a condition that is observed in a considerable number of clinical conditions. As we have already seen, it occurs in neurasthenic states, in migraine, in epilepsy, in chorea, in fever, in leukæmia, and as the result of the use of considerable quantities of alcohol. There can be no doubt that this excessive excretion is a common condition, and there is reason to think that a more extended study of the subject than has yet been made would show it to occur with greater frequency than has ever been suspected, especially as a consequence of disorders of digestion. Another fact of importance is that the conditions which have been enumerated as being associated with uric-acid excess differ widely in their clinical characters. It needs no argument to emphasize the clinical contrast between chorea and leukæmia, or that between an acute febrile and a neurasthenic state. But the fact that these conditions (so widely different that their comparison is amusing) have in common the excessive excretion of uric acid, leads us at once to the conclusion that this excess can not reasonably be regarded as the *specific* cause of any one of the numerous morbid states of which such excess is characteristic. It is certainly true that the conditions we have named differ as widely in their ætiology, so far as we understand it, as do the clinical types themselves. How, then, shall we interpret the important condition which these different types have in common? Our view of the matter is as follows:

Uric acid, like urea, is an end-product of nitrogenous metabolism. There seems to be no evidence to show that the formation of uric acid is a necessary precursor to the formation of urea. Such evidence as there is points to the idea that both these substances are the consequences of a more or less lengthy and varied series of metabolic changes, and that the formation of uric acid is expressive of merely a slight divergence from the process that ends with the production of urea.

An increase in the formation of uric acid, such as to make the quantity in the urine bear a higher ratio to the urea of the urine, is to be regarded as the result of a derangement in the development of the chain of nitrogen-holding substances that make their successive appearance for a short period of time between the commencement of digestion and the completion of destructive metabolism. What these substances are and how they are related to one another is still largely unknown to us, but there seems nothing unreasonable in the view that in conditions of dis-

ease the early links in the chain may differ from those that belong to health, and may possibly present a considerable divergence among themselves in different morbid processes.

But whatever may be the character of the original disturbance or of the morbid substances concerned in it, as destructive metabolism progresses there are only a few substances, so far as we know, through which these concomitants of deranged nitrogenous metabolism may be eliminated from the body. Of these, one of the most important appears to be uric acid.

According to this view, then, the increased excretion of uric acid that is met with in disease might be an *effect* of numerous different derangements in nitrogenous metabolism. We believe that this suggestion harmonizes with the fact that uric-acid increase may be brought about by so many different nutritional disorders. In this excessive excretion we should be dealing with the *result* and probably not with the *cause* of disease. Excessive uric-acid formation, in other words, is a terminal process that may result from different and perhaps numerous different initial morbid nutritive conditions. The fact that we can not now point out what these derangements consist in or with what poisonous substances they are identified, does not make less reasonable the view we have ventured to suggest.

#### A SIMPLE METHOD OF TREATING MANY CASES OF LACRYMAL OBSTRUCTION.

BY GEORGE M. GOULD, A. M., M. D.,  
OPHTHALMOLOGIST TO THE PHILADELPHIA HOSPITAL.

I ALWAYS suspect that system of therapeutics, whether political, social, or medical, to be wrong that proceeds on the assumption that its author could have given God some very good advice had the reformer been present at the creation of the world. In social science it is well recognized that any method of enduring progress must be based on helping Nature instead of disregarding or opposing her. In medicine and surgery the history of all failures is that "the fools rush in" with their little wisdom, supposed superior to the great wisdom of Nature, and, without study of the subtle ways and indications of the physiological processes, ruthlessly disturb or overturn the delicate measures of cure silently at work.

There seems to me a little illustration of this great truth in one small department of ophthalmic surgery—that relating to the condition of the lacrymal excretory apparatus giving evidence of itself by lacrymal retention, or even epiphora, lacrymal conjunctivitis, dacryocystitis, etc. There are, of course, a few cases in which the patency of the system is interrupted by closure of the intranasal orifice of the duct, the result of rhinitis, chronic or acute, malformation of the adjacent parts, indiscriminate use of the cautery, of the lacrymal probe, etc. There are others in which a genuine anatomical stricture may exist, the result of inflammation, morbid growth, traumatism with probes, etc. Without attempting an enumeration of such cases of lacrymal stenosis or occlusion, and admitting them out of this count, I wish to urge that the vast majority of cases

with symptoms of retention of tears are due to temporary and functional causes. There is a large number due to excess of secretion (instead of defective excretion) arising from eye-strain (overuse of a physiologically normal or an ametropically abnormal eye), from local irritations or congestions of many kinds, etc. There is another and still larger class of cases in which the abnormal conditions of the nares or nasopharynx by contiguity of tissue, or by duct-transfer of morbid material, living or chemical, to the upper part of the duct or sac, there set up congestion of the lining mucous membrane, and hence stenosis and retained secretions. It needs only the very slightest swelling of the membrane to narrow overmuch or to entirely close the patency of the tiny lumen of the canaliculus or duct.

Dr. S. D. Risley tells me that in examination of a number of dry skulls he found none the lacrymal ducts of which admitted the passage of the larger probes advised for "probing" the living, membrane-lined, and therefore narrowed, canal. This careful and excellent observer has long taught that the function of the duct is not that of a large drain, which it is not, but of a tiny capillary tube, which it is. The frequency of unhealthy nares, the abundance of dust and other pathogenic material, living or neutral, in our modern city life, that is sucked through the nares with every breath, or deposited in the conjunctiva between every wink of the eyes, furnish evident reasons for the overstimulation of the lacrymal or secretory apparatus, or for the functional interference of all grades with the act of excretion. A little narrowing, the irritation of a little retained morbid material, the extension up from the nose or down from the conjunctiva of a frequently-present local congestion or inflammation—and we have the eye bathed in tears, lacrymal conjunctivitis, or dacryocystitis.

Under such circumstances, what anatomic ignorance, what physiological stupidity, what therapeutic sin, to "slit up the canaliculus"—that wonderful little structure, with its sphincters about the puncta, and fashioned so patiently by Nature for a purpose and use—forever destroying its function, and, by brute force, jamming a rod of metal down among the congested membrane, wounding it in every part of its length by crushing it between the rigid probe and the bone, against which it lies in such close union! And yet this is the routine practice advised and carried out almost everywhere.

No wonder such cases are "obstinate." The cure creates the disease, and even worse; where before was only functional stenosis, there is doubtless often, by traumatism, organic stricture following inflammation set up by the probe injury.

Let us go at Nature less mechanically and brutally. Is there not a better way?

About a year ago I found blue pyoctanin (1 to 1,000) an excellent means of overcoming lacrymal conjunctivitis and disorders of the sac and duct, and I believe my colleague, Dr. De Schwcinitz, substantially agrees with me in conclusions from the experience. The effect is doubtless due to the powerful penetrating quality of the methyl violet, coupled with some antiseptic property. But it is almost impossible to use this drug without its highly objectionable staining

qualities becoming obtrusively manifest. I have therefore discontinued its use and have adopted another plan that seems to me based upon natural methods and to be an extension of Nature's indications.

Little children, in whom the fount of tears easily overflows, and in whom the excretory function is therefore put to most active use, are constantly "gouging" the "corners of their eyes," the inner canthi, with their little fists in a way that sometimes appears almost dangerous. Here, then, is the latest discovery in therapeutics—massage made use of by infantile wisdom. Even therapeutically, "babes and sucklings" may teach us if we are modest enough to learn.

In dacryocystic troubles every ophthalmic surgeon empties the sac by slow pressure upward and inward toward the inner canthus. How frequently in doing this we force a gush, seemingly absurdly great in quantity, of watery, mucoid, or purulent material, through the puncta—especially the upper one! But not following up the hint given by the babies, or by this latter procedure, the surgeon stops here and reaches for the knife and probes.

It would seem that the suggestion of massage, of continued and repeated emptying of the clogged sac by pressure, were worth trying. Perhaps massage alone would cure many cases. If now, without injury to the parts, we could refill these empty but congested canals with an antiseptic and astringent fluid, would we not at once and certainly cleanse, heal, and bring all back to physiological order? This is very easy.

First empty the sac and canaliculi by dexterous pressure, and cleanse the eye and palpebral pockets of this unhealthy material. Then cant the patient's head back and to one side, or have him lie so that a teaspoonful of liquid will be held in the depression formed by the nose, orbital border, and superior maxilla. Fill this space with a solution of boric acid,\* and with the little finger again slowly empty the sac and canaliculi by pressure, and then, as slowly lessening the pressure, allow these spaces to refill, by suction and capillary attraction, with the solution under which the puncta are submerged. Again, in half a minute empty the canaliculi and sac by pressure, but this time beginning the pressure from the canthus toward the nose and downward, so as to force the antiseptic solution downward into the duct. These alternate emptyings and refillings of the sac may be repeated several times and as often as desirable to meet the indications of the case. It will usually be found that the sac will soon become healthy and that pressure upon it will not cause regurgitation of morbid material through the puncta.

This treatment may not be "surgical," but it is "common sense."

A certain number of cases, however, will not yield to this treatment. There is too great stenosis or spasmodic contraction of the muscular sphincter of the punctum, etc., so that the cleansing solution can not be forced into the sac and duct. In such cases I am accustomed to insert one

\* The solution I use is composed, to the ounce of distilled water, of boric acid, ten grains; common salt, three grains; chloride of zinc, one grain—all deeply tinted with pyoctanin-blue, and doubly filtered after long standing.

sharp point of the iris scissors into the punctum and snip it open about one eighth of an inch, perpendicularly downward toward the conjunctival fold. This gives a larger opening for the indrawal of the solution.

I have been astonished to see how rapidly cases recover under this simple treatment that formerly would have seemed to demand slitting of the canaliculus and probing. I have been led to wonder if under the old treatment the good was not really done by the antiseptic or cleansing solutions commonly used with the surgical treatment—and, indeed, if the collyrium did not effect the cure in spite of the probing. I am thoroughly convinced that the very free use of antiseptic eye lotions, by the constant passage of the same through the duct, act therapeutically on nasal inflammations, that are themselves the primary causes or sources of conjunctival affections. Of course, a more effective treatment would be that of the nares direct.

One of the chief advantages of this simple procedure I would urge as consisting in the ability of the patient or of the patient's friends to carry on the treatment at home after a brief explanation and illustration by the physician. I am aware that some would consider this a disadvantage. Another and more important point in its favor is that general and family physicians can carry it out with the greatest ease. These, generally speaking, have not the necessary skill, or the special instruments for probing, etc., or they shrink from "interfering with the eye"; hence many patients, failing to seek the specialist's services, remain untreated and go on from bad to worse. A large proportion of such cases would find speedy relief by an application of the foregoing method.

## ETHER NARCOSIS

### AS INDUCED BY THE ORMSBY INHALER.\*

By J. A. WYETH, M. D.

IN the *Medical Record* for August 31, 1889, I saw the report of an address in surgery before the British Medical Association by Mr. T. Pridgin Teale. In this address he spoke in such terms of commendation of ether narcosis as induced by the method of Ormsby that I determined to satisfy myself of its value. For the last sixteen months I have employed it in private and public practice, and am convinced of its superiority to other methods of ether anæsthesia.

The apparatus consists of a rubber mouth and nose cover, a wire wicker sponge-holder, and over this a rubber balloon.

It is intended to furnish to the respiratory tract ether vapor mixed with and warmed by the expired air. It is claimed, and I hold justly so, that by warming this vapor some of the dangers of bringing a cold ether vapor in contact with the larynx, trachea, bronchi, and air-cells are lessened if not avoided. When it is remembered that the expired air has a temperature varying from 93° to 95.4° F., it will be readily understood how such heat will affect the vapor of ether with the Ormsby apparatus. The expired air is again inspired and breathed over and over again until there is added to the narcosis of ether a variable carbonic-

acid narcosis or asphyxia. In ordinary respiration only one fifth of the oxygen carried in by a single respiratory effort is absorbed by the blood. If there were no leakage to the apparatus, it is evident that it would take but a few respiratory efforts to consume all the oxygen caught in the mask and lungs, and that asphyxia must rapidly supervene. Such, however, is not the case in the practical working of the inhaler. I think that the partial asphyxia aids a rapid anæsthesia, dulling as it does sensibility and lessening the resistance to the absorption of the vapor. The degree of asphyxiation can be controlled and perfectly regulated by the trained etherizer.

In the list of cases to be given the condition of the urine before and after operation was carefully studied; noted the minute of commencing the administration; the time to complete insensibility and relaxation; time of operation; time of administration; time from removal of mask to restoration of consciousness; quantity of ether employed; whether or not vomiting occurred; and any notes of interest.

I wish to acknowledge the valuable aid so cheerfully given me in this work by the very efficient house staff at Mount Sinai Hospital—Dr. Leigh, Dr. Lovell, Dr. Sternberger, Dr. Cohen, Dr. Brodhead, Dr. Brickner, and Dr. Garrigues. I must also thank Messrs. Van Horn and Ellison, of Forty-first Street and Park Avenue, for the care they have taken to have the apparatus properly constructed.

Of forty-one cases, from the time of applying the mask to the time when the patient was relaxed and unconscious, the total was two hundred and thirty-eight minutes, or an average of five minutes and three quarters. From the time of unconsciousness until the ether was finally discontinued, eleven hundred and eighty-seven minutes elapsed; average, twenty-nine minutes. From discontinuance of the ether until consciousness supervened (reaction), two hundred and four minutes elapsed; average, five minutes. From commencement to completion of operation, eight hundred and eighty-six minutes; average, twenty-one minutes and a half. Quantity of ether poured out of ether bottle, one hundred and four ounces and a quarter; average, two ounces and a half.

In ten of forty-one cases vomiting ensued. In thirty-one of forty-one cases there was no vomiting.

The study of the changes in the urine gives the following result:

CASE I.—Carrie M., aged forty-five. Cancer of breast. Gland and axillary contents removed. Under anæsthesia fifty-five minutes; quantity, three ounces. Urine before operation, acid, sp. gr. 1.020, negative; after operation, acid, sp. gr. 1.030, trace of albumin; epithelium.

CASE VII.—S. S., aged ten, male. Plastic of leg. Under, thirty-five minutes; two ounces. Before operation, urine clear, acid, sp. gr. 1.020; oxalate of lime and granular matter. After operation, urine clear, acid, sp. gr. 1.032, trace of albumin, leucocytes, and oxalate of lime.

CASE XII.—A. B., aged twenty, female. Hæmorrhoids, clamp and cauterly. Under, thirteen minutes; one ounce. Before operation, clear, acid, sp. gr. 1.022, bladder epithelium, leucocytes. After operation, clear, acid, sp. gr. 1.010, trace of albumin, leucocytes, and epithelium.

\* Read before the New York Surgical Society.

No.	Name.	Age	Operation.	Date.	TIME OF—				Char-acter.	Ether.	Urine before operation.	Urine after operation.	Vom-iting.	
					Un-der.	Total anæ.	Oper-ation.	Reac-tion.						
1	Carric Miller.	54	Amputation of breast and removal of ax. contents.	1891. Nov. 23.	8 m.	55 m.	55 m.	20 m.	Good.	3 ij.	Acid, 1'020, negative.	Acid, 1'030; trace alb.; epithelium.	Much	Idiocy not affected by anæsthesia.
2	Simon Heimerding.	60	Hæmorrhoids; ligature; clamp and cautery.	"	10 m.	30 m.	14 m.	7 m.	Fair.	3 ijss	Clear, neut., 1'040; no alb. +, large amt. sugar.	Clear, acid, 1'042; no alb.; large amt. sugar.	No.	Amt. sugar and amt. of urine not affected by anæsthesia.
3	Charlesanna Robinson.	25	Hæmorrhoids (cautery).	"	3 m.	10 m.	7 m.	10 m.	Good.	3 j.	Negative.	Clear, acid, 1'032; urates.	"	
4	Frederick Frohnan.	27	Fistula in ano, incised; hæmorrhoids; clamp and cantery.	"	5 m.	16 m.	14 m.	8 m.	Fair.	3 ijss.	Clear, acid, 1'022, negative.	Acid, 1'020, epithelium, granular matter.	"	
5	Moritz Gellman.	14	Necrosis of metatarsal bone.	"	3 m.	30 m.	28 m.	10 m.	Fair, weak pulse.	3 ij.	Clear, neutral, negative.	Clear, acid, negative; uric acid.	"	Recovery good.
6	Moses Kirowitz.	43	Hæmorrhoids; clamp and cautery.	Nov. 27.	5 m.	24 m.	11 m.	4 m.	Good.	3 ij.	Clear, acid, 1'034, negative.	Clear, acid, 1'020, negative.	"	
7	Samuel Steinlauf.	10	Wound of knee; plastic.	"	3 m.	35 m.	27 m.	2 m.	"	3 ij.	Clear, acid, 1'020, ox. lime, granular matter.	Clear, acid, 1'032; trace alb.; leucocytes; ox. lime.	"	
8	Rabinowitz Baruch.	30	Carbuncle of back.	Nov. 28.	5 m.	13 m.	8 m.	3 m.	Poor.	3 ij.	Operation on admission.	Cloudy, acid, 1'030; phosphates, ox. cal., and uric acid.	"	
9	Simon Hansom.	48	Ischio-rectal abscess.	"	7 m.	19 m.	11 m.	4 m.	Good.	3 ijss.	Operation on admission.	Clear, neut., gran. matter, ox. lime.	"	
10	Hannah Mikalofsky.	30	Cellulitis of hand.	"	6 m.	37 m.	26 m.	6 m.	"	3 ijss.	Clear, acid, 1'020, negative.	Clear, acid, negative.	Yes.	
11	Wolf Moldowsky.	42	Hæmorrhoids; clamp and cautery.	Nov. 30.	5 m.	17 m.	11 m.	1 m.	"	3 ij.	Acid, 1'026, negative.	Acid, 1'020, negative.	No.	Severe endocarditis; no bad effects; died. Dec. 13.
12	Anna Besker.	20	Hæmorrhoids; clamp and cautery.	"	3 m.	13 m.	7 m.	1 m.	"	3 j.	Clear, acid, 1'022; bladder epithelium, leucocytes.	Clear, acid, 1'010; trace alb.; leucocytes, epithelium.	Yes.	
13	Meyer Sack.	46	Hæmorrhoids; ligature.	"	5 m.	36 m.	26 m.	2 m.	"	3 ijss.	Cloudy, acid, 1'042, ox. calcium.	Cloudy, acid, no alb.; hyaline casts, calc. ox.	No.	Dec. 12, urine clear, acid, 1'030, neg.
14	Siegmund Mandce.	23	Hydrocele.	Dec. 4.	8 m.	29 m.	21 m.	11 m.	"	3 ij.	Clear, acid, 1'028, calc. oxalate; uric acid; epithelium.	Clear, acid, 1'028; granular matter.	"	
15	Moritz Gross.	4	Hydrocele.	Dec. 7.	3 m.	16 m.	18 m.	5 m.	Fair.	3 j.	Clear, acid, 1'028, negative.	Cloudy, acid, 1'030; urates.	Mucus in throat.	
16	Joseph Straush.	30	Hæmorrhoids; ligature.	Dec. 10.	6 m.	25 m.	27 m.	2 m.	Good.	3 ij.	Cloudy, acid, 1'020; trace alb.; leucocytes; granular casts.	Cloudy, acid, 1'028; trace alb.; leucocytes, blood-cells, kidney epith., granular casts.	No.	Good recovery.
17	Faibush Grisburen.	43	Hæmorrhoids; clamp and cautery.	Dec. 14.	8 m.	23 m.	12 m.	2 m.	Fair.	3 ijss.	Clear, acid, 1'028, negative.	Cloudy, acid, 1'028; urates.	Yes.	Emphysema and chronic bronchitis not affected.
18	Isaac Foster.	40	Fistula in ano and hæmorrhoids.	"	9 m.	15 m.	7 m.	3 m.	"	3 ij.	Negative.	Cloudy, acid, 1'034, negative.	No.	
19	Jennie Schencklinkoff.	23	Cellulitis of hand.	"	3 m.	17 m.	9 m.	1 m.	Good.	3 j.	Clear, acid, 1'024; trace alb.; leucocytes; blood-cells.	Clear, acid, 1'030, negative.	"	
20	Buruch Bender.	53	Cellulitis of hand.	Dec. 19.	7 m.	14 m.	5 m.	2 m.	"	3 j.	Clear, acid, uric acid crystals.	Clear, acid, 1'040, negative.	"	
21	Rashmael Dilkin.	23	Hæmorrhoids, Whitehead's.	Dec. 24.	3 m.	50 m.	51 m.	8 m.	"	3 ijss.	Clear, acid, 1'030, negative.	Negative.	"	
22	Lena Blum.	12	Compd. fract. skull; trephining.	"	3 m.	24 m.	24 m.	5 m.	"	3 ij.	Negative.	Clear, acid, 1'020, negative.	Yes.	
23	Ida Block.	17	Tuberculosis of tarsus.	Dec. 21.	5 m.	35 m.	23 m.	2 m.	Fair.	3 ijss.	Clear, acid, 1'040; leucocytes.	Clear, acid, 1'040; epithelium cells.	No.	
24	Leua Kronejold.	17	Tubercle of face.	"	3 m.	21 m.	12 m.	4 m.	"	3 ij.	Clear, acid, 1'025; epithelial cells.	Clear, acid, 1'035; trace alb.; hyaline and gran. casts.	"	Good recovery.
25	Louis Rappaport.	27	Peri-urethral abscess.	"	6 m.	14 m.	6 m.	3 m.	Good.	3 j.	Clear, acid, 1'025; trace alb.; leucocytes.	Clear, acid, 1'030; no alb.; leucocytes.	"	
26	George Newman.	38	Osteo-myelitis of tibia.	"	7 m.	26 m.	24 m.	10 m.	"	3 ij.	Clear, acid, 1'030; leucocytes, uric ac.	Acid, 1'032, negative.	"	
27	Jacob Sinnis.	23	Ischio-rectal abscess; fistula in ano.	"	4 m.	22 m.	14 m.	1 m.	"	3 jss.	Negative.	Acid, 1'028, negative.	Yes.	
28	Jacob Ungar.	27	Mural abscess.	"	7 m.	21 m.	7 m.	2 m.	Poor.	3 jss.	Cloudy, acid, 1'028, negative.	Acid, 1'022, negative.	No.	
29	Davis Schneier.	34	Hæmorrhoids; clamp and cautery.	Dec. 29.	9 m.	14 m.	9 m.	3 m.	Fair.	3 ij.	Acid, 1'030, negative.	Acid, 1'032; urates.	"	
30	William Atchinson.	18	Caries of wrist; exsected.	1892. Jan. 4.	8 m.	53 m.	53 m.	5 m.	.....	3 iv.	Acid, 1'022, negative.	Clear, acid, 1'030, negative.	Yes.	Doing well.
31	Herman Scharreck.	28	Abscess of prostate.	"	10 m.	18 m.	7 m.	10 m.	.....	3 ij.	Clear, acid, 1'030; leucocytes.	Clear, acid, 1'030, negative.	No.	
32	Solomon Blum.	..	Ischio-rectal abscess; fistula in ano.	"	4 m.	13 m.	10 m.	5 m.	.....	3 ij.	Operation on admission.	Cloudy, 1'021, negative.	"	Operated day of admission; died; septic absorption.
33	Mary Anzerlowitz.	14	Tumor of popliteal space.	Jan. 11.	5 m.	1 h. 3 m.	53 m.	5 m.	.....	3 iv.	Acid, 1'033, negative.	Cloudy, 1'037; urates.	Yes.	
34	Louis Greenwald.	48	Caries of os calcis, Schedé.	"	5 m.	28 m.	21 m.	3 m.	.....	3 ij.	Clear, acid, 1'029, negative.	Negative.	No.	Doing well.
35	Julius Einfrank.	30	Fistula in ano.	"	8 m.	15 m.	4 m.	5 m.	.....	3 ij.	Negative.	"	"	Cured.
36	Moses Marcus.	23	Perityphlitic abscess.	Jan. 12.	6 m.	21 m.	15 m.	7 m.	.....	3 ij.	Clear, acid, 1'028, negative.	"	Yes.	Doing well.
37	Ben Chasanowitz.	40	Fistula in ano.	"	10 m.	19 m.	4 m.	2 m.	.....	3 ij.	Negative.	"	No.	Cured.
38	Anna Gunti.	39	Tumor of the groin.	Jan. 18.	8 m.	1 h. 30 m.	1 h. 15 m.	7 m.	.....	3 v.	Clear, 1'015, acid, negative.	1'030, acid, negative.	"	Doing well.
39	Baer Mirwisch.	36	Hæmorrhoids; Allingham operation.	"	8 m.	29 m.	20 m.	6 m.	.....	3 ij.	Clear, 1'033, acid, negative.	1'029, no alb.; urates.	"	Cured.
40	S. Weinstein.	21	Hæmorrhoids.	"	8 m.	12 m.	3 m.	4 m.	.....	3 ij.	Acid, 1'033, negative.	Cloudy, 1'039, acid, negative.	"	
41	Nora Pricc.	29	Tubercular glands of neck.	Jan. 22.	15 m.	2 h. 3 m.	1 h. 15 m.	3 m.	Good.	3 vij.	Acid, 1'031, negative.	Cloudy, 1'035, acid; urates.	"	

CASE XIII.—M. S., aged forty-two, male. Hæmorrhoids, ligature. Under, thirty minutes. Before, cloudy, acid, sp. gr. 1.042, oxalate of lime. After, cloudy, oxalate of lime, hyaline casts.

CASE XVI.—J. S., aged thirty, male. Hæmorrhoids, ligature. Under, twenty-five minutes; three ounces. Before, cloudy, acid, sp. gr. 1.020, trace of albumin, granular casts, leucocytes. After, cloudy, acid, sp. gr. 1.028, trace of albumin, blood corpuscles, granular casts, renal epithelia, leucocytes.

CASE XXIV.—L. K., aged seventeen, female. Lupus of face. Under, twenty-one minutes; two ounces. Before, clear, acid, sp. gr. 1.025, epithelial cells. After, clear, sp. gr. 1.035, trace of albumin, hyaline and granular casts.

In ten cases albumin was present before operation and was not found afterward.

CASE XIX.—J. S., aged twenty-three, female. Cellulitis of hand. Under, seventeen minutes; one ounce. Before, clear, acid, sp. gr. 1.024, trace of albumin, blood cells, leucocytes. After, clear, acid, sp. gr. 1.030, negative.

CASE XXV.—L. R., aged twenty-seven, male. Peri-urethral abscess. Under, fourteen minutes; one ounce. Before, clear, acid, sp. gr. 1.025, trace of albumin, leucocytes. After, clear, acid, sp. gr. 1.030, no albumin, leucocytes.

In one case sugar was present, but was not affected by the anæsthesia.

CASE II.—S. H., aged sixty, male. Hæmorrhoids, ligature, clamp, and cautery. Under, thirty minutes; three ounces and a half. Before, clear, neutral, sp. gr. 1.040, large amount of sugar, no albumin. After, clear, acid, sp. gr. 1.042, large amount of sugar, no albumin.

Of the remaining cases, three were operated upon directly after admission, and no study of the urine was made before operation. Nothing abnormal was found afterward.

In six cases the urine was negative before operation and urates were found afterward. In one case clear before operation and cloudy after. In one case clear before operation and epithelium and granular matter after.

Directions for use :

1. Remove the sponge, cleanse in clean tepid water, disinfect in 1-to-500 bichloride solution; again wash it in clean tepid water, and squeeze thoroughly. The balloon and mouth-piece should be dipped in the bichloride solution, and immediately washed in tepid (not hot) water.

2. Pour into the sponge in position two ounces of ether. If the patient is nervous or unusually apprehensive of danger, for a minute or two gradually accustom him to the smell of the ether. Ask him to take a full inspiration, and, as the expiration begins, apply the mask tight over the mouth and nose. The sense of irritation and suffocation can thus be in the main avoided.

3. For the first minute or two allow no admixture of fresh air. At the first indication of asphyxia, the commencing purple in the ears or cheeks, tilt the mask a little to one side and allow fresh air to pass in. As it does not pass through the sponge, the ether vapor is not materially chilled. I usually tilt the mask at the commencement of one inspiration, and shut it down tight for this expiratory effort, and then hold it down for the next two or three respirations. From half an ounce to two ounces of ether may

be added, as the condition of the patient or the requirements of the operation may demand.

In conclusion, I am of the opinion that the proper administration of the anæsthetic, upon which so much of success and comfort depends, does not receive the attention its importance deserves from most surgeons and teachers. In our hospitals, as at Mt. Sinai, the internes should assist in the operating-room for six months before being intrusted with the administration of ether or chloroform. Every community of doctors should contain at least one man specially skilled as an anæsthetizer, as every surgeon of large practice keeps his trained assistant for this purpose.

Ether narcosis with the Ormsby inhaler, as above described, induces more rapid anæsthesia with a smaller quantity of ether, and permits a more rapid return of consciousness, than by the open inhalers which admit a free admixture of air. The danger of inducing laryngitis, tracheitis, bronchitis, and pneumonia is much diminished, and is practically avoided by the elevated temperature and the smaller volume of the vapor. The danger of disturbance of remoter organs, as the kidneys, is also diminished, since there is not the same saturation of the blood with ether, a smaller quantity being required.

Although this method is safer than the open-inhaler methods, we are still a long way from that surgical millennium of an anæsthetic absolutely free from danger to the patient or annoyance to the operator.

With ether and chloroform we must always be watchful. Both possess dangerous properties even in expert hands. Although I consider ether to be in general the safer agent, there are cases in which it is less safe than chloroform, and I consider it a scientific misfortune to have the dangers of chloroform or ether exaggerated *intra vel extra muros*.

## THE RELATIVE HUMIDITY OF THE ADIRONDACK REGION.

By WINSLOW W. SKINNER, M. D.,

MEMBER OF THE ANATOMICAL SOCIETY OF PARIS;  
FORMERLY RESIDENT PHYSICIAN TO THE ADIRONDACK COTTAGE SANITARIUM.

The climatic conditions obtaining in any popular health resort are objects of general interest. This is especially true if the resort be near great centers of population, if it be easy of access, and if it exercise special curative influence over a disease which attacks and destroys a large number of human beings. The "North Woods," or Adirondack region, fulfills these requirements, and among the several affections that are generally ameliorated or cured by a sufficient sojourning in this noted region, pulmonary tuberculosis is undoubtedly the most important. The great advantages derived by phthisical patients from an outdoor life in the Adirondacks are indeed evident and undisputed, and any statements made below should not in the least be regarded as detracting from the general favor with which this region is viewed by those who are aware of its healing virtues.

There prevails, however, in the profession and among the laity (although to a lesser degree in the former) an

erroneous idea concerning one essential factor in the climate of this region—namely, the relative humidity. Many persons well informed on most subjects have entertained the opinion that the atmosphere is much drier here than it really is, although this opinion is not based upon any exact data, but is a conclusion arrived at by analogy and deduction on naturally likening the Adirondaek resort to the earlier known Rocky Mountain resorts, where the relative humidity is comparatively low. It was thought that because the Western resorts for consumptives were dry, *all* good resorts for consumptives must also necessarily be dry.

The Adirondaek region, nevertheless, is damp; the mean relative humidity of the air there is comparatively high. This is shown by the carefully obtained figures given below, which result from daily observations taken by the writer during the past summer at one of the finest points of this region, the Saranac Inn. It is also shown by the reports of the observer\* of the signal station at the Hotel Ampersand, on the Lower Saranac Lake, as they were given to the writer by the chief of the Weather Bureau at Washington, Mr. Mark W. Harrington, to whom my thanks are due. Again, certain charts, based upon official statistics, represent the Adirondaek region as situated in the midst of one of the wettest territories on the continent. This territory embraces the northeastern part of New York and the adjoining parts of Vermont and of Canada, as well as the region of the great lakes. There are more cloudy days and greater rain-fall there than anywhere else in the eastern half of the country. Very fortunately, however, to offset this, the soil of the region is sandy and the surface is generally hilly or mountainous, so that the water precipitated from the clouds rapidly finds its way to the water-courses, or disappears from sight in the earth.

In regard to the relative humidity, the original data obtained by the writer give the following results: The total number of observations is eighty-seven. These were made three times daily during the month of August and a part of September, 1891, at the usual hours for such observations. From these eighty-seven observations, ranging from a relative humidity of 19 per cent. on August 19th to that of 94 per cent. on August 22d, it was found that the mean relative humidity was 70.5 per cent. The instrument used for taking these observations was given expressly for the purpose by the well-known firm of Meyrowitz Bros., Fourth Avenue and Twenty-third Street, New York. This instrument, the Naudet hygrometer, was compared with a standard wet-and-dry-bulb hygrometer until a proper coefficient of correction was obtained for every five degrees of its scale, thus affording approximate accuracy for every observation. It was further frequently compared with a Daniell's hygrometer, by means of which the dew point was obtainable at will in a few moments. This latter instrument was offered for this work by another large firm of dealers in scientific instruments, that of Eimer & Amend, of Third Avenue and Eighteenth Street.

The mean relative humidity of the Adirondaeks is greater in summer than in winter. According to the report

of the chief signal officer, the average for the period of four months, from June to September, inclusive, in 1889, at the Ampersand was 73 per cent., while that from December to March, inclusive, was 63 per cent. That of August, 1889, was 72.1 per cent., nearly two per cent. higher than that found by the writer during the same month two years later. The annual mean for 1889 was 68 per cent. It is thus seen that the figure 70.5, mentioned above, is in harmony with the observations of others. This mean, however, is lower than that of some other stations not far from the region in question. Thus the mean annual relative humidity observed at the station on Mt. Washington, computed from the commencement of observations to December, 1885, is 86 per cent., that of Oswego 78 per cent., and that of a New Jersey resort (Atlantic City) 80 per cent. All the stations in New England report a higher mean than that found in the Adirondaeks.

In conclusion, the following statements may be advanced:

1. Contrary to the generally received opinion, the Adirondaek region is comparatively humid, but less so than is New England.

2. Notwithstanding this, it is demonstrated to be an unusually excellent resort for consumptives when utilized in time.

3. Its excellency in this respect is due somewhat to its elevation and to its lower temperature, but chiefly to its rapid drainage, the purity of its atmosphere, the sparseness of its population, the presence of immense tracts of forest consisting largely of conifers (unfortunately, diminishing rapidly before the lumberman's axe), and to the great sense of mental repose impressed upon one who sojourns in this health-giving wilderness.

## NOTES ON SPASM OF THE ACCOMMODATION.

BY W. H. BATES, M. D.

CASE I.—A business man, aged thirty-six, several years ago complained that his vision for distant objects had failed. He could not recognize his friends across the street. Large signs could not be read until he was very near. He felt that he had become near-sighted. The cause of his poor vision he ascribed to continued writing by a poor light. After stopping the work which strained his eyes, he recovered without other treatment. Now his vision is perfect without glasses.

CASE II.—A lady, aged thirty-three, has had poor vision for a number of years. To obtain normal vision she requires — 1 D. S. After treatment of the eyelids for one week vision improved from  $\frac{3}{4}\%$  to almost normal,  $\frac{2}{3}\%$  —, without glasses.

CASE III.—An oculist, aged thirty, reports that ten years ago he was wearing — 1.5 D. S. to obtain good vision. Under atropine at this time he was still myopic. Several years ago, after an attack of measles, vision normal,  $\frac{2}{3}\%$ , without glasses. With the return of his general health the spasm came back and he was compelled to use — 1.5 D. S. to obtain vision of  $\frac{2}{3}\%$ . Atropine was used for several weeks until constitutional symptoms of atropine poisoning were produced. Vision under atropine  $\frac{2}{3}\%$ , with — 1.5 D. S. vision normal,  $\frac{2}{3}\%$ .

\* Mr. James P. Mills.

Later, without the use of atropine, he finds that there are times when his vision is normal,  $\frac{2}{30}$ , without glasses.

It is a curious fact that the spasm relaxed during ill health. The impression is prevalent among many authorities that ill health at least aggravates if it does not act as a factor in the cause of myopia. The following case also shows that the spasm may relax during ill health :

CASE IV.—A medical student, aged twenty-one, has been wearing four years a minus fourteen-inch glass with no discomfort, most of the time at a German gymnasium. The glasses were prescribed by a prominent oculist who used atropine for one week and made several tests. Lately, he being run down, his eyes have not been entirely comfortable. An examination without atropine showed a myopia of one half the degree of the glass he is wearing. Under atropine two days, patient is not myopic. I am indebted to Dr. H. Seabrook for the notes of this case.

CASE V.—An artist, aged eighteen, gave the history of myopia after an attack of measles when seven years old. Under atropine five days, vision  $\frac{1}{100}$ , w. — 1.5 D. S. =  $\frac{2}{30}$ . These glasses were prescribed for constant use. Several months later vision the same with and without the glasses as when under atropine. After remaining five minutes in a dark room with the eyes closed, rubbing the skin of the forehead a few times with the hand, and then testing the vision, it was found that the patient had temporary vision of  $\frac{2}{15}$  without glasses. The cause of the spasm in this case seemed to be due to the effect of light.

In the following case also there seemed to be spasm from the effect of light :

CASE VI.—A physician, aged thirty-five, has a vision of  $\frac{2}{30}$  in the right eye; the left eye has normal vision. After remaining in a dark room for a few moments, the vision of the right eye is normal,  $\frac{2}{30}$ , for a short time only. Under atropine one week, vision of the right eye  $\frac{2}{30}$ , with a minus twenty-inch glass, vision normal,  $\frac{2}{30}$ . After remaining in a dark room for a few moments and then testing the vision of the right eye in the light, vision is normal,  $\frac{2}{30}$ , for a short time only.

When treatment can relieve this sensitiveness of the eyes to the light, the spasm is sometimes relieved also, as in the following case :

CASE VII.—Mrs. H., aged twenty-three, is wearing —  $\frac{1}{6}$ . She has chronic conjunctivitis slight, with considerable pain in the eyes from the effect of light, especially gas-light. Treatment of the lids relieved the intolerance of light, and the vision became normal at the same time without glasses.

CASE VIII.—A stenographer, aged thirty, wore glasses to see at a distance.

April 29, 1888.—Vision of the right eye  $\frac{2}{70}$ , with —  $\frac{1}{20}$  vision normal. Vision of the left eye  $\frac{2}{30}$  +, and requires same glass to obtain normal vision. Cocaine applied to the mucous membrane of the left nostril improved the vision of the left eye. Cocaine in the right nostril did not improve the vision of the right eye to an appreciable degree. A number of operations were performed for the removal of nasal hypertrophies, etc.

May 15, 1888.—Vision of the right eye not improved. Vision of the left eye normal,  $\frac{2}{30}$ , without glasses.

June 1, 1891.—Three years later the left eye was still normal, the right eye still myopic.

CASE IX.—Mr. M., aged twenty, complains of being near-sighted. He has been tested three times under atropine.

April 5, 1888.—After using atropine for a week, pupils

widely dilated, throat dry, cheeks flushed. Vision of both eyes  $\frac{2}{30}$ , with — 2 D. S. vision normal. Ophthalmoscopic examination showed myopia. Cocaine was applied to the right inferior turbinate and septum of the nose, when the vision at once became nearly normal. At the end of fifteen minutes the vision returned to  $\frac{2}{30}$ , what it was before the application of the cocaine in the right nostril. The vision of the left eye was not materially changed by the application of the cocaine in the right nostril. A sharp projecting point on the right septum was removed with the saw after cocaine was applied. Vision of the right eye became normal,  $\frac{2}{30}$ , and remained normal.

July 15, 1888.—Three months later the vision of the right eye is still normal,  $\frac{2}{30}$ . The vision of the left eye is unchanged,  $\frac{2}{30}$ . Cocaine in the left nostril improves the vision of the left eye to the normal for a few minutes only.

CASE X.—A sailor, aged thirty-five, complained of recent failure of his vision. He required a minus twenty-inch glass to give him normal sight. Treatment for several weeks of the eyelids and nose with nitrate of silver and yellow oxide-of-mercury ointment improved the vision from  $\frac{2}{100}$  to the normal,  $\frac{2}{30}$ , without glasses.

CASE XI.—A colored girl, aged twelve, an epileptic, had always been near-sighted (?). Atropine was used in both eyes for a week. At this time, vision of both eyes  $\frac{2}{20}$  —; with a minus ten-inch glass the vision was normal. With the ophthalmoscope the fundus could be seen best with this glass, but there were moments when the light streak on the vessels could be seen with a far-sighted glass, convex twenty inches, but seen only dimly. The atropine was continued and the patient seen twice a week for five months, when the vision and refraction were found to be still unchanged. At the end of another month, altogether making six months' use of the atropine, patient had normal sight with a convex twenty-inch glass.

CASE XII.—A boy aged ten years applied for treatment.

July 12, 1888.—Until two years ago vision all right. He attends school in the winter months. Does not study at home. Under atropine two days, with the general symptoms of atropine poisoning, fever, dry throat, etc., vision in both eyes  $\frac{2}{30}$  +; with minus sixteen-inch glass, vision normal. He was kept under atropine ten weeks, with the result that the vision in both eyes became slowly normal without glasses. Atropine stopped. One month later vision still normal without glasses. Patient went back to school and resumed his studies. After a time the spasm returned; the use of atropine was followed by relief, only to have another relapse soon after returning to school. Patient was lost sight of for several years.

March 19, 1891.—Under atropine has a myopia of 3.5 D. S. Accommodation paralyzed completely by atropine. The atropine was stopped and a mild trachoma treated. The vision improved to  $\frac{2}{30}$  without glasses after a month's treatment of the lids, when the patient again disappeared.

It seems reasonable to infer that this patient might have been permanently benefited after receiving temporary relief if he could have been kept under observation and received proper care.

Conclusions.—1. Spasm of the accommodation can not always be relieved by atropine.

2. The vision of symptomatic myopia can often be improved so that glasses are unnecessary.

131 WEST FIFTY-SIXTH STREET.

Dr. Broadbent, of London, is announced to have been appointed physician in ordinary to the Prince of Wales, to succeed the late Sir William Gull.

## UNCONTROLLABLE VOMITING OF PREGNANCY.

By GEORGE N. MURPHEY, M. D.,  
BOWLING GREEN, KY.

THE pathology of this disease I shall not attempt to give, but only relate its clinical history and treatment. I have no notes of the case, and report from memory.

The patient, Mrs. O., white, twenty-three years old, married in October, 1891, had always been healthy, menstruated at thirteen, and was regular in her periods. On December 12th she was taken ill with vomiting due to pregnancy, which grew gradually worse until December 29th, when Dr. H. P. Cartwright was called and kept the case under observation until January 12th, when he asked me to see the patient with him. He had administered the following drugs without avail: Oxalate of cerium, creasote and hydrocyanic acid, bismuth, ingluvin, pepsin, cocaine, morphine and atropine hypodermically, mustard and fly blisters over the epigastrium, and hot douches to the cervix uteri. When I saw the patient she was much emaciated, as she had been able to retain food or drink for only a short time for four weeks; her temperature was normal; pulse, 120 a minute. We agreed that a little further trial be given some other drugs. I returned two days later with Dr. Cartwright, and found all drugs had failed us and that the patient was worse. The vomited matter now contained much blood. The patient was losing strength so fast that we ordered rectal alimentation to be given every four hours, day and night. The enemata, for the most part, contained the whites of two eggs, about twenty grains of table salt, and four ounces of warm water, occasionally alternating with milk, whisky, and water, which was continued for a period of two weeks. Twice during this time the bowel became intolerant of the enemata. The bowel was then thoroughly washed and given a rest of an hour. To the next enema twenty drops of the tincture of opium was added to sedate the bowel.

We now etherized the patient and dilated the cervix with the Wylie dilator; the os was exceedingly small, and the cervix of almost cartilaginous firmness. The uterus was found in normal position. We left and returned the following day, but the patient was no better.

We now concluded to bring on abortion, and for that purpose introduced a uterine sound to the fundus, placed a hard-rubber plug in the cervix, and tamponed the vagina with cotton for the purpose of preventing hæmorrhage, which the sound had caused, and to hold the plug *in situ*. This and subsequent operations were done under the strictest antiseptic precautions. At the end of thirty-six hours the patient had had no pains or symptoms of abortion, and vomiting was as severe as ever. We now introduced a large-sized soft-rubber catheter to the fundus with the intention of letting it remain for forty-eight hours if spontaneous abortion did not occur in the mean time. Everything went as usual for forty-two hours, when she was suddenly seized with a chill, and complained of being cold all over. I was present at the time, and found that she was almost pulseless and with a look that was death-like; in fact, the patient was collapsed. I immediately went to work to bring about reaction. I gave a full hypodermic of whisky, with ten minims of tincture of digitalis, also a rectal injection of three teaspoonfuls of whisky and twenty drops of tincture of opium in a teacupful of water as hot as could be borne. Hot bricks were placed to the feet, and hot wet cloths were placed over the stomach and abdomen.

Under such active stimulation the patient rallied in about twenty or thirty minutes, with a rise of temperature to 103.5°,

which I thought at the time was the beginning of septicæmia, but now entertain different notions about it for the following reasons: First, the temperature that had suddenly risen to 103.5° in eight hours thereafter had fallen to 102°, and in eight-een hours was again at the normal and remained so. Second, on removing tampons and the catheter, they were found free from foul and putrid odor. I sent for Dr. Cartwright as soon as the chill came on. He arrived an hour later; I had everything ready, and we proceeded to remove the contents of the uterus without further delay. The patient was placed across the bed in the Sims posture, a Sims speculum introduced, the posterior lip of the cervix seized with a volsella, and the uterus drawn low into the vagina. The dilator was again used and the cervix well dilated. The index finger was introduced, and the fœtus and its membranes were first removed, and then the placenta was carefully separated from its uterine attachment and removed in its entirety.

This operation was done without an anæsthetic, as we considered the patient too weak to take one with safety. It did not seem to cause her much pain, however, and there was but little subsequent hæmorrhage. Although much prostrated, under proper stimulation she reacted well, and had but few after-pains, the vomiting ceased, and she made a slow but good recovery.

## THE LOSS OF SMELL.

By GIBSLANI DURANT, M. D.

OF the senses, the least essential in man is that of smell, and it is for this reason that the many changes which may occur in this function are often unnoticed by both physician and patient.

While the loss of smell has not any profound effect upon the general health, yet it is an extremely disagreeable infirmity, both on account of the disturbance of taste which it occasions, and because of the uncertainty felt by the sufferer as to his personal surroundings.

*Anosmia*, the elasmia of Haly-Abbas and the Arabs—*olfactus amissio* of Sennert—may be congenital, and is then probably owing to absence of the olfactory nerve. Cases of congenital anosmia are not rare.

This condition may follow destruction or compression of the olfactory nerves or ganglia, by a tumor of the cerebral substance, meninges, or any one of the tissues at the base of the cranium, or may be symptomatic of a local or general affection. It accompanies inflammation of the pituitary membrane—at first from the dryness of the membrane at the beginning of the inflammation, and later from the quantity and character of the mucus secreted. The loss of smell may be occasioned by destruction or marked modification of the end organs, as in ozæna, syphilitic ulceration, or parasitic affections of the nasal mucous membrane. The nose in the above conditions is insensible to odors, as the tongue, when dry and parched or covered by a thick submucous crust, refuses to take cognizance of savors.

Sympathetic anosmia, more or less complete, is often seen in adynamic or typhoid fevers.

The only allusion to a relationship between arthritis and anosmia is made by C. Paul (*Bull. et mém. de la Soc. de théér.*, 1885). The subject was a lady, fifty-seven years of age—arthritic, undergoing change of life—with an entire absence

of the senses of smell and taste. Careful examination, says Paul, failed to show any organic lesion that might account for the absence of these senses.

It has often been said that gout is rare in women. In a certain degree this is true if the regular gout involving articulations is meant; but the gouty diathesis is as common in women as it is in men. It is possible, if we give it the requisite attention, to recognize the gouty nature of many cases of leucorrhœa and acute and chronic menorrhagia; the attacks coincide or alternate with fugitive pains in the fingers, heels, or great toes, and gout exists in the family.

In support of the theory of the possible relationship of gout and anosmia I relate the following case:

Early in October last I was consulted by Miss B. for a trouble more common than is generally supposed, but often neglected. The loss of smell and taste is complete. The taste is totally wanting, as much for bitters—colocynth—as for sweets or salts. The smell has also completely disappeared, for neither asafœtida, musk, nor ammonia is perceived by the patient. Placed near an open gas jet, she is not aware of it. As to flowers, they look beautiful, but have no odor.

The history of the case related by the lady is as follows:

She is twenty-seven years old; has had no sickness except rheumatism or neuralgia for three years. Her father and brother are both gouty. She has had the best of care at the hands of our most eminent medical men, but never received any benefit beyond partial relief from pain by morphine. Last May she was sent to Vichy, where for two months she underwent the routine treatment and took the regulation exercise, drank the waters, bathed, and was douched every day. She returned home late in August, somewhat improved as to her neuralgic (?) pains. Then she began to notice that she was gradually losing her sense of smell. For this she has been treated by nasal douches, sprays, fumigations, etc., all to no avail. The scraping of her nose having been suggested, she came to me.

On examining the external olfactory apparatus, no lesions were found, no trouble in the nervous centers, no chronic coryza. The mucous membranes, lingual as well as pituitary, have preserved their tactile sensibility. All other senses are normal.

As she still complained of pains in the joints, and also of late of an exaggeration of the sudoral secretion over the whole surface of the body (especially on the face), even though the weather was cold, arthritis seemed to me the only probable cause of the anosmia, and I determined to treat her for that alone for a while, selecting ichthyol as the remedy.

Under the administration of ichthyol in water twice a day, and the application of an ichthyol ointment, gently rubbed over all painful parts and covered by oakum and a bandage, I obtained in a few weeks a marked diminution of pain. I may say here that there never was any discomfort accompanying the internal administration of the drug; its only objectionable feature, that I can see, is the smell.

It is now four months since the patient came to me. To-day she is perfectly free from all neuralgic, rheumatic, or gouty manifestations. But of greater importance is the fact that the senses of smell and taste, which had been lost, have gradually returned, and are to-day as acute as they are in most people.

Bearing in mind that nothing was done to the olfactory organs, that they underwent no treatment whatsoever at my hands, are we not to believe that the anosmia was caused by the gouty diathesis?

12 WEST FORTY-SIXTH STREET.

## REPORT OF A DEATH FROM CHLOROFORM.

By J. C. REEVE, M. D.,  
DAYTON, OHIO.

THE following account of a death under anæsthetics, which took place recently in this city, is made up from the evidence taken by the coroner at an inquest held upon the case:

The patient was a male, aged thirty years. About two hours before the occurrence he was quite well, and at noon ate a hearty dinner. Dr. Kimmel was called to see him about three o'clock, found him suffering intense pain in the abdomen, and discovered that he had a hernia, and "also that his nervous system was very much shocked." He administered a hypodermic injection of a quarter of a grain of morphine, and left him to obtain assistance and get anæsthetics, as the man was suffering so much that a satisfactory examination could not be made. Dr. Shepherd administered the chloroform, which was Squibb's. The quantity administered is not accurately stated. "I had a four-ounce bottle not more than a quarter full, and we didn't use it all. We used a little ether, but it didn't amount to anything." Dr. Shepherd testifies that "we administered about three quarters of an ounce of chloroform, with a little ether added to it." It was administered on a cone of sponge without any covering over it. The patient seems to have taken it very well, with but little struggling. Dr. Kimmel testifies: "When I was examining the tumor I looked at his face and saw he was not breathing very well. I told the doctor to pull his head off the bed, and he did so. This seemed to be better for him and for me, for I reduced it very nicely and wasn't at it very long. He stopped breathing several times and revived again, and did that several times until it was all over." Dr. Shepherd testifies to the patient having stopped breathing several times and having revived again. Finally, immediately after the reduction, respiration suddenly ceased. Nothing is said of the pulse. Both physicians state that the heart was examined before the administration, and that its condition was satisfactory, but that the pulse was weak. Dr. Shepherd says the pulse was 48 and weak.

The means of resuscitation resorted to were artificial respiration (how long continued and the mode not stated) and "the injection of some whisky."

The coroner rendered a verdict that "deceased came to his death by nervous shock."

**The Medical School of Columbia College.**—We are informed that Dr. Charles McBurney has resigned his professorship of surgery in this institution (the College of Physicians and Surgeons), and been appointed professor of clinical surgery, and that Dr. Robert F. Weir has been appointed a professor of surgery to succeed Dr. McBurney.

**Surgeon Ainsworth, of the Army.**—Dr. Frederick C. Ainsworth, Surgeon and Major, has been nominated by the President for promotion to the rank of colonel and to be Chief of the Record and Pension Bureau at the War Department.

**The Natural History Society of Rhode Island.**—Dr. Horatio R. Storer has been elected president of the society.

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THE PHARMACOLOGY OF ASPARAGUS.

ASPARAGUS is the edible lily. Belonging, as it does, to the same order of plants as the lily-of-the-valley, it is not wonderful that it has become a fascinating article of diet. Botanically, asparagus is nearly related to the asphodel, dear to the ancients, those two plants differing chiefly as regards their fruit. The old fables taught that the manes of the Greeks feed upon the roots of the asphodel, while the gastronomes of to-day delight in the tender shoots of this less comely liliaceous form. It is believed that asparagus was known to the Greeks, although probably not in the finely cultivated stage, in which it now comes to our tables. Pliny and other Latin worthies noted its peculiarities as an aliment, and the *Asparagus officinalis* is supposed to be the ἀσπάραγος of Dioscorides.

The plant is probably indigenous to England, and it was a favorite article of food there two hundred years before the art of its cultivation was brought over from Holland. The London markets dispose of vast quantities of this esculent annually, cultivated to a high point of perfection.

The root and shoots of asparagus are not yet discarded from the French *Codex*, as they have been from the *British Pharmacopœia*. The French use a syrup, to which are ascribed diuretic and soothing properties. At Aix les Bains and some other Continental health resorts this vegetable forms a notable part in the regimen of rheumatic patients. It does not agree with all persons alike; in some it occasions more or less gastric disturbance. Partly this may be due to the vegetable itself, since it is not always cut at the period of its tenderest growth, and partly an inadequate amount of cooking may give rise to indigestion.

An alkaloid was separated from asparagus as long ago as in 1805. This was named asparagine, and has been supposed to act, like convallaria and its preparations, as a cardiac sedative.

In former times the plant had some popular repute as an antilithic. The strong odor imparted to the urine of all who partake of the young shoots will account for this notion. Saccharinity of the urine has been observed after its use. It has been reported as the cause of urethritis and as an aggravator of that disease, but very little is known of the truth of these statements as a result of any systematic observations.

The pharmacology of this vegetable is worthy of a closer study than it has yet received. The profession has rested satisfied with the general feeling that the ingestion of asparagus was followed by a renal depuration, without entering a demand for proof thereof. According to the *Medical Press and Circular*, however, "there are grounds for believing that the asparagus tops not infrequently exercise a disturbing influence on the

renal functions, causing in some instances a notable decrease in the amount of urine excreted. It is very improbable, however, that any injurious effect is produced on the healthy organism, or this succulent vegetable would not have become a general favorite. As it may give rise to undesirable symptoms in certain special cases, it is well that the medical profession should be made acquainted with the real nature of its physiological action, and we shall look to our scientific pharmacologists for some information on this point." If this suggestion is carried out we trust that those who give their attention to the question will confine their researches at first to that part of the plant which is used so lavishly as an article of food. At the same time, it would be well to determine what differences, if any, can be found in the renal excretion, before and after the ingestion of asparagus.

MICROBIC MENINGITIS.

In the *Johns Hopkins Hospital Bulletin* for May, Dr. W. T. Howard, Jr., reports the case of an infant operated upon for imperforate anus in which the rectal wound suppurated. The child died in the second month, of purulent ependymitis, meningitis, and encephalitis, and a bacteriological examination of the pus from the inflammatory area showed the presence of a micrococcus and of the *Bacillus coli communis*. The child had atresia of the pulmonary orifice of the heart and patency of the foramen ovale and of the ductus arteriosus, and the reporter thought the feebleness of the circulation had favored the mixed infection by means of the suppurating rectal wound.

He calls attention to Netter's bacteriological examination of twenty-five cases of simple meningitis, in which the *Diplococcus pneumoniae* was found present in fifteen; the *Streptococcus pyogenes* in four; an intracellular diplococcus in two; a short, active bacillus, the bacillus of Friedländer, and a slender, small bacillus, respectively, in the three remaining cases. Monti also found the *Diplococcus pneumoniae* in the pus of four cases of meningitis; and the frequency of the presence of the pneumococcus is explained by the fact that meningitis is so often secondary to pneumonia and otitis media.

Besides these micro-organisms, Dr. H. M. Biggs reported, at a recent meeting of the Section in General Medicine of the New York Academy of Medicine, a case of meningitis in which he had found the bacillus of anthrax, although there had been no local focus of that disease on the body. It is interesting to note the varieties of micro-organisms that may cause meningitis.

MINOR PARAGRAPHS.

PHYSICIANS' FEES FOR PER DIEM SERVICES.

THE necessity that a prominent physician of this city has just experienced of suing a client for a bill for services entailing absence from the city must have been a very unpleasant ordeal. His services were requested by a business man of a Southern city, and his assistant, whom he sent in his place, was absent from the city for ten days. In the bill \$250 a day was charged for his services, and this the defense maintained was an

extortionate charge. Various prominent physicians of New York testified that they would have charged from \$300 to \$600 a day. Evidence was also presented that a physician could make a certain number of day and night visits that would remunerate him to the same amount as that charged for per diem services. But there is another feature of this subject that does not appear. This physician was called for his special knowledge and skill, and in all professions the individual has the privilege of disposing of his services for such remuneration as he sees fit. Not only this, but during an absence of one day even it would be possible for a physician to lose not only one but several cases that would remunerate him far more than the sum above mentioned, and it is for this reason particularly that it has been everywhere the custom to charge what might seem to be a high price for services entailing prolonged absence from one's place of business.

#### THE PRELIMINARY EDUCATIONAL QUALIFICATIONS OF ENGLISH MEDICAL STUDENTS.

THERE are many physicians who are rather fond of taking a pessimistic view of medical education in this country, especially in regard to the preliminary educational qualifications of medical students, and who express a longing for the more thorough general education that is required by the European medical schools. That the disparity is not so great as has been imagined is shown in an address by Dr. T. Clifford Allbutt, published in the *British Medical Journal* for May 14th. Dr. Allbutt says: "It is sad to hear it commonly said that the day of learned physicians is past, that they are gone with periwigs and *bric-à-brac*. And I have had already to observe, to my pain, that the Cambridge medical student of to-day is by no means 'learned'; that too often he thinks loosely, and that he does not always write even the English of the gentlemen who do the fires and the murders for the country journals. On his Latinity I will discreetly keep silence." Regarding the latter objection we must recall that the greatest English poet knew "small Latin and less Greek," and those geniuses who have made the greatest impression on the progress of medical science in this century have been men whose classical training was meager.

#### THE GOOD SAMARITAN DISPENSARY.

This institution is the successor of the Eastern Dispensary, one of the oldest and largest of the dispensaries of New York. As will be seen in our advertising columns, the trustees desire applications from candidates for appointment to the office of attending physician in the department of general medicine. We would direct our younger readers' attention to the advertisement, and add the remark that the Good Samaritan Dispensary seems to us, after careful inquiry into its methods, to have shown unusual care and wisdom in the selection and remuneration of its medical staff and in its attitude toward its beneficiaries.

#### COLOR-BLINDNESS IN THE NAVY.

A COURT of inquiry has made an instructive report regarding the causes of the grounding of the United States steamer Alliance in the harbor of Yokohama. It was proved that the color-blindness of a lieutenant who had entered the service as a cadet midshipman as far back as 1867 was the cause of the accident. In endeavoring to take the vessel out of the harbor this officer did not distinguish properly the danger-lights surrounding the breakwater. This mishap resulted in the discovery of the lieutenant's visual defect and will, it is said, lead to his retirement.

#### ITEMS, ETC.

**The Brooklyn Pathological Society.**—At the June meeting of this society, to be held on the 9th inst., the subject of the pathology of the respiratory system will be opened for discussion by a paper by Dr. J. M. Clayland. From the Hoagland Laboratory miscellaneous specimens will be presented by Dr. J. Van Cott, the president of the society.

**The Brooklyn Surgical Society.**—The special order for the meeting of Wednesday evening, the 2d inst., was a paper on The Surgical Treatment of Contractures, by Dr. A. T. Bristow.

**The Manhattan Eye and Ear Hospital.**—Dr. Thomas J. McCoy, of Los Angeles, has been appointed assistant house surgeon.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from May 22 to May 28, 1892:*

SMITH, ALLEN M., First Lieutenant and Assistant Surgeon, will, upon the return of MUNDAY, BENJAMIN, Captain and Assistant Surgeon, to Fort Sully, South Dakota, proceed without delay to Fort Yellowstone, Wyoming, and report to the commanding officer for temporary duty with troops in the National Park during the season. Par. 1, S. O. 80, Headquarters Department of Dakota, St. Paul, Minn., May 24, 1892.

TURRILL, HENRY S., Captain and Assistant Surgeon, is granted leave of absence for three months.

DE LOFFRE, AUG. A., Captain and Assistant Surgeon. The leave of absence on surgeon's certificate of disability granted in S. O. 93, A. G. O., April 20th, is extended one month on surgeon's certificate of disability.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the week ending May 28, 1892:*

TURNER, T. J., Medical Director (retired). Granted one year's leave of absence, with permission to leave the United States.

HARRIS, H. N. T., Assistant Surgeon. Promoted to Passed Assistant Surgeon.

WILSON, GEORGE B., Assistant Surgeon. Promoted to Passed Assistant Surgeon.

GATES, MANLY F., Assistant Surgeon. Ordered to Naval Hospital, Portsmouth, N. H.

URIE, J. F., Passed Assistant Surgeon. Detached from Naval Hospital, Portsmouth, N. H., and ordered to the U. S. Steamer Chicago.

BYRNES, J. C., Assistant Surgeon. Detached from the U. S. Steamer Chicago, and granted three months' leave of absence.

#### Society Meetings for the Coming Week:

MONDAY, *June 6th:* German Medical Society of the City of New York; Morrisania, N. Y., Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica, N. Y., Medical Library Association; Corning, N. Y., Academy of Medicine; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, *June 7th:* American Medical Association (first day—Detroit); Massachusetts Medical Society (first day—Boston); New York Neurological Society; Elmira, N. Y., Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburg, N. Y., Medical Association; Medical Societies of the Counties of Columbia (semi-annual—Chatham), Franklin (semi-annual), Herkimer (annual—Herkimer), Niagara (annual—Lockport), Orange (annual—Goshen), Saratoga (annual), Schoharie (annual), Ulster (annual—Kingston), and Yates (annual), N. Y.; Hudson (Jersey City) and Warren (annual), N. J., County Medical Societies; Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine.

WEDNESDAY, *June 8th:* Maine Medical Association (first day—Portland); South Dakota State Medical Society (first day—Salem); American Medical Association (second day); Massachusetts Medical Society (second day); New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of

New York; Medical Societies of the Counties of Albany, Cortland (annual), Dutchess (semi-annual—Poughkeepsie), and Montgomery (annual—Fonda), N. Y.; Philadelphia County Medical Society.

THURSDAY, *June 9th*: Maine Medical Association (second day); South Dakota State Medical Society (second day); American Medical Association (third day); Massachusetts Medical Society (third day); New York Academy of Medicine (Section in Pædiatrics); New York Laryngological Society; Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; Medical Society of the County of Cayuga (annual), N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

FRIDAY, *June 10th*: Maine Medical Association (third day); South Dakota State Medical Society (third day); American Medical Association (fourth day); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties.

SATURDAY, *June 11th*: Obstetrical Society of Boston (private).

is undoubtedly as effective as iodoform. It is lighter in weight, does not cake, and is more readily dusted or insufflated. It is innocuous and free from disagreeable odor.

P. G. BECKER, M. D.

## Proceedings of Societies.

### NEW YORK NEUROLOGICAL SOCIETY.

*Meeting of April 5, 1892.*

The President, Dr. LANDON CARTER GRAY, in the Chair.

#### On the Present State of Treatment of Chronic Diseases of the Spinal Cord, especially of Tabes and Neurasthenia.

—Dr. LEONARD WEBER read a paper with this title. In deliberating upon the prognosis in any case of chronic disease of the cord, the first aim should be to distinguish between functional and organic disease. The first was dependent upon impalpable, the latter upon structural, changes. In a series of disorders, in spinal neurasthenia, in some cases of concussion of the spine, of hysterical paresis, and of toxic paralysis, palpable tissue-changes were generally not demonstrable. The molecular alterations were here presumably quite variable in a given series of cases, yet they might come to complete restoration, but they not infrequently persisted, particularly in neurasthenia gravis. In the treatment of chronic structural disease of the cord, tabes in particular, there were three methods of procedure which constituted our main reliance and which we put to use singly or in combination, according to the special indications of the case. As to the relation between syphilis and tabes and the amenability of the latter to treatment, the author was of the opinion that we were justified in using antisyphilitic remedies in a case of tabes with a syphilitic history, and, furthermore, that the results were better where the interval had been short between the infection and the appearance of spinal symptoms and where the case was not complicated by other disorders. The longer the lapse of time between syphilitic infection and the outbreak of spinal disease, the longer the duration and progress of the latter, the less was to be expected from a course of antisyphilitic treatment. In all cases of the kind it would be well to combine hydrotherapy and electrotherapy with the specific remedies. A combination of mercury and iodide of potassium seemed to offer the best results, inunctions of half a drachm of gray ointment and fifteen grains of the iodide two or three times daily. Authorities were not yet agreed upon the importance of the rôle which syphilis played in the ætiology of tabes, and we were not yet able to pass judgment on the therapeutic value of specific treatment of the disease, but we were also aware that some of the best men had reported favorable results and even a few cures. Symptomatic remedies were useful and often necessary to control pain. It was the author's practice to give antipyrine and acetanilide in combination. In regard to electrotherapy, no other remedy had been and was applied as much in chronic disease of the cord. From the crude way of its former use to the present rational modes of its application great progress had undoubtedly been made, but the reports as to the curative powers of electricity were contradictory, and it appeared to the speaker also that the number of observers who were losing faith in its value was increasing. Nevertheless, inasmuch as it could, when properly applied, relieve certain symptoms and by its stimulating and tonic effect benefit the patient, the author was not prepared to abandon its use. The constant current directly applied took precedence over all other methods. The faradaic brush was also

## Letters to the Editor.

### EUROPHEN IN MINOR SURGERY.

303 WEST NINETEENTH STREET, NEW YORK, *April 17, 1892.*

*To the Editor of the New York Medical Journal:*

SIR: The results obtained by me from the use of euophen have been most satisfactory and lead me to add my indorsement of its use as a substitute for iodoform.

In the case of a driver of a beer-wagon, the index and middle fingers of the right hand had been severely crushed by being caught between two barrels. There was a fracture of the middle phalanx of the index finger, with several deep lacerated wounds of both fingers. Several days before coming to me the patient had applied a carbolic-acid solution to the fingers, which had become of a greenish-black color. The fingers and hand were intensely swollen; there was pain in the elbow, and a dark, foul-smelling pus exuded from the wounds. The treatment was by thorough washing of the injured parts in bichloride solution, insufflation of euophen into the wounds, and envelopment of the fingers in a one-to-eight ointment of euophen and lanolin. Five days therefrom the swelling of the fingers had become reduced and there was less pus secretion from the wounds. The skin was still black and easily detached from the fingers in several places. A dark pus covered the denuded surfaces. As much of the cuticle as could be separated was removed, and euophen was dusted upon the denuded surfaces, as also into the wounds. This treatment was continued, and in about eighteen days the wounds were entirely closed, the cuticle having been freely and completely separated two days previously.

A child, four years old, was suffering from a large cervical abscess. It was opened and a large quantity of pus evacuated. The abscess cavity was curetted and euophen insufflated. The child was seen several days thereafter. Recovery was uninterrupted.

A child, aged three years, had had its buttocks and left lower extremity severely scalded by falling into a pot of boiling water. Carron oil was applied for forty-eight hours, followed by the dusting of euophen over the buttocks and half of the thigh. Boric acid and bismuth were used on the rest of the thigh and on the leg. As no deleterious results followed the application of euophen, its use was adopted upon the whole of the scalded surface. Recovery was complete with no untoward symptoms.

In several other minor cases I have used euophen, and in no case have poisonous results followed its application. Euophen

to be recommended. The third method of treating chronic spinal disease was by hydrotherapy. The sulphur bath was especially useful in spinal disease of syphilitic origin, in conjunction, of course, with antisyphilitic remedies. The author had no confidence in the heroic measures that had been recommended from time to time in the treatment of these disorders, such as revulsion, the cauterization of painful points, etc., as his efforts in these directions had not been attended with success. With the consideration of the treatment of spinal neurasthenia ("spinal irritation") the author closed his remarks. For the lighter forms, such as were observed in young people in consequence of sexual aberration to a moderate degree, or in the state of convalescence from various acute disorders, the removal of the cause, regulation of the mode of life, mild tonics combined with evening doses of bromides or other sedatives, the use of the steel sound where there was much urethral or prostatic irritation, a three or four weeks' course of mild galvanism to the spine, the cold sponge bath, and other suitable hydrostatic procedures, would generally be found sufficient to effect a cure. When it was practicable, a sojourn in the country and the use of cold baths of short duration was often advisable. Not so positive were the results of the treatment of neurasthenia gravis, as it might develop particularly in persons with a neurotic history after influences of an exhausting character, such as years of mental or physical overwork, sexual excesses, and prolonged and frequent masturbation at the age of puberty, when the entire central nervous system was often disturbed. It was true that the life of the individual was not put in great jeopardy by the vicious habit, but was often made very miserable, inasmuch as his capacity both for work and for reasonable enjoyment was very much diminished. Even in the neurasthenic the molecular changes in the nervous centers might be such that, on removing the cause and applying the proper treatment, functional readjustment might not be accomplished. Whatever progress had been made in the treatment of spinal diseases had not been due so much to the light furnished by the study of their ætiology as by clinical observation and practical personal experience.

Dr. W. J. MORRIS said he used mercurials in cases of locomotor ataxia, but did not regard the trifling improvement manifested as due to any antisyphilitic effect from the drug, but simply to its alterative properties, if he might use the ambiguous term. If syphilitic neoplasms were present, some good result might be expected from such treatment. He had been making observations upon patients as to the effect of electricity upon the excretion of urea and upon the temperature. The results had been surprising. Changes had always resulted. In some instances the temperature during an electrical *séance* had been from the normal to 100° F., and, when subnormal, had been raised a degree and a half.

The PRESIDENT had never seen the typical neurasthenic condition as a prodrome of organic spinal disease. He had, however, seen some forms of so-called sexual neurasthenia simulating disease of the cord quite closely. In some diseased conditions of the prostate or urethra or from mercurial poisons there might ensue a train of symptoms indicated by pain down the small of the back and along the sciatic, capricious and intermittent, and lasting for years, also an enormous increase of the cremasteric reflexes. There was an ataxia which seemingly resulted from syphilis. There was a cerebro-spinal form of syphilis in which symptoms of locomotor ataxia were present. It was a question whether true locomotor ataxia was not a neurosis. There were cases in which no lesion of the cord could be found. Some of these cases remained stationary for years after a course of treatment; or there might be some improvement and then general paresis. Again, the general paresis might improve. He had found that the great pain might often be re-

lieved by rest. The ataxia was a different thing to treat. Suspension gave marvelous results sometimes. He agreed that those who found no good in electricity as a therapeutic agent knew nothing about it. Galvanism in locomotor ataxia, especially in the neurotic forms, was of as distinct benefit as most drugs. Faradism of the motor-nerve troubles had also been of great benefit. We saw cases of neurasthenia gravis where there was a limited atrophy or disease of the ganglionic portions of the cord. Patients so affected were of feeble molecular power. Posterior sclerosis could arise which might have no connection with the condition, but he thought that every one who had observed many cases would find that in after years the elastic symptoms of tabes would develop.

*Meeting of May 3, 1892.*

The President, Dr. M. ALLEN STARR, in the Chair:

**Acquired Myotonia.**—Dr. GEORGE W. JACOBY presented a man with the typical phenomena of this disease. He gave a history of chancre a few years before, but of no further symptoms. He had first observed, nine weeks previous to his presentation, cramps in the hand, and found that flexion of the fingers caused tonic contraction. This condition existed to a marked extent in both hands, and some time elapsed before the hands could be voluntarily opened when flexed. The shoulders were beginning to be involved in the process. There were no sensory disturbances. Electrical examination gave myotonic contraction. Mechanical reaction over the hands, forearms, and shoulders was plainly demonstrated. The patient was a cigar-maker, and the speaker put the question as to whether the disease was a professional neurosis or not. It was not a case of Thomsen's disease, but the speaker thought that there might be a link between such cases, because he had seen a similar case of acquired myotonia develop into Thomsen's disease.

**Live Issues in Neurology.**—The PRESIDENT had selected this as the title of his inaugural address. After reviewing the work of the society for the past few years, he offered a suggestion in the mapping out of future work. It was that there should be a more general discussion of neurological subjects. Collective investigation of disease was certainly of the greatest value.

For such discussion, the subject presented many divisions, especially in cases in which the pathology was still an open question, also in the theory of disease. It should be sought to connect symptoms with underlying lesions. One of the interesting studies should be the possible relation of physiological chemical processes to the various functional nervous affections. Turning from theory to fact, would not some general discussion that would bring individual experience to a focus aid greatly in prognosis and therapeutics? It was only by co-operation that the society could be made of the greatest service.

The histories of three cases of angeioneurotic œdema were then read.

**Observations on the Excretion of Uric Acid.**—Dr. C. A. HERTER read a paper on this subject. (See page 617.)

Dr. L. C. GRAY said that the one fact of value elicited by Dr. Herter had been the relation of uric acid to disease, but he thought that one of the drawbacks to this knowledge being of practical utility was that we were not by any means positive as to the normal standard of the ratio. He could not say that he had observed the same action from a nitrogenous diet as the writer of the paper had. Dr. Herter had not classified neurasthenia, but the speaker thought that the ratio in the uric-acid excretion would be very different in cases of lithæmic neurasthenia.

Dr. B. SACHS thought that the paper could be used as a

guide by which to work up further facts in regard to this question of uric-acid excretion in health and in disease. He was satisfied that in treating a number of cases the uric acid had been reduced by a non-nitrogenous diet and plenty of fluids.

#### NEW YORK SURGICAL SOCIETY.

*Meeting of January 27, 1892.*

The President, Dr. A. G. GERSTER, in the Chair.

**Deformity of the Thigh from Faulty Union of a Fractured Femur.**—Dr. PARKER SYMS showed a patient illustrating this condition, and asked for suggestions concerning the proper mode of treatment.

Dr. J. D. RUSHMORE suggested Macewen's operation.

Dr. F. LANGE suggested linear osteotomy, with a shoe with the sole an inch and a half in thickness.

Dr. SYMS agreed with Dr. Lange as to the use of the shoe, and had asked advice as to the feasibility of the operation, considering the danger from the stretching of nerves and vessels, which might be serious.

**Excision of the Elbow Joint.**—Dr. LANGE presented a patient, fifty-three years of age, on whom he had excised the right elbow joint for an old ankylosis with relapsing suppuration, the consequence of an osteomyelitis of the humerus, the primary attack of which seemed to have occurred at the age of eight years. At that time the elbow was not involved. Almost twenty-five years later the process must have recurred, with perforation, probably, into the joint. From the scar on the posterior aspect it was apparent that an operation of some extent had been done by the late Dr. Krackowizer. Healing had taken place with complete bony ankylosis at an angle of about 135°. About five months before, abscesses had formed again, after an interval of more than twenty years, and fistulæ remained which led to the bone just above the joint. The patient had suffered for several years past from a nervous trouble the symptoms of which pointed to a slowly progressing locomotor ataxia. In spite of that, the speaker thought excision of the joint and, through that, the removal of the diseased bone, was indicated. In the operation and after-treatment the plan was followed which he had explained in another case that had been presented at a previous meeting this winter, so-called chiseling excision, with preservation of a shell of bone corresponding to the important ligamentous and tendinous insertions. The after-treatment had been given by the apparatus previously demonstrated. Healing took place very rapidly, and, though the arm of the patient, on account of the ankylotic condition of the joint during more than twenty years, had become very atrophic, and his age and general condition excluded extensive new formation of bone, the joint was now—about two months after the operation—beginning to get somewhat useful. For a number of weeks the patient had not shown any ability to use the muscles which flexed or extended the elbow joint. Apparently he had entirely forgotten to use them co-ordinately. Every muscular effort was made from the shoulder or wrist joint, though, when the elbow joint was kept in a fixed position, not inconsiderable force could be executed by the extremity. The patient was soon able to elevate the arm, even in a flexed and pronated position of the forearm, but not until very recently had the use of the elbow itself been acquired. Perhaps, also, his nervous trouble had something to do with this inability to use his muscles with accuracy.

**Pes Valgus on Both Sides, operated upon after Trendelenburg's Method on One Side, and by Cuneiform Excision and Arthrodesis in the First Tarsal Joint on the Other.**—Dr. LANGE presented a patient, twenty-two years of age, from a healthy family and otherwise healthy, who had begun to suffer

in his eighteenth year. For about a year he had been treated with orthopædic shoes. During the past year his suffering had become quite intense, so that he was unable to stand for more than very short periods of time. Both his feet were extreme pedes valgi. The tendons of the extensors and peronei were contracted, and both active and passive motions of the feet were greatly limited and somewhat painful. The head of the os tali on each side protruded sideways and toward the ground, so that the inner border of the foot seemed to be elongated and the forefoot abducted. In the beginning of November Trendelenburg's supramalleolar osteotomy was done on the right side; but the resistance of the contracted tendons was so great that they, too, had to be cut across on the dorsum of the ankle joint and above the external malleolus. The remainder of the operation consisted in forcible correction and a plaster-of-Paris bandage. Three weeks later the left foot was operated upon. After a semilunar incision over the head of the astragalus the latter was partly chiseled away and a wedge of the joint elements was removed, the sharp edge being in the cuboid bone; and incision was then made over the outer half of Chopart's joint, and with a broad chisel the same was sufficiently freed to allow of an equal approximation of the os naviculare to the astragalus. The after-treatment was the same on both feet. Under the permanent antiseptic dressing and plaster of Paris, union took place without noteworthy suppuration. On the side where the astragalus had been excised the speaker had been struck by a softened condition of the bone and its greater volume, as if there had been a chronic inflammation with some osteoporosis. He had presented the case principally to allow of a comparison of the results in the two methods described. The patient was wearing flat-foot shoes with lateral splints to the knee joint, which kept the feet supinated, and it was intended that he should wear these protecting apparatuses for several months to come. The functional result was not yet perfect, owing to the short time that had elapsed since the last operation. The foot last operated upon was still weak and its motions were more limited than those of the other, the tendons of which had been cut across. With reference to the abnormal protrusion of the astragalus, the outlines were somewhat nearer the normal, but both feet might still be called moderate pedes valgi in spite of the not inconsiderable correction. For the present, on account of its greater mobility, the foot operated upon after Trendelenburg's method with tenotomies seemed to present a more promising outlook. It would be of interest to see the same patient about four months later, and it was his intention to present him again. He believed the operation indicated only in extreme cases where other remedies were of no avail. With reference to the methods to be chosen, a selection must be made which would be adapted to the requirements of the given case.

The PRESIDENT inquired whether, in the case of excision of the elbow, the open treatment and packing had been used.

Dr. LANGE replied in the negative. The available tissues were not abundant. The wound was allowed to fill with blood, and healed with the clot *in situ*.

Dr. F. KAMMERER observed that the patient seemed to him to have little power of motion in the flexor muscles, considering that several months had elapsed since the resection. He asked if it was advisable in such cases to try to get a movable joint, and if an ankylosis in a good position was not preferable.

Dr. LANGE replied that there was motion in certain directions. He supposed the muscle-consciousness, as it were, was still undeveloped.

Dr. WILLY MEYER, commenting upon Dr. Lange's second case, reported seven operations of supramalleolar osteotomy for ordinary flat-foot which he had performed upon four pa-

tients. In two of the cases, which were far advanced, walking was easier than before, but still slightly painful. Perhaps Ogston's operation should be added yet. In all of his cases he had found the bones abnormally soft. Trendelenburg had advised that the operation should be performed as near the foot joint as possible. The speaker believed that patients should be examined in a year or two after the performance of the operation. Only the permanency of the result obtained would prove the merits of the different operative methods.

#### **Sarcoma of the Femur, without Recurrence Five Years, after Amputation through the Trochanter Minor.**

—Dr. FRANK HARTLEY reported the case of a man, twenty years of age, who had been admitted into the Roosevelt Hospital, on October 9, 1886. The history showed disease in the knee joint for eight months. The diagnosis was that of sarcoma of the lower end of the femur, involving the knee joint. The patient was markedly anæmic. The thigh was amputated through the trochanter minor, and the patient was discharged, cured, November 29, 1886. There had been no recurrence of the disease. This fact was important because Borek, of Rostock, had collected a hundred and twenty cases of exarticulation at the hip joint for malignant growths, of which he found that in only eighty-seven had the patients recovered from the operation. Of the remaining patients, twenty-six had died from metastases—twenty in the first year, two in the second, one in the third, one in the fifth, and in two the time had not been determined. In six cases death had occurred in from twenty days to fourteen months after the operation, from disease unconnected with the original trouble. Four cases existed in which the patients had lived more than ten months, as follows: One lived twenty-seven months without metastases (Madelung); one lived two years and a half with metastases upon the back and beneath the arm, connected with the ribs (Czerny); one lived three years without metastases (Küster); and one lived thirteen years with a suspicious tumor in the arm. We did not cure these cases by disarticulation. Twenty-four of the twenty-six patients had had internal metastases, and two had had local recurrences.

The case now reported suggested the question of whether amputation at the trochanter minor, except in cases involving the bone near it, was not a less severe method of treatment than exarticulation, and one likely to be followed by equally good results.

Dr. J. A. WYETH believed that most of the patients upon whom amputation at the hip joint was performed for sarcoma of the femur perished within a year or less, from recurrence of the disease locally, or in the internal organs.

Dr. LANGE had operated in two cases of this character. One patient died from metastatic sarcoma of the brain; the other had been operated upon two years ago, and the speaker was not certain as to the result. Both had recovered from the operations without untoward symptoms.

The PRESIDENT had operated seven years ago at the trochanter minor, and there had been recurrence before the wound had healed. The patient left the hospital with an unfavorable prognosis. A very severe attack of erysipelas intervened, from which the patient recovered, and when he was seen, three years subsequently, the sinus of the original wound had healed, and there had been no recurrence of sarcoma.

#### **Ether Narcosis as induced by the Ormsby Inhaler.**—

Dr. J. A. WYETH read a paper with this title. (See page 629.)

Dr. RUSHMORE failed to see the advantages of the method over ordinary methods, judging from the statements that had been made. He did not feel sure that the expired air in the inhaler prevented the cooling of the ether vapor. If nausea and vomiting had occurred in twenty-five per cent. of the author's

cases, he believed the number was too great, and that carbonic-acid poisoning had had something to do with it.

Dr. F. GWYER had been impressed by the statement that ether should not be administered by inexperienced persons, as was the prevalent custom in hospitals.

Dr. LANGE remembered that the late Dr. H. B. Sands had recommended the Ormsby inhaler ten years ago. The speaker had used it six years, and had usually been satisfied with its action. The quantity of ether required when using it was small, and he agreed with the author in thinking that the number of those who were nauseated after its use was smaller than with other inhalers, though in his own experience larger than in Dr. Wyeth's.

Dr. C. K. BRIDGON thought that any form of apparatus by which the quantity of ether used was minimized would be desirable.

Dr. HARTLEY corroborated the statements made by the reader of the paper.

Dr. SYMS suggested a simpler and less expensive inhaler than the Ormsby, which included the advantages of the latter.

Dr. W. W. VAN ARSDALE feared carbonic-acid poisoning from the use of the Ormsby inhaler. A death from such a cause had recently occurred. Of course a single case was not sufficient to condemn the method.

The PRESIDENT showed a complicated apparatus for ether anæsthesia, invented by M. D. Hobbs, of Richmond, Indiana, which effected the warming of the ether vapor to body heat, and so diminished its refrigerating and irritating effect upon the respiratory tract. The apparatus was cumbersome, but in those cases in which it had been tried it had been demonstrated that it was not without merit.

Dr. WYETH disagreed with those who thought there was no advantage in anæsthetizing a patient rapidly. He believed that every minute saved to the patient from the influence of the anæsthetic was a decided gain. With other inhalers he had found that nausea followed an operation much more commonly than with the Ormsby. In patients who had been addicted to the use of alcohol he preferred chloroform as an anæsthetic. Rules were given for the proper care of the inhaler and for giving the anæsthetic.

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## Book Notices.

*The Science and Art of Midwifery.* By WILLIAM THOMPSON LUSK, A. M., M. D., Professor of Obstetrics and the Diseases of Women and Children in the Bellevue Hospital Medical College, etc. New Edition, revised and enlarged, with Numerous Illustrations. New York: D. Appleton & Co., 1892. Pp. xviii-761.

This edition of Dr. Lusk's text-book is so thorough that, as the author says in the preface, it is "essentially a new book." However, since on its first appearance the work gave such a faithful representation of the best obstetrical teachings of the period, the author's task of revision must have been almost confined to the grateful work of recording the advance of his art. In other words, but few errors called for correction, and that fact must have left the author comparatively free to devote himself to the much pleasanter part of the work of revision.

Lusk's *Midwifery* is so widely known and so highly esteemed that a formal review of this fourth edition is uncalled for. The mere announcement that a revised edition has appeared ought to be enough to impress every general practitioner with the necessity of his possessing a copy of the book.

*The Pocket Pharmacy, with Therapeutic Index. A Résumé of the Clinical Applications of Remedies adapted to the Pocket-case, for the Treatment of Emergencies and Acute Diseases.* By JOHN AULDE, M. D., Member of the American Medical Association, of the Medical Society of the State of Pennsylvania, etc. New York: D. Appleton & Co., 1892. Pp. 204. [Price, \$2.]

THE author's pocket pharmacy consists of a pocket-case containing twenty-four varieties of tablet triturates that have been selected to meet the usual emergencies of daily practice; and any one objecting to one or more of the preparations could substitute others that he preferred. But with this particular selection the author describes under the name of each remedy the various morbid conditions in which it may be employed. There are mentioned many unfamiliar applications of old remedies, and we believe that their administration as indicated may prove valuable.

Small doses of each drug are recommended, and the most confirmed therapeutic pessimist can only say in the face of the optimism exhibited by the author that the amount administered can do no great damage even though all the good expected may not be accomplished.

The author believes that clinicians should study the effect of therapeutic agents upon diseased cells, and enriches our vocabulary by calling this "cellular therapy," considering that the light furnished by this doctrine will explain the therapeutic value of properly selected remedies.

We believe the work will be found interesting and useful to many besides the "intellectually rich though often technically poor" recent graduate.

#### BOOKS, ETC., RECEIVED.

*Atlas of Clinical Medicine.* By Byron Bramwell, M. D., F. R. C. P. Edin., F. R. S. Edin., Assistant Physician to the Edinburgh Royal Infirmary. Vol. I. Part IV. Edinburgh: T. & A. Constable, 1892. Pp. 141 to 184.

*The Diagnosis of Diseases of the Nervous System: A Manual for Students and Practitioners.* By Christian A. Herter, M. D., Physician to the Class of Nervous Diseases, Presbyterian Hospital Dispensary. New York and London: G. P. Putnam's Sons, 1892. Pp. viii to 628. Price, \$3.

*A Study of Influenza, and the Laws of England concerning Infectious Diseases.* A Paper read before the Society of Medical Officers of Health, January 18, 1892. By Richard Sisley, M. D. Lond., M. R. C. P. Lond. etc. London: Longmans, Green, & Co., 1892. Pp. 11-13 to 119.

*Suggestions as to the Technique of Intestinal Anastomosis.* By H. Horace Grant, M. D., of Louisville. [Reprinted from the *Annals of Surgery*.]

*Poisoning by Creasote.* By W. Freudenthal, M. D., of New York. [Reprinted from the *Medical Record*.]

*Some Differential Points in the Diagnosis of Syphilis and Tuberculosis, with Illustrative Cases.* By Prince A. Morrow, M. D. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases*.]

*Sur l'action toxique et antiseptique de chloroforme et de l'éther.* Par le Dr. J. F. Heymans, membre titulaire. [Extrait des *Annales de la Société de médecine de Gand*.]

*Cystic Degeneration of the Muscular Fibers of the Heart. A Form of Disease hitherto Undescribed.* By Arthur V. Meigs, M. D. [Reprinted from the *Transactions of the College of Physicians of Philadelphia*.]

*A Series of Fifty Consecutive Operations for Cataract.* By Robert L. Randolph, M. D., Baltimore. [Reprinted from the *Johns Hopkins Hospital Bulletin*.]

*Bemerkungen zu dem Artikel des Herrn Gleitsmann: "Ein neues und einfaches Verfahren zur Beseitigung der unangenehmen Folgezustände nach Gebrauch der Galvanoëautik bei Hypertrophien der Nase."* Von W. Freudenthal, M. D., New York. [Aus der *New Yorker medicinischen Monatsschrift*.]

*Elements of Materia Medica and Therapeutics, including the whole of the Remedies of the British Pharmacopœia of 1885 and its Appendix of 1890.* By C. E. Armand Semple, B. A., M. B. Cantab., M. R. C. P. Lond., etc. With Four Hundred and Forty Illustrations. London: Longmans, Green, & Co., 1892. Pp. xxxii to 480.

*A Manual of Practical Obstetrics.* By Edward P. Davis, A. M., M. D., Clinical Lecturer on Obstetrics in the Jefferson Medical College, etc. With One Hundred and Forty Illustrations, two of which are colored. Philadelphia: P. Blakiston, Son, & Co., 1891. Pp. 8-9 to 298.

*Spectacles and Eyeglasses; their Forms, Mounting, and Proper Adjustment.* By R. J. Phillips, M. D., Instructor in Diseases of the Eye, Philadelphia Polytechnic and College for Graduates in Medicine, etc. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. viii-17 to 97.

*The Ætiology, Diagnosis, and Treatment of the Prevalent Epidemic of Quackery.* (An Address delivered, by invitation of the Faculty of the Medical Department of the Buffalo University, before the Graduating Class, May 3, 1892.) By George M. Gould, M. D., of Philadelphia. [Reprinted from the *Medical News*.]

## Miscellany.

**Does Organic Disease of the Heart preclude the Use of Chloroform in Parturition?**—This was the title of a paper read by Dr. T. Ridgway Barker at a meeting of the Philadelphia County Medical Society held on April 27th:

In entering upon the discussion of a subject of such paramount importance to mother, offspring, and obstetrician, one can not lay too much stress at the very outset upon the axiom that "A good remedy will fail of its effect if not properly administered." This fact must be kept uppermost in our mind if we would avoid fatal results, not due, however, to the employment of the agent, as some would make it appear, but to the lack of attention and care exercised in its administration. That there is a radical difference between surgical and obstetrical anaesthesia (analgesia) goes without saying. If we consider for a moment the stages of anaesthesia, which differ only in the profoundness of the impression—first, sopor; second, stupor; and, third, stertor—we can not fail to notice that in analgesia one rarely has occasion to carry the effect beyond the first degree (sopor), while in the surgical variety we are obliged to advance beyond this and keep the patient in the second stage, or that of stupor, thus markedly increasing the gravity of the prognosis.

In this connection, let us devote a moment's consideration to the progressive effect of chloroform vapor upon the nerve centers of the cerebro-spinal system, beginning, as it does, at the inferior extremity of the cord, sacro-lumbar, and gradually extending its paralyzing influence upward until it reaches and expends its force upon the medulla oblongata. These well-established clinical observations having been verified by physiological experiment, we are justified in putting them to practical use. What other agent, may be pertinently asked, can relieve—aye, abolish—pain so quickly and safely, yet leave reflex muscular contractility unimpaired, as chloroform? Ether and ethyl bromide have found favor with some practitioners, but neither can displace chloroform.

Fordyce Barker states in his writings: "I may say here that I have long regarded chloroform as the best and safest anaesthetic in obstetrics, and that since 1850 I have used no other."

The danger from the employment of chloroform in this department of medicine depends more upon the carelessness with which it is administered than to any toxic effect inherent in it. The four cardinal points to be borne in mind when giving this anaesthetic are: First, plenty of pure atmospheric air; second, liberation of a small amount of the vapor at a time; third, attention to the respiration; and, fourth, frequent observations as to the force and frequency of the cardiac action. That the recorded cases of death have been due in a great measure to saturation of the residual air in the lungs to a fatal degree can scarcely be doubted. A few deep, forced inspiratory efforts will quickly produce such a condition. Withdrawal of the agent under these circumstances can not prevent the further entrance of the chloroform vapor into the

circulation, for it already fills the air-cells. Nor will attempts at artificial respiration prove effectual, since but a small quantity of the residual air can be forced out of the lungs, while that which enters fails to sufficiently dilute the vapor owing to the tardiness of diffusion. Let us not suppose, however, that because we administer to the parturient female small amounts of the drug continuously, therefore no risk is incurred, for experiments directed to solve this important question go to prove that even small doses, when continuously inhaled, tend to produce dangerous, and at times fatal, cardiac exhaustion. Far different is the result when given intermittently, as is the unalterable rule in obstetrics. Should we seek authority for the statement that the dangers from the careful administration of chloroform in labor are too insignificant to warrant its refusal, we have only to turn to the *American System of Obstetrics* to find therein the following: "The danger when chloroform is used only to the extent of mitigating or abolishing pain in childbirth is practically *nil*." Lusk, quoting from Bert's experiments, states that "chloroform might be intermittently administered for an indefinite period with safety." These remarks do not apply to its use in the third stage of labor, for, as is well known, after delivery of the child it is likely to occasion relaxation of the uterus, thus favoring post-partum hemorrhage.

Offering the foregoing as a preface to my remarks on the judiciousness of employing chloroform when the parturient female suffers from organic cardiac disease, it now remains for us to consider the effect of parturition upon this enfeebled circulatory organ, thereby securing a scientific basis for our conclusions. In the first stage of labor we find the muscular contractions confined to the uterine muscular layers and directed toward overcoming the circular fibers of the cervix, while in the second or propulsive stage not only does the uterus exert its power to the utmost, but also the abdominal and respiratory muscles are brought into action by the will of the parturient in her efforts to expel the fetus. The diaphragm is forced down and its movements paralyzed by the female holding her breath.

The other respiratory muscles are likewise unable to act, and hence imperfect oxygenation of the blood results. As a consequence, the cardiac movements are accelerated, greater resistance is met with in the pulmonary and aortic circulations. Moreover, a tendency exists to venous congestion, as evinced by the hue of her face and swollen veins.

Owing to the excruciating pain experienced when the head passes through the cervix, the parturient is further tempted to make additional muscular efforts, which only augment the difficulties met with. Under normal conditions this strain is of such brevity that it can not be considered of any importance, but when complicated by disease of the heart it is of far greater gravity. If the condition is one of fatty degeneration due to a previous pericarditis or myocarditis, resulting in faulty nutrition and enfeeblement of the heart's action, as evinced by weak impulse, venous stasis, confused and irregular sounds, anæmia alike of brain and other organs, with faintness and oppression on the slightest exertion, this interference with circulation and respiration may readily tax its powers too far, and so cause speedy death from paralysis. Here the conditions which pertain in surgical anæsthesia are absent. The indications present are to allay excessive muscular action and respiratory spasm which is threatening the over-stimulated heart.

To allow the female to continue such efforts is to permit her to commit suicide; to warn her to desist is useless when in such agony; while delay is likely to be fatal. How can we overcome this condition of nervous excitement? Can we accomplish it by the administration of chloroform? Yes; of the two evils, for we must acknowledge there is an element of risk in giving chloroform, we can only choose the lesser, and so promptly proceed by inhalation to relieve the accessory muscles of parturition of their strain. By the abolishment of pain we lessen the work required of the laboring heart, which, instead of beating at the rate of one hundred and forty or more a minute, may diminish in frequency to ninety or one hundred.

What has been said of fatty heart is equally applicable to conditions of hypertrophy and dilatation.

The equilibrium, if disturbed, is almost certain to result disastrously. That sense of fullness in the chest and oppression due to bronchial congestion, if relief is not afforded, becomes most distressing. The cyanosis from deficient aeration is greatly exaggerated, while the

insufficient blood-supply to the brain causes syncope and may be succeeded by coma if the excessive reflex disturbance be not removed. Nor are the indications for the administration of chloroform materially different in the case of females in labor with valvular disease. Whether it be mitral in the young adult or aortic in the aged primipara, the cardiac strain must be relieved if we would save our patient. As is well known, all forms of valvular disease ultimately develop a condition of ischemia on one side with corresponding low tension, while on the other side is stasis with high tension. While by compensation life may run on for years, yet, when the strain of parturition comes, it will soon be overthrown if precautions are not taken to prevent it.

Of what benefit will be our knowledge of the value of cardiac "physiological rest," as laid down by Fothergill, if we do not apply it under these conditions? We all appreciate the importance of securing "quietude of mind and body" when such pathological states exist. Then why not employ the quickest and safest means to obtain it by the inhalation of chloroform? If the danger is great from "active exercise—climbing mountains, running up stairs, lifting heavy bodies, and all kinds of exercise involving heart strain"—how much greater, aye, how immeasurably so must it be when the parturient female forces, with the anguish of despair, every muscle to its utmost in her desire to deliver her child. From a study of chloroform anæsthesia in obstetric practice we have seen how it should be administered and how it acts. Surely none will deny that in its employment under these circumstances we act otherwise than for the best interest and safety of our patient. That one may not be charged with being a blind adherent to theory, one has only to turn for support and justification to the teachings of the late lamented Fordyce Barker, who states: "It seems to be almost accepted as an axiom, with both the profession and the public, that the inhalation of chloroform is dangerous for any woman with disease of the heart. For more than thirty years I have been convinced that this opinion is quite erroneous, and I have so taught in my lectures and in former writings."

He goes on further to say: "I have seen several cases, complicated by dangerous heart lesions, which terminated favorably, as I think, solely from the use of chloroform."

Snow, likewise, is of this opinion: "In all forms of valvular disease," he says, "chloroform, when carefully administered, causes less disturbance of the heart and circulation than does severe pain." To quote from Championnière: "If," he says, "I recognized an organic affection of the heart, without pulmonary complications, I should rather give the woman chloroform than let her suffer." Were further proof necessary as to the propriety of employing chloroform anæsthesia, one might include among this group of clinical observers Vergeley, who expresses himself thus: "Diseases of the heart are not a contra-indication to the use of anæsthesia." Macdonald states: "In almost all cases of heart disease with labor chloroform has been given, and apparently with benefit, during delivery. If carefully administered, I think it can not but be useful in all cases." Since such eminent authorities advocate its employment, can we justify ourselves in refusing our patients the benefit and comfort this agent affords? What is the danger from chloroform compared to the state of exhaustion and collapse into which the parturient female will inevitably fall? If this heart is forced to the verge of paralysis from overwork and excitement, why shall we not use the means at our command to lessen that strain? Let us have a reason for the faith that is in us, and not hesitate to fearlessly employ extreme measures to overcome extreme dangers.

Chloroform by inhalation can and will, if properly administered, save the lives of parturient females, suffering from organic disease, when death seems imminent from over-stimulation of its ganglia through reflex nervous action. Organic heart disease, then, does not preclude the use of chloroform in labor, but rather is a condition calling for its careful administration.

**The Dietetic Treatment of Heart Disease.**—Dr. Felix Hirschfeld, says the *Therapeutic Gazette* for May (in an abstract of an article published in the *Berliner klinische Wochenschrift* for March 11th), while occupied with the investigation of the assimilation of corpulent people, observed that with the progressing loss of bodily weight there was also a loss of organic albumin. This loss is not prevented, or even greatly

lessened, by the consumption of larger quantities of albuminates. Every Banting process is to be looked upon as a diminished nourishment, with the added fact that the assimilation is considerably increased by great muscular exercise. The loss of albumin is greatest in the first week of Banting. With a loss of weight of from four to five pounds troy, there will be a loss of four to eight drachms of nitrogen, corresponding to thirteen to thirty ounces of muscle.

The loss of nitrogen is considerably greater when the patient is plethoric than in the case of an anæmic person.

It is remarkable that, in spite of the loss of albumin, physicians have found almost always an increase of muscular strength, especially of the heart, during gradual Banting processes.

To determine whether this would continue to be the case, Dr. Hirschfeld tried experiments upon himself and other healthy persons, and found that with their food reduced to a half or one third the usual quantity, there was no weakening of the heart; this was true of thin and not specially strong persons, as well as of those who were moderately stout and strong.

The lessening of nourishment makes also a change in the circulation. In the first place, the volume of blood is diminished, for the blood does not become more watery; the quantity is of the same concentration but smaller. With the smaller quantity of blood, the demands upon the heart are less, this bearing an analogy to cupping, in which ease the lessening is more rapid.

Another point seems even more important. Whenever food is taken, the processes of the glands and of the muscles of digestion demand an increase of oxygen, which the heart must provide by increased activity; the more frequent and the larger the meals, the higher the demands upon the heart. The slight weakening of other organs is not to be deprecated in comparison with the favorable result for the heart. For example, in the case of valvular trouble following rheumatism, it has been customary to allow but small quantities of food, but present knowledge demands that the nutrition be kept up by abundance of easily digested food, especially milk.

Hirschfeld quotes various authors who have used the milk-cure for heart trouble. This is simply a "hunger-cure," and is in general seldom used, because opposed to the prevailing idea of nourishing the organism as much as possible. He finds in the results quoted another proof of the value of diminished nourishment, another means available to lighten the labor of the weary heart. While seeking to increase the power of the heart, the course is made easier by making the demands upon it as slight as possible.

Hirschfeld thinks the strengthening of the heart-muscles by exercise, as practiced at Marienbad, is decidedly dangerous. The whole "cure" being often made in six weeks, necessitates a rapidity which is not safe. It is quite possible that corpulent persons repeating this "cure" yearly, or every second year, bring about a weakening of the heart's walls. Often these very persons, pleased with the rapid loss of weight, console themselves, as soon as their six weeks are over, with an added luxury of living and richer food. The strengthening of the heart by muscular exercise should be accomplished slowly.

In the treatment of corpulency there often occurs, in spite of the loss of albumin, an increase of muscular power, especially of the heart. The smaller amount of food produces conditions of the circulation which lighten the work of the heart.

In strengthening the heart by means of exercise, especially in corpulent persons, it only should be gradually increased. When the heart is urged to oft-repeated exertions in a short time, there is a tendency to dilatation of the heart by a weakening of the heart walls.

**The New York Academy of Medicine.**—The special order for the meeting of Thursday evening, the 2d inst., was a paper on the Conservative Treatment of Salpingitis, by Dr. Paul F. Mundé.

At the next meeting of the Section in General Surgery, on Monday evening, the 13th inst., papers are to be read as follows: On the Mechanical Treatment of Ununited Fracture of the Neck of the Femur with Traction Apparatus and Direct Lateral Pressure over the Trochanter Major, by Dr. Newton M. Shaffer; and Further Experience in the Treatment of Inoperable Carcinoma of the Uterus with Pyocyanin Injections, by Dr. H. J. Boldt.

At the next meeting of the Section in General Medicine, on Tuesday evening, the 21st inst., Dr. J. K. Crook will read a paper entitled Observations on the Diagnostic Significance of Vascular Murmurs in the Neck, based on Examinations of 1,500 Persons.

**Homœopathic Soup.**—A correspondent of the *Critic* says that the following verses were published in some newspaper—what one he (or she) does not remember—a number of years ago:

Take a robin's leg,	Set the kettle on,
Mind, the drumstick merely,	Get it well a-boiling,
Put it in a tub	Skim the liquor well
Filled with water, nearly.	To prevent its oiling.
Place it in a spot	When the soup is done,
That is cool and shady;	Set it by to jell it;
Let it stand a week—	Then, three times a day,
Three days for a lady.	Let the patient smell it.
Put a spoonful then	If the patient die,
In a five-quart kettle;	'Twas disease that did it;
It should be of tin,	But if he survive,
Or, perhaps, bell-metal.	Give the soup the credit.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

Original Communications.

FIVE CASES OF  
THE PIN SENSATION IN THE THROAT.

BY JOHN DUNN, M. D.,  
RICHMOND, VA.

CASE I.—Miss A., milliner, aged twenty-nine. The patient complains that there is, whenever she “swallows,” the sensation in her throat as though there were a pin or the bristle of a brush sticking her. The sensation is well localized and never changes place; is referred to the right side of her throat, upon a level with the deepest part of the hyoid fossa. It is not a surface sensation, but seems to have its seat deep in the throat. This sensation is increased in unpleasantness whenever she catches cold. It never leaves her, although the pin or bristle seems to scratch the surrounding parts more at times than at others. Miss A. has no remembrance of having ever swallowed a pin or a bristle, but, from the sensation, is “certain that it must be the one or the other.” She has often swallowed crusts of bread to try to dislodge this “pin.” The sensation has existed for eight or ten years, and no treatment she has received has been able to relieve her. At times this place must ache, since Miss A. says that it gives her neuralgia down her neck to the collar bone, in the shoulder, and of the scalp behind the ear. She is constantly clearing her throat to remove this “pin.” Miss A. is anæmic, and has the appearance of being nervous and overworked. The nose is normal, except that the mucous membrane is too pale, and the middle turbinate of the right side is hypertrophied enough to lie against the septum anteriorly. The nasopharynx is clear. The left tonsil is normal. The right tonsil is somewhat hypertrophied at its lower end. The pharynx is normal, except that just behind the posterior pillar on the right side, opposite the lower end of the tonsil, is an area, about two millimetres broad and five millimetres long, which has the appearance of being slightly thickened, is slightly redder than the adjoining mucous membrane, and looks as if it might be subject to some irritation. I made a note of this condition at the time, but in no way connected it with the “pin sensation” felt so distinctly lower down. The laryngeal region was normal, except that there appeared on the right side of the epiglottis a very small, whitish area, to which some little mucus was adherent. There was no demonstrable trouble in the external canal or inner ear. There was no bad tooth. The teeth were examined because of the presence of the neck neuralgia. I took a probe and touched the tonsil of the right side. Miss A. said the trouble was lower. I then touched various points along the left side of the base of the tongue, and each time Miss A. said I had not gone far enough down. I then examined the external neck carefully, and especially the point to which the sensation was referred. Nothing abnormal could be found, except that deep pressure over the skin at one point on the side of the larynx was said to be painful, but there was no sign of inflammation to account for this. There were no enlarged glands. Examination of the lungs revealed some louder breathing than normal. Finally, the part that the hysterical element might play came up before my mind. The sensations, however, were too definite, and the patient was too willing to have anything done for relief, for me to believe that there was not some definite cause for the sensations, which I believed to be plainly reflex. I told Miss A. that I could not find anything in her throat that might cause such a sensation, but, if she would submit, I would remove everything, as far as I could, that was abnor-

mal in the throat, and that some one of these conditions might be the cause of the trouble. She was willing to submit to anything, and asked me if I would not give her chloroform and cut down on the spot she touched with her finger and remove whatever it was that was sticking in her throat. Speech, breathing, powers of deglutition, etc., were perfectly normal, and I would not leave the impression that there were any symptoms which seemed in any way to threaten life, but what there were were a constant source of annoyance to the patient. The treatment and results were as follows:

*September 28th.*—Removed the hypertrophied lower end of the right tonsil. The patient said immediately after the removal that the “pin sensation” had disappeared. I feared, however, that the disappearance was due to pain caused by removal. It proved to be so, as the “pin sensation” returned as soon as the cut place was healed.

*October 6th.*—I passed a horse-hair probang into the œsophagus, well down; opened it and pulled it out. This was done on a hint from an older physician, who took the hysterical view as to the cause of these sensations. Furthermore, her physician told me Miss A. had lateral curvature of the spine, and suggested a connection between the neuralgic conditions of the neck and this condition of the spine. Passing of the probang, however, failed to relieve Miss A.

*9th.*—Removed with a snare the hypertrophied anterior end of the middle turbinate.

*16th.*—Pin sensation still present, together with neuralgic tenderness and numb sensations in the parts supplied by the greater and lesser mastoid and auricular branches of the superficial cervical plexus; this sensation at times also goes to the parts supplied by the supra-acromial and supraclavicular branches of the same plexus.

I did not see Miss A. again until December, when she informed me the same sensations were still present. I examined the throat again, and touched with the point of a probe the small, reddened area just behind the posterior pillar, at the level of the lower end of the right tonsil. “That is the place,” said Miss A. Here, then, in this small reddened area was the origin of the sensations which Miss A. referred to a position in the neighborhood of the lowest part of the hyoid fossa of this side. I took a bent probe and touched various points in the mucous membrane below this inflamed area, as far down as the middle of the hyoid fossa. The resulting sensation was described by Miss A. as being *above* the sensations which originated from the reddened area. “The place is farther down still,” but as soon as I touched this place, opposite the tonsil, Miss A. would say, “There it is.” With the electric tip I cauterized thoroughly this area, with the result that immediate relief was experienced, and this relief lasted until the burned place healed, when the “pin sensations” returned as before. Three times was this whole area burned out with the cauterizer; each time Miss A. experienced relief until healing took place, after which the “pin would return to her throat.” Treatment has furnished absolutely no relief. On April 20, 1892, Miss A. told me that “the same pin” was in her throat, and that she suffered as much as she had before treatment was begun. There is one point of further interest in regard to the case. When this area is first seen it appears to be redder than the surrounding parts, but if it is touched with a probe it immediately becomes of a deep red, and swells from the blood sent to it, so as to be in marked contrast with the neighboring mucous membrane. I can give no explanation as to the cause of this phenomenon.

CASE II.—This case came to the clinic in November, 1891, while Miss A.’s case was still in my hands. The patient, Miss

B., aged seventeen years, complained of exactly the sensation in the left side of her throat that Miss A. had in the right—that of a pin or a bristle sticking in it. In the case of Miss B., however, this sensation had lasted only a week, and was referred to a dinner, where she must have swallowed “a pin or something like it.” The place of the sensation was again at the side of the throat behind the upper part of the larynx, and was more or less constantly present. Examination of the nose and nasopharynx revealed the picture common enough, where there are adenoid hypertrophies, enlargement of the third tonsil, hypertrophied turbinates, etc. To this it may be added that there were also enlarged tonsils; but, as these conditions had existed for years, while the pin sensation had made its appearance within a week, they were excluded from the possible causes of the trouble. There was nothing in the hyoid fossæ, nothing in the larynx, to give rise to this sensation. I told the patient that perhaps something she had swallowed had scratched the throat, and that the trouble would wear off in a few days; if not, to return. A week later Miss B. returned, saying that the pin was still there in the same place.

While making a laryngoscopic examination the mirror was pressed against the upper part of the left posterior pillar. “There is the place!” exclaimed Miss B., and touched with her finger the side of the throat opposite the thyroid cartilage. Closer examination showed just above the enlarged tonsil on the left side a small “granulation,” somewhat inflamed. On touching this with a probe the patient said that that was the place where she felt the pin. When asked, however, to swallow and then put her finger over the spot, she always carried her finger to the side of her throat opposite the thyroid cartilage, and it was here that she felt the pin sensation when the granulation was touched. The granulation, inflamed, was certainly the cause in this case of the sensation. It was removed, and the patient was told to return after a few days if she was further troubled. She did not return, and the inference is that she was relieved.

CASE III.—This case is one of a young man about thirty years of age, brought to me by Dr. Lewis Wheat, of this city. The history is as follows: A few hours before, he had between his teeth a bent pin, which, owing to his suddenly bringing his teeth together, had sprung from between them “down his throat.” He was “certain” he had “swallowed it,” for he had “looked all over the carpet” and could not find it, and then, too, he had “felt it when it went down.” And, besides, he “felt it sticking in” his throat whenever he swallowed. There was no constant pain present; no pain save a slight pricking sensation on swallowing; no cough; no obstruction to the passage of food into the stomach. The patient, however, persisted in affirming that the pin was in his throat, and would place his finger on the left side of his throat opposite the upper back part of the thyroid cartilage as the point where the pin was sticking. Examination of the larynx and the hyoid fossæ revealed nothing. (And let me say by way of parenthesis that the best way to obtain a perfect view of the hyoid fossæ, in patients where from oversensitiveness of the supralaryngeal structures, a view of them is shut out, is to make the patient laugh while the examination is being made. The fossæ then open and may be viewed in every corner.) The pharyngeal and rhino-pharyngeal examinations revealed nothing to indicate the presence of a pin. Opposite the left tonsil, between the posterior pillar and the pharyngeal wall, was a small mass of hypertrophied lymph tissue, slightly inflamed, and identical in position with that the cause of the trouble in Case I. I touched this with a probe. “That is about the place,” said the patient. To convince him no pin was there, I swabbed the area with a cocaine solution, when, after a minute, the pin sensation was gone. A moment later he said the feeling was on the other

side of the throat. “The feeling” was, however, too evidently a forced one to need attention.

CASE IV.—Dr. R. came to me saying that he had a “bristle in his windpipe.” The only symptom was a sensation of something sticking in the throat every time he swallowed. Examination of the pharynx showed a single acutely inflamed granulation of the pharynx opposite the center of the tonsil on the side upon which the “bristle” was felt. This sensation had been present several days. When this granulation was deadened with cocaine, the “bristle” could no longer be felt in the throat. The granulation was pinched with a forceps, and Dr. R. had no more trouble. The point to be noticed is, that the sensation was referred to a point at least two inches below the place from which the sensation originated.

CASE V.—Miss M. complained that she had swallowed a pin, which was sticking in her throat, and, as in the preceding cases, the pin was located in the region of the larynx. Examination of the pharynx revealed on the posterior wall an acutely inflamed granulation near the lower end of the tonsil. This was cocaineized and pinched with a forceps. The next day Miss M. returned, saying the pin was still in her throat. Examination revealed, just below the granulation I had pinched the day before, a second smaller granulation. This was pinched as the other one had been and Miss M. had no further trouble.

These five cases have been reported because physicians so frequently have patients who have “just swallowed a fish-bone,” or a “chicken bone,” or “a pin,” which is now sticking in the throat. To the physician’s eye there is no urgent symptom—no cough, no difficulty in swallowing solids or liquids, no place painful on pressure—and yet these patients insist upon the presence of the foreign body in the throat, since they “feel it every time they swallow,” for their imagination, sharpened by their ideas of choking to death, magnifies any slight abnormal sensation of the throat into a real evil. And, further, it happens sometimes that the physician, although he assures his patient that “it has gone down,” has in his mind a great deal of uncertainty as to whether it has or not.

In Cases I, II, and III the sensation was that of a pin sticking in the throat; to each patient the sensation was definitely localized in the side of the larynx. In the first case, though the probe was used extensively about the root of the tongue, the patient always said “the pin is lower yet,” while when it touched the inflamed area, although higher up, it brought forth the exclamation, “There it is!” In the last two cases the sensation could be produced by “swallowing,” but the knowledge that the act of “swallowing” would cause the sensation caused the patients to repeat continually this act to convince themselves that the pin was still present.

In Cases II, III, IV, and V the sensation was due to an acutely inflamed “granulation” of the pharynx. In Case I the sensation originated in a localized area of the post-pharyngeal wall, which area from some cause remained more or less constantly irritated. In all, the sensation could be produced at will by touching with a probe the inflamed areas, or by making the patient swallow. In the first case the nervous element may have played a prominent part. In the third case, Dr. Wheat had some years ago performed laparotomy for a wound of the intestines, and, though the operation was eminently successful, the patient

had obtained a more intimate acquaintance with his intestines than is vouchsafed most men, and it made him regard with apprehension the possibility of a foreign body finding its way into them, and thus he was willing to magnify any sensation that would seem to justify his fears.

The reason why in these cases the patients insist that the pin sensation is in the throat at the side of the larynx is probably to be sought in the facts that they know nothing of the anatomy of the throat, and that the "pin" is felt only in the act of "swallowing," when the larynx and its adjacent parts are lifted, and there is a general contraction of the muscles at the back of the throat, at which time to the patient a definite localization of the sensation in an unknown region is difficult. These cases seem to show that, in the cases of "pin sensation in the throat," the cause is a definite one and not altogether imaginary; that, in a certain proportion of cases, the cause is to be sought in the neighborhood of the tonsil, and is either an acutely inflamed "granulation" or an hypertrophy in the lymph chain behind the posterior pillars of the fauces of the side upon which the sensation is felt. These cases further show that searching will discover the origin of these sensations, and that when it is found we can state accurately to the patient the cause of the trouble, which will be more gratifying to him than to hear that "it scratched the wall of the œsophagus in going down and all will be well when the scratch heals," or something similar.

## A CASE OF SYRINGOMYELIA.

By WALTER VOUGHT, M. D.,

CHIEF OF CLINIC, DEPARTMENT OF NERVOUS DISEASES  
(CLINICAL ASSISTANT, DEPARTMENT OF GENERAL MEDICINE),  
VANDERBILT CLINIC, COLLEGE OF PHYSICIANS AND SURGEONS.

SEVERAL points in this case make it worthy of record. The onset of the disease, the dissociation of sensory symptoms, and the fact that the syringomyelia was added on to a condition of chronic hydrocephalus, place it among the unusual cases of this disease.

The history was as follows:

William S., the second of five children, twenty-four years of age, single, and a machine operator by occupation, was first seen by me January 1, 1892. The patient's mother, who is alive, is of a nervous temperament and, while pregnant with the patient, was often hysterical. Outside of this she has always been a healthy woman. His father has at the present time tuberculosis, and seven others of his family have died of this disease.

The patient was born normally without instruments, and was a bright, healthy baby until one year of age. At this time his head began to enlarge abnormally, and continued to do so for several years. He cut his teeth without difficulty, and as an infant and young child never vomited or had convulsions. As a young child he was always sleepy, would fall asleep anywhere and at any time, and when sent out by his mother to play would sit down and fall asleep. Up to his sixteenth year there was some impairment in his gait, as he often fell in walking, and it was difficult for him to run.

At sixteen he had his first general convulsion. This was not followed by any paralysis. Soon after this he began to have momentary attacks of twitching of the right hand only, accompanied at times by the secretion of a large amount of saliva.

During these he never lost consciousness. These attacks lasted for three years and occurred at intervals of about two weeks. At the end of the three years, or when he was in his nineteenth year, he had a general convulsion. This began in the right hand and thence extended to the whole body; he bit his tongue, passed water, and slept after the attack. Since his nineteenth year these convulsions have occurred at intervals of three weeks to six weeks. In the past year they have become more frequent, and, instead of having one, there have been eight or nine at a time. The attacks are at the present time preceded by an aura of a frightened, nervous feeling and are accompanied by a cry, and immediately after he loses consciousness. Following the attacks he is very much exhausted, and for two or three days after is unable to continue at his occupation.

Six years ago, while in his eighteenth year and one year before the onset of the general convulsions, he noticed that he could not feel objects with his right hand as well as with the other. At the same time there was a loss of pain sense in the hand, for he would burn or cut himself without experiencing pain, and only by the blisters or bleeding present was he cognizant of any injury to the part. There was also loss of heat sensibility, hot and cold water being indistinguishable with the right hand. Four years ago there was added further difficulty in walking. This began on the right side and has been progressive ever since.

Three years ago numbness and weakness began in the right hand. The numbness soon extended to the right leg, and shortly after the right side of the face became similarly involved. To these symptoms was added wasting in the hands, which was of about simultaneous onset in both.

He has always complained of much headache, which has been worse in the past five years. For three weeks he has had some difficulty in his vision. He is unable to distinguish objects well at a distance, and there has been much dizziness.

He has always had rather imperfect control over his bladder. This has not been more pronounced of late.

His intellectual capacity is of a low order, and it has never been possible to teach him more than reading and writing.

*Examination* shows a short, stocky man, with well-marked hydrocephalic-shaped head. On the parts of the body where there is no muscular atrophy the muscles are well developed and firm.

*Examination of the Muscles.*—There is marked atrophy of the thenar and bypothenar of both hands, which is greatest on the left side. The muscles of the forearms are atrophied slightly and of soft, flabby consistence.

There is *main en griffe* in both hands, more pronounced in the left.

There is atrophy and paresis of the anterior portion of the deltoid muscle of the right side.

Fibrillary twitching is present in the muscles of both arms.

*Electrical Examination.*—The reaction of degeneration is present in the muscles of the thenar and bypothenar of both hands. In the anterior portion of the deltoid of the right side  $AnCC = CaCC$ .

*Reflexes.*—The tendon reflexes of the upper extremities are wanting. The knee-jerks are both exaggerated,  $R > L$ . There is ankle clonus in both lower extremities, more marked in the right.

The epigastric reflex is absent; all other skin reflexes are present.

The eye muscles are normal. The right pupil is larger than the left; both react to light and accommodation.

The muscle and stereognostic senses are good.

Ophthalmoscopic examination of the eyes was not obtained.

*Sensory Disturbances.*—Tactile sensibility is nowhere com-

pletely abolished, but over the shaded areas (Fig. 1) there is great impairment in this sense.

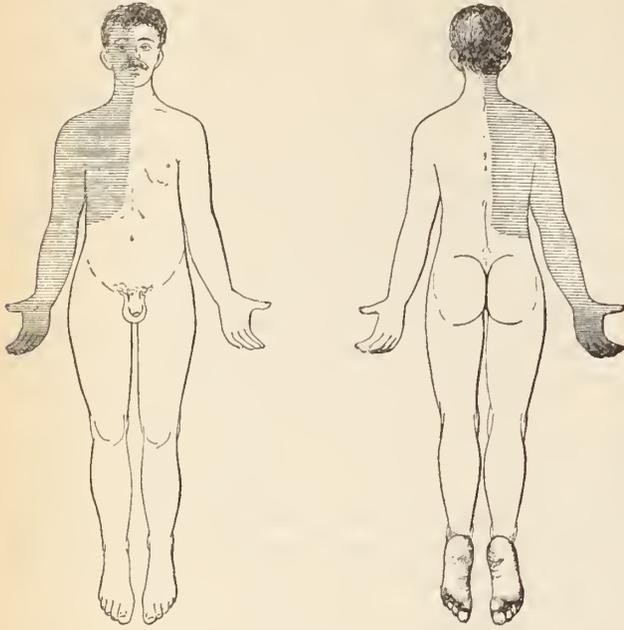


FIG. 1.

*Thermal Sensation* (Fig. 2).—Over the areas shaded by horizontal lines there is loss of appreciation of both heat and cold. Over the dotted areas there is diminished sensibility to heat. Over the areas shaded by vertical lines *sensibility to heat is lost while that to cold is retained.*

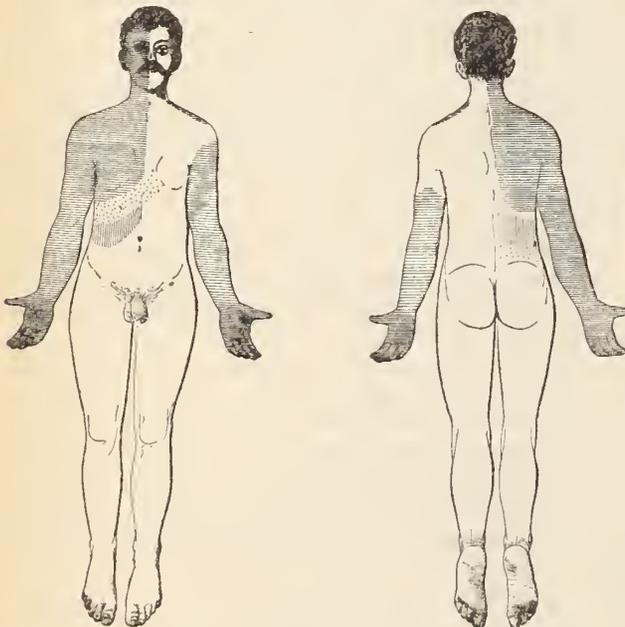


FIG. 2.

*Pain Sensation* (Fig. 2).—Over the areas shaded by horizontal lines there is complete loss of pain sensation. This area on the face and scalp is very sharply defined by the median line. Taste and smell are normal.

The patient wears a 7 $\frac{3}{4}$  hat.

He was put upon the use of potassium bromide, which postponed but did not prevent his epileptic attacks.

His general health steadily failed. On February 10, 1892,

he had convulsions for six hours, and died two hours afterward from exhaustion. No autopsy was obtained.

Reviewing the symptoms present, it is found that a healthy baby developed at one year of age chronic hydrocephalus, which continued to manifest itself by the shape of the head, mental and physical hebetude, and unsteadiness in walking until his sixteenth year. At this time epileptic convulsions appeared, and for three years were followed by attacks of *petit mal*. At nineteen years of age general epileptic convulsions began again and continued, causing death at the age of twenty-four. Six years before death the symptoms of the syringomyelia began with sensory disturbances, and three years after, the muscular atrophy appeared. Both diseases progressed, the hydrocephalus the more rapidly.

The development of syringomyelia upon a chronic hydrocephalus has been considered probable, but no case has as yet been met with by us in the literature of the subject.

The almost unique dissociation of the temperature sense is an interesting phenomenon, and but one similar case has been thus far reported.\*

The posterior columns of the spinal cord appear in this case to have been the parts first affected, which is contrary to the general rule that the gray matter of the cord around the central canal is the part primarily affected.†

12 WEST TENTH STREET.

### SOME PREVALENT ERRORS RELATING TO "EYE-STRAIN" AS A CAUSE OF NERVOUS DERANGEMENTS. † WITH ILLUSTRATIVE CASES.

BY AMBROSE L. RANNEY, A. M., M. D.

THE view that "eye-strain" may be a frequent and extremely important factor in causing many forms of nervous derangements—even in some that are quite commonly regarded by medical men as organic diseases, such, for example, as epilepsy, St. Vitus's dance, and insanity—seems to be steadily gaining ground in spite of the bitter opposition of those who have for years unsuccessfully combated this view.

So strongly have many progressive practitioners in medicine, as well as oculists, both here and abroad, been impressed of late with the wide application of this view to the treatment of obscure nervous disorders, that they are at last beginning to discard the rash and often injudicious administration of drugs that has hitherto prevailed, and to search more scientifically for the *underlying causes* of nervous diseases.

But a few months since, one of the leading medical journals of this country published in its editorial pages,‡ in strong advocacy of this method of treatment, several columns under the following heading: "A Great Medical Discovery ignored." From this editorial I quote the following paragraphs:

\* Déjérine. *La Semaine médicale*, 1891, No. 6.

† *New York Med. Journal*, Nov. 21, 1891.

‡ *Medical News*, December 12, 1891.

There are few medical truths that have been discovered fraught with more possible and incalculable good to humanity than one that is ignored by the great body of the medical profession.

There are explanations and sufficient reasons for this anomalous fact. Among them may be noted these:

1. The discovery has come about slowly and silently. It has been made by no one man and has come with no flourish of international congressional trumpeters. So softly and slowly has it crept into scientific medicine that its own advocates are but half aware of it, and do not yet realize its almost unparalleled value.

2. It is a therapeutic measure that depends for its exercise upon an exactness of knowledge of delicate mysterious physiological and psychological functions that few possess, and upon a subtle discrimination and judgment with which, by character or education, few are endowed.

3. It has the misfortune to depend for its promulgation and practical application upon the specialist, and almost upon the specialist of a specialty—and this in a profession and in an epoch in which it is fashionable to sneer at specialism, and at the specialist who dares plead for the truth he knows—and that, at first at least, only he can know.

Not long ago I received from one of the most distinguished medical teachers of this country a letter that indicated a decided "change of heart," based, as is too often the case, upon some very startling disclosures that scientific eye-tests had revealed in his own visual apparatus and that several oculists of eminence had previously overlooked. He says in this letter:

DEAR DR. RANNEY: I send you as a patient Mrs. —, a confirmed sufferer from intractable neuralgia! *Personally, I have ceased to treat neuralgia like a d—l fool.*

Gratefully yours, — —.

Most of the medical contributions that have lately appeared as antagonistic to the view that "eye-strain" constitutes an important factor in the neuropathic tendency, and that functional nervous diseases can be relieved or modified by eye treatment, are based largely upon statistics derived from the observations of those who are either manifestly ignorant of the later methods of examination or who fail to employ them from bigotry and prejudice.

It is well known by searchers of the truth that in most of our large eye dispensaries the refraction of eyes is determined chiefly by the ophthalmoscope (a rapid and very imperfect method even in good hands); that ill-fitting spectacles are commonly bought by these patients, and in consequence the glasses are not accurately centered to the pupils; and that errors in adjustment of the muscles of the eye which exist in many of the patients are not even sought for in most dispensary clinics. The multitude of patients that swarm in and out of these institutions require more time than can be bestowed upon them. They are touched up with astringents—boric acid, etc.—by the score for granular lids, corneal ulcers, etc., *without any effort to determine the underlying cause* for these common conditions (that either remain chronic or tend to constantly recur in the same individual); when in almost every case some hidden error of focus or maladjustment of the muscles of the eye is an exciting cause of these conditions, and a cure can generally be obtained by the removal of this cause.

Perhaps the most common experience that I personally encounter in my office is to have patients tell me that either their doctor or some oculist whom they have consulted has said to them that "their eye trouble is the *result* of their physical weakness and *not a cause*; that the *relief* of the eye trouble can have nothing to do with their recovery; and that all statements to the contrary are not supported by facts."

It is for the purpose of demonstrating the counter-proposition, of showing that "eye-strain" may be the *cause* of obscure diseases and not its result, and of turning, if possible, the channel of medical thought so as to benefit suffering humanity, that I raise my voice again in defense of a method of treatment that will often accomplish what drugs will not, and that is based upon science rather than therapeutical speculation and empiricism.

The few cases which I report here in detail I have selected from a very large number on my private records, in order to demonstrate most positively my view of the points at issue. They have been seen by many physicians from time to time. They are of such a varied character as to shed light upon and confirm, I think, many disputed statements. To many of these patients the verbal or written opinion of prominent medical men had been given prior to my seeing them, "that *organic disease* unquestionably existed, and that the eyes had nothing to do with the causation of the symptoms."

In some of these cases no possible explanation of the facts here recorded can be suggested, except to admit that the correction of an existing "eye-strain" caused a cessation of the leakage of nervous force that had been going on for years; and, by so doing, the sufferers had been enabled to regain their normal condition.

These patients took no drugs; they continued in their customary vocations; and they got well. All former experiments with drugs and doctors had failed to bring about a like result. Most of the females had had their wombs treated by the latest recognized methods; all had taken medicines of various kinds; and several had been pronounced by conscientious medical advisers as incurable.

Among the cases reported in this paper are four typical cases of epilepsy; several of nervous prostration of so severe a form as to justify the most serious doubts in any medical man as to a perfect recovery being possible; one case of mental collapse to an extent which rendered the patient unable to dress himself until told which article of apparel to put on first, and who would chew on a bolus of food for an hour, if not told to swallow it; one case of melancholia with morbid impulses, who walked about the streets touching every tree, lamp-post, and ash-barrel; one case of epileptic mania, for whose use a room padded with mattresses was kept; several in which confirmed inability to sleep, severe neuralgic paroxysms, ear-sickness, constant headache, etc., formed an important feature in their clinical histories; one case of St. Vitus's dance that was followed, before I saw her, by an entire loss of power in the right arm and partial in both legs; one case of terrific neuralgic paroxysms of the face that drugs would not control; and other cases of various conditions that were equally distress-

ing to the patient and that had withstood all therapeutical measures.

In the light shed upon a field of scientific inquiry by such a set of remarkable cases, is it not a justifiable source of surprise that many oculists of prominence, in full possession of the facts, refuse to-day to follow implicitly, and others even to try, a method of treatment whose details have been quite fully described in medical literature?

The sad results, viewed from the standpoint of suffering humanity, that are entailed by indifference and prejudice in men of scientific reputation can not be estimated.

By giving expression to others of their opinion concerning what they have not properly investigated themselves or will not see, thousands of sufferers are doomed to a life of misery.

Such patients naturally believe that abnormal eye-factors in their own case have been sought for by the latest methods and found to be absent by one who stands high in his profession. They quote to their friends the positive assertions of him (whom they believe infallible) that "eye-muscles are not worth investigating"; that "all deviating tendencies of the eyes are invariably due to errors of refraction"; that "Javal's instrument has been used, and that settles the question forever"; and other similar expressions, indicative either of inexperience, bigotry, or prejudice, that too often come to my own ears.

Now, may I ask what has actually been done by the oculist in many such instances to give him a basis for any of the conclusions quoted above, that lead often to despair and life-long suffering on the part of the patient?

To save time and trouble, in most public dispensaries, and, unfortunately, in the private consultation rooms of some oculists of repute, the patient is generally taken into a dark room after reading a test-card (which is often omitted), and a concentrated beam of light is first cast into each pupil with an ophthalmoscope for the purpose of determining, in an approximate fashion only, the refractive conditions of the eyes. Glasses are frequently prescribed on information thus obtained.

Then, if the eye muscles are examined at all (and they are often totally disregarded), the patient is frequently put through a series of tests that have little, if any, scientific value, and which ought to have been discarded years ago—such as following with the eyes some small object (usually the point of a pen or pencil) held in the hand of the oculist, and subsequently looking at the "line-and-dot" card at the reading point through a prism.

It is well known and generally acknowledged to-day that the ophthalmoscope is not an instrument of precision \*

\* There are two sources of error which are possible in all ophthalmoscopic examinations as a step toward the determination of refraction. The first of these is that the observer may not be able to perfectly relax his own accommodation while using the instrument. Most oculists of large experience believe that they can do this with certainty—a belief which is perhaps not always well founded. The second source of error lies in the accommodation of the patient. This can not always be relaxed by instructing the patient to look at an object twenty or more feet distant from the eye. I am satisfied that mistakes in the determination of refractive errors by the ophthalmoscope are far more frequent than are generally supposed. For the past seven years I have

when the refraction of an eye is to be positively determined. The greatest ophthalmoscopist of his day in this country tried some years ago to determine the refraction of the writer's own eyes by this instrument and made a dismal failure—as he himself had to confess after atropine was employed.

The ophthalmoscope has its proper uses and is a valuable instrument; but for the determination of anomalies of refraction it is too unreliable to be of value in cases where careful investigation is demanded.

One of the leading oculists of this city has lately written an article \* in which the remarkable statements appear that in cases of asthenopia, hypermetropia of two diopters and a half may be ignored in young subjects; that if cylindrical glasses are ordered the existing hypermetropia may be ignored; and that mydriatics may be dispensed with if Javal's instrument is employed.

The conclusions of this writer are advanced, fortunately, by him only in reference to those patients who suffer from difficulty in using the eyes (asthenopia). While few oculists of prominence, I think, will accept these conclusions from even this limited standpoint, I am personally satisfied that they are absolutely untenable if applied to more severe types of reflex nervous phenomena dependent upon eye-strain.

The author of this article can bear witness personally to the effect of spherical glasses, which caused an instantaneous cessation of all symptoms of complete nervous prostration that came upon himself gradually some twelve years ago without apparent cause. The eye-defect that existed in him had eluded the detection of several skillful oculists, and was only brought to light by the use of atropine. To spherical glasses alone he owes his present health, comfort, and ability to labor.

If it were necessary, in my judgment, to multiply illustrations here to prove that spherical glasses as well as cylindrical glasses have important curative results upon serious nervous disturbances, I could adduce hundreds of

examined the eyes of almost every patient intrusted to my care by the aid of test-type after the pupils have been fully dilated by atropine. I am not aware that I have ever lost a patient by the use of this drug. In my experience intelligent persons are always willing to submit to a temporary inconvenience for the purpose of obtaining *positive information* respecting any point that is deemed of scientific value in relation to themselves. I have personally come to regard the ophthalmoscope as an unreliable instrument for the determination of refraction. Its use is rendered compulsory, however, in very young children, and in those who, from ignorance or feeble-mindedness, are unreliable in their reading of test-type. It is generally accepted, furthermore, among our best oculists that astigmatism (a recognized source of nervous perplexity) is always estimated more accurately with the pupil widely dilated by atropine than with the normal pupil. The reasons which I have already given must suffice to explain why the use of atropine constitutes a most important preliminary step to the detection and estimation of any error in the eye muscles, although many other arguments might be brought forward to prove its advisability in some subjects. Again, the view is held that no examination for suspected muscular error in the orbit should be regarded as conclusive for diagnosis, or as a basis for any surgical procedure, until the eye has been proved to be free from refractive error, or rendered as nearly emmetropic as possible by properly selected glasses.

\* D. B. St. John Roosa. *Medical Record*, March 26, 1892.

illustrative examples from the records of my private patients. I prefer, however, to refer the reader to my brochure upon the treatment of headache and neuralgia,\* and also to one that relates to the cure of sleeplessness,† for illustrative cases that bear upon this subject.

So long as eye examinations are made in a careless and perfunctory way; so long as a careful and accurate determination of the refraction of the eyes is not made under atropine; so long as abnormal conditions of the eye-muscles are not diligently sought for by the only scientific method that has yet been devised for that purpose; so long as careful records of each test and the power of the individual eye muscles are not kept so as to admit of comparison between conditions encountered in any patient from time to time; so long as bigotry and intolerance blind the eyes of eminent men to a proper sense of justice to others; so long as the general medical practitioner neglects to study the principles of testing eyes sufficiently to discriminate between careful work and perfunctory work—so long will the treatment of nervous affections be relegated exclusively to drugs, the sufferings of thousands be unrelieved because the cause is not searched for, and the progress of medical science be seriously hampered and retarded.

I quote from a late brochure of mine the following paragraphs:

"One thing is evident—viz., the view that 'eye-strain' can and frequently does cause serious nervous conditions must be either true or false.

"If it be false, then it has made steady progress in spite of its weakness and against organized and bitter opposition; if false, then the growing list of converted advocates among the younger oculists and neurologists is incapable of explanation; if false, then the thousands of suffering humanity are deceived who believe that they have cause for the deepest gratitude in the recognition and relief of an existing 'eye-strain.' It is contrary to all precedent that a mere 'fad' should steadily flourish and gain strength year by year over a period of many years; neither does the statement that some cases have failed to be benefited by this treatment have any weight in argument. Every method of treatment of disease sometimes fails to relieve individual cases; yet no one attempts to discard all therapeutical efforts in consequence of this fact, because such a deduction would be manifestly illogical."

In the reported cases that follow, some terms are employed that may require explanation to the general practitioner, although they would be easily understood by the oculist. These are comprised in the following table:

Terms related to the focus of the eye (refractive terms).	{	HYPERMETROPIA ( <i>far-sightedness</i> ). A shallow eye (from the front to the back), causing an imperfect focus of objects.
		MYOPIA ( <i>near-sightedness</i> ). An elongated eye (from the front to the back), causing an imperfect focus of objects.
		ASTIGMATISM. An irregularly curved cornea or lens, causing distortion of images on retina.
		EMMETROPIA. A perfectly constructed eye.

Terms related to the muscles which move the eyes (muscular terms).

Various forms of glasses employed by oculists.

- ESOPHORIA. A tendency of one or both eyes to deviate toward the nose.
- EXOPHORIA. A tendency of one or both eyes to deviate toward the temple.
- HYPERPHORIA. A tendency of one eye to rise above the level of its fellow.
- ORTHOPIHORIA. Normal adjustment of the eye muscles.
- ADDUCTION. The power of the internal muscles of the eyeballs. *It varies in health between 25° and 60°.*
- ABDUCTION. The power of the external muscles of the eyeballs. *It should be 8° in health.*
- SURSUMDUCTION. The power of the vertical muscles of the eyeballs. *The right and left should be alike.*
- SPHERICAL. Ground upon a convex or concave sphere. Used to correct hypermetropia and myopia.
- CYLINDRICAL. Ground upon a convex or concave cylinder. Used to correct astigmatism.
- PRISMATIC.\* Two plane surfaces of glass meeting at an angle. The thick side is termed the base of the prism. Used to relieve errors of adjustment of the eye muscles.

\* Prismatic glasses are not only inadequate as satisfactory remedial agents in most cases, but they may be positively injurious to certain classes of patients. Strict limitations upon their field of usefulness (not generally taught) seem to be rendered probable by late investigations. A careful study of the different movements of the eyeball, and of the combination of muscles required to produce some of them, must impress even the most casual reader with the idea that an agent (such, for example, as a strong prism) which tends to restrict the movements of any one muscle may do harm if persistently worn. Some patients are peculiarly susceptible to such influences. I have encountered a large number of patients whose eyes refused to tolerate a prismatic glass. Their symptoms were at once made worse whenever they attempted to correct an existing muscular anomaly by wearing a prismatic glass. On the other hand, many patients are benefited at once by the use of prisms, and suffer no inconvenience of any kind from them. What are we to infer from this statement? Are we to surmise that the prisms were either injudiciously selected or improperly placed, simply because the patient could not tolerate them? I think not! Such might possibly be the case in the hands of a novice, but presumably it is not the case in the experience of one skilled in eye examinations. My own experience in several such instances has shown me that a tenotomy of the muscle exhibiting the greatest tension has been followed by a complete cessation of the nervous symptoms for which the patient sought relief, in spite of the fact that prisms prescribed to correct the same error have proved intolerable to the patient, and have markedly aggravated the symptoms.

There is, however, a practical and important field for prismatic glasses. *It is well to keep, as a part of a physician's office equipment, a large number of prisms of different angles.* These can be slipped into a frame with the base inward, outward, upward, or downward, as the exigencies of any case seem to demand. They may be loaned from time to time to patients, for the purpose either of verifying a diagnosis or of developing a latent muscular error which the physician may be led (by repeated examinations of the patient) to suspect. When they are well tolerated, the physician may often learn a great deal by their protracted influence. When they are not well borne, it is advisable, as a rule, to discontinue their use at once. It is often wise to prescribe a prismatic glass, also, for a class of patients who are unable (for one reason or another) to submit at the time to tenotomy. Sooner or later, I find that

\* Medical Record, June 22, 1889.

† N. Y. Medical Journal, March 28, 1891.

Several months ago, in an article published by me in reference to the causes and cure of sleeplessness, I made use of the following illustration as a means of making the bearing of "eye-strain" upon the general health clear to the reader:

Any expenditure of nervous energy in excess of that generated from day to day (irrespective of where the excessive expenditure occurs) may in time so deplete the reserve capital of nerve force in any individual as to embarrass the workings of some part or parts of the nervous system without any actual disease being present. The result of this temporary "nervous bankruptcy" is peculiarly apt to disclose itself in some derangement of the normal function of the weakest part—as an echo is heard far from the source of the echo.

Let us cite, as an apt illustration of what I mean, one of our every-day experiences:

An upright business man, with a stated income, has, from certain extravagances, etc., spent not only in excess of his income for many years, but has gradually encroached upon his capital. He grows moody, reticent, and irascible, and becomes almost imperceptibly an altered man. His friends, ignorant of the cause of the change, gradually become distant and fewer in number. Social estrangements, domestic unhappiness, a general loss of esteem, and many other complications then begin to arise day by day and month by month, until the individual falls from the high position that he once occupied with warrantable pride. Now, what has caused this fall, and what is the remedy? Unquestionably, to every thinking mind, the initial and underlying factor in all the ultimate results would be the exces-

such patients usually return. As a rule, they do so for one of the following reasons: (1) Because they have developed an additional "latent" muscular error, which the prisms naturally failed to correct; (2) because they do not tolerate them well, and are made decidedly worse by their use; (3) because they prefer a tenotomy to the inconvenience of a glass which has to be constantly worn; and (4) because they suffer from eye-fatigue on account of the disturbance to co-ordinate movements of the eyeball. There is no doubt that very many persons with nervous diseases are materially helped (if not radically cured) by the aid of prismatic glasses; but the question naturally arises to my mind in this connection, "Would they not have been more rapidly benefited and permanently relieved with far less inconvenience to the patient by tenotomy?" The view is held that a *graduated or complete tenotomy is the only means of permanently relieving abnormal tension of a muscle in the orbit*. There are only two ways of overcoming an abnormal tendency of the visual axes to deviate from parallelism whenever the eyes are directed upon an object more than twenty feet off. One of these is by the aid of a prism; the other is by tenotomy of the muscle which directly aids in producing and perpetuating the deviating tendency. Whenever prisms are prescribed, they afford relief practically in the same way as a "rubber muscle" does in orthopaedic surgery; in other words, they compel the muscle which is opposed to the base of the prism worn by the patient to overcome the antagonistic muscle, and also to so adjust the eye as to compensate for the refractive effect of the prism. They practically act, therefore, as a "pulley-weight"—a mechanical device seen in all gymnasiums. Now, if the wearing of prisms had no deleterious action upon those particular muscles, which, in each case, are not at all at fault, and if they invariably exerted only beneficial effects, this principle of treatment could be more generally applied with benefit. Even then the existence of "latent" insufficiency might, unfortunately, remain unrecognized for a greater or less period of time, possibly to the serious detriment of the patient. On the other hand, if it is satisfactorily demonstrated that tenotomy has been rendered a safe and accurate method of correcting muscular anomalies in the orbit, a fact has certainly been noted that opens a new and shorter route to relief. Such a step enables us, moreover, to decide the question of "latent" muscular defects in any given case.

sive expenditure of money. The cure, moreover, lies in stopping the initial cause, with the hope that time and prudent living will restore not only the impaired business capital, but likewise the cheery nature and honest manhood that originally gained the individual his high position, and that can alone restore it to him.

When we stop to reflect, we can understand how every letter on a printed page, as well as every object on the street, or in our homes, that we become cognizant of by the sense of sight requires a more or less perfect adjustment of the complicated muscular apparatus that so regulate the eyes in relation to each other as to enable them to see with both and yet perceive but a single image.

The total *aggregate of such visual perceptions* during the sixteen hours of each day that we use the eyes is enormous; and it means a proportionate number of accurately performed adjustments of two cameras (the eyes) upon a single object, performed often with marvelous rapidity, and involving in many of the adjustments a complete change of combinations in the eye muscles that are successively brought into play. It is not much of a task to lift a penny once, but no living being could lift a penny a million times each day.

Now, Nature has so accurately balanced the relative power of each of the various eye muscles in a perfectly constructed being, and has so beautifully constructed the eyes as regards their focus, that the expenditure of nerve power (in the case of such an individual) required to perform the necessary eye movements throughout each day is reduced to a minimum, although necessarily very large as compared with the amount expended upon any other organ in the body.

But, when the adjustment of the eye muscles or the construction of the eyes themselves is so imperfect that the maintenance of single vision (when both eyes are simultaneously used) is the *result of an excessive expenditure of nerve-force* (far greater than Nature intended in many cases), any individual so afflicted begins from birth either to draw from the "reserve capital of nerve-force" that Nature has stored up for emergencies, or the eyes must be run at the expense of a proper nerve-supply to some other part (Peter being robbed to pay Paul).

Three factors then enter into the proposition as to how long a time can elapse before the serious influences of such a leak of nervous energy will be felt in any given case where the eyes or the eye muscles are abnormal: 1. How much excess of energy over the normal amount is required to compensate for the defects connected with the sense of sight. 2. How much "reserve capital" of nerve-force the individual starts out in life with. 3. How much nerve-force the individual can generate day by day to meet the daily expenditure.

A child inheriting one hundred thousand dollars at birth could have expended upon him one thousand dollars per year in excess of his income without feeling the lack of money for one hundred years; but if the excess of expenditure be increased to five thousand dollars over his income, bankruptcy would stare him in the face when he attained his majority.

A serious defect of construction in one or both eyes, or a decided tendency of one or both eyes to deviate from parallelism with its fellow, may entail upon an individual a leakage of nervous force that is apt to produce in time very sad results upon the general health.

We are now prepared to pass to the consideration of some cases that I have selected from my case-books in order to demonstrate, if possible, beyond cavil (1) that a direct relationship between "eye-strain" and some extreme forms of nervous disturbances can exist; (2) that the correction of "eye-strain" may be followed by very marked

benefit in some instances; (3) that it is the duty of a physician to have the eyes of all patients afflicted with abnormal nervous disturbances examined early by some oculist who is familiar with and employs the latest methods; and (4) that errors of adjustment of the eye muscles are quite as important to detect and rectify as are marked errors of refraction.

CASE I.—Mr. P., aged forty-one, manufacturer, married.

*Family History.*—Both parents died at seventy-five years of age. Mother was of nervous temperament. One brother died of Bright's disease.

Patient has seven children, all unusually healthy.

*Eye Defects.*—Hypermetropia and astigmatism. O. D. + 0.50 s.  $\ominus$  + 0.75 c. axis, 90°. O. S. + 1.25 s.  $\ominus$  + 0.50 c. axis, 90°. Left hyperphoria, 4°. Esophoria, 7°. Adduction, 22°. Abduction, 4°. Right sursumduction, 2°. Left sursumduction, 8°.

*History of Case.*—This patient was brought to me by his wife from Canada at the suggestion of their physician Dr. B., who had good cause to suspect an advanced case of softening of the brain.

For several months prior to this visit the patient had taken but little if any medicine and had steadily lost flesh. His mental condition had become alarming and his doctors had practically regarded the case as hopeless. He had to be taken care of by his wife, who paid all the bills and looked after him as she would a child. While dressing, he had to be told what clothes to wear and which to put on first. At the table he would chew his food until told to swallow it. His demeanor was extremely apathetic, except at intervals when he would start suddenly from his chair, grab his head in both hands, and walk in an agitated manner about the room, complaining of great pain in his head.

For twenty years he had had severe attacks of neuralgia affecting the left eye and left side of the face, and for many years he had been annoyed by flowing of tears over the cheek in cold weather. For six years he had had marked symptoms of indigestion, flatulence, and constipation. Eating was followed by severe pain in the region of the stomach, and he had been obliged to restrict his diet for some years in consequence.

For six months prior to this visit he had not visited his place of business and had suffered terribly with insomnia. To such an extent did the insomnia exist that his wife would sit by him and fan him during cat-naps until noon of each day.

As he was not in condition to stand the excitement of a hotel, he was forced to lodge with friends where absolute quiet could be insured.

Great difficulty was experienced during my first few interviews with the patient in getting any reliable eye-tests, although his expression indicated a marked degree of left hyperphoria and esophoria.

After reading only a couple of lines on a test-card, he would leap from his chair, grasp his head with his hands, and say that he would come in the next day and read some more.

The case certainly looked most unpromising, and his mental condition was such that I could not divest myself of the belief that organic brain disease existed and that the case was probably incurable.

After several interviews and the free use of atropine to dilate the pupils, the eye-tests became more satisfactory. I advised the wife to consider the propriety of an operation for the hyperphoria with the hope of easing his pain and improving his sleep.

I distinctly impressed upon the wife the fact that I did not think this step would prove in any way curative; yet I could not but feel that four degrees of manifest hyperphoria was a

strain that ought to be at once removed—especially from so weak an invalid.

*Treatment and Results.*—As his wife expressed a desire to try what a correction of his hyperphoria would do for him, a graduated tenotomy was performed upon the left superior rectus. The result was a great surprise to his friends as well as myself.

The night following the operation he slept soundly all night. He arose the next morning, dressed himself without aid, and drank three goblets of milk before the rest of the family were up. He then sat down and ate a good breakfast, finishing as quickly as any one.

Within a week he demanded his money from his wife, saying that he would not have her pay his bills for him; and a short time afterward he began to come daily to the office from Brooklyn without any one to accompany him.

Two weeks after the operation patient reported that he "wrote a long letter (the first in over four months), that he eats well, sleeps well, takes an interest in the newspapers, and is marvelously improved in every way." A full correction of his errors of refraction was ordered and he was instructed to wear his glasses constantly.

Some weeks later a graduated tenotomy was performed on the right internal rectus for the relief of the esophoria, and the patient returned to Canada to take charge of his business.

For the past two years patient reports that he has had no return of his old symptoms, but is considerably annoyed by headache, which at times is quite severe. He has been very inconstant in wearing his glasses. This may account for the continuance of his headaches, although there is reason to suspect that some hyperphoria still remains.

CASE II. *Epilepsy and Epileptic Mania of an Aggravated Type.*—Mr. S., aged nineteen. First seen by me on November 27, 1888.

*Family History.*—Mother has frequent and severe sick headaches, and her sister is a martyr to them also. The brother and sister of the patient have headaches. The paternal heredity could not be accurately given by the mother, who brought the boy to me for treatment. No phthisical tendencies had ever manifested themselves in any of the patient's ancestry, as far as known. Every known relative on the maternal side suffers from headache.

*History of the Case.*—The patient is a tall, finely developed young man of five feet ten inches, weighing about a hundred and fifty pounds, and with a good color. His mother gives the following facts:

Up to the fourteenth year of age the patient was in perfect health. He then had his first epileptic seizure, following upon an attack of so-called "congestion of his brain," for which no cause could be found except a fall while skating. He was then at school in Paris.

Within the next year, in spite of bromides, he had three "fainting attacks," lasting an hour each.

He was then removed to a school in England, and had a number of severe epileptic seizures in spite of large doses of bromides.

In August, 1887, he was sent to America and placed in a select school, where he could be carefully watched over and his habits of life regulated. He had taken every day for the previous year not less than sixty grains of potassium bromide and fifteen grains of sodium bromide, and at times much larger doses.

During the year prior to his visit to my office the seizures had become more frequent and extremely violent—so violent that three men could not restrain the patient, and a room had been padded with mattresses and specially kept for the protection of the patient when thus seized. Into this room he would

be placed and allowed to thrash about, until attack after attack would prostrate the patient. All medical treatment seemed of no avail, and the father was asked to remove the boy from the school.

Medical advice was then taken, and it was deemed advisable to commit the patient to an insane asylum as an incurable and uncontrollable case of dangerous epileptic seizures. At the earnest solicitation of friends, the parents were urged to make a trial of the "eye treatment" in the hope that it might possibly avert so horrible a fate for the boy, even if it did not markedly affect the frequency of the fits.

As the absolute cessation of the bromides was insisted upon by myself, from the date of the first visit, the boy was with some reluctance admitted at my solicitation to a private hospital, so that he could come to my office with an attendant and be protected from injury if the fits became very frequent or severe.

A record kept by the principal of the school showed that thirty-four fits had occurred in the twelve months that preceded my care of the boy, in spite of extreme doses of bromide salts and chloral at intervals in addition to his regular daily doses.

*Eye Defects.*—On the 17th of November, 1888, patient showed normal vision in both eyes, adduction  $54^{\circ}$ , abduction  $5^{\circ}$ —, right sursumduction  $2^{\circ}$ —, left sursumduction  $2^{\circ}$ —, esophoria  $2^{\circ}$ , left hyperphoria  $1^{\circ}$ .

In accommodation, patient showed esophoria  $10^{\circ}$ .

*November 18th.*—Under atropine, patient showed a latent hypermetropia of one half diopter. Esophoria  $2^{\circ}$ , left hyperphoria  $\frac{1}{2}^{\circ}$ .

*Treatment and Results.*—The patient carried his head, as his mother said he always had done, very markedly to the left side (justifying a suspicion that right hyperphoria actually existed), and his esophoria was very palpable to a careful observer. Later on, my suspicion of an existing right hyperphoria became confirmed by most positive tests.

Here, then, was a boy who showed at the onset almost perfectly constructed eyes, with only a slight tendency inward (apparently), and a suspicion of hyperphoria, yet he was having terrific epileptic seizures that were uncontrollable by drugs. His power of abduction was low, however, and prisms of  $1^{\circ}$ , base out, were placed for twenty-four hours over each eye.

At the third visit, on the following day, he showed esophoria of  $7^{\circ}$ , and the prisms were increased to  $4^{\circ}$ .

In three days more he showed esophoria of  $10^{\circ}$ , with unconquerable double images, and the tendon of the right internal rectus muscle was freely relaxed by a graduated tenotomy. This improved his deviating tendency inward; but some esophoria still disclosed itself.

On November 24th the opposite internal rectus was likewise operated upon, and his esophoria was apparently totally corrected for some time after the operation, his adduction being normal ( $8^{\circ}$ ).

On November 27, 1888 (ten days after the cessation of bromides), the patient had a fainting attack in my office without tremor, but with a total loss of consciousness for some ten minutes. The habit of carrying the head toward the left shoulder had been persistent up to this time. An examination of the eyes disclosed a *right hyperphoria* (as was originally suspected) of quite a high degree.

From this date until February 12, 1889, patient was treated by prismatic glasses and *no return of epileptic seizures had occurred*. I then determined upon a third operation, and let out the right superior rectus as far as I deemed it wise to do so, although I failed to perfectly correct his right hyperphoria by so doing. Prismatic glasses were again resorted to, as a step toward correction of the existing "eye-strain."

The boy then returned to his former school.

On July 1st, when the *boy had passed over seven months* without an epileptic seizure, I received a letter from his mother, from which I quote as follows:

"I want to tell you how very grateful I feel for the great good you have done my boy. It is really wonderful how he has improved in health since he has been under your care. He writes me that he has not had a single attack since I left New York. This seems almost a miracle when one remembers how the boy suffered before coming to you."

On July 7, 1889, *over nine months* had passed since an actual convulsion had occurred, and nearly eight months since the "fainting attack" in my office. He had been some time without prisms or any eye treatment, when he imprudently used a lawn-mower violently on a very warm day for several hours. As a consequence, he was seized with one of his "old-time attacks," having three severe convulsions and two light ones in the next forty-eight hours. They were accompanied by marked gastric disturbance and fever.

On visiting me, I found some remaining right hyperphoria, for which I again operated upon the right superior rectus tendon.

On October 14, 1889, the patient engaged in a cross-country run of several miles, after school exercises, and became greatly overheated. He was again seized with a severe convulsion, and had two light ones later in the day. He had again marked gastric disturbance. Fourteen weeks had elapsed since the previous attack.

On December 26, 1889, the patient was again seen. He had experienced no return of attacks, was in excellent health, and had taken no medicine for thirteen months. He still shows  $1^{\circ}$  of right hyperphoria, esophoria of  $2^{\circ}$ , adduction  $58^{\circ}$ , abduction  $7^{\circ}$ —, right sursumduction  $4^{\circ}$ , left sursumduction  $1^{\circ}$ +. He is wearing prismatic glasses for  $2^{\circ}$  of esophoria.

On April 2, 1892, this patient reported last at the office. He is still wearing  $2^{\circ}$  prism for the remaining esophoria. He had passed *over ten months without an epileptic seizure, and only one attack had occurred in nearly two years*.

Now, what has been done for this boy thus far by "eye treatment?" He has already passed nearly four years without recourse to poisonous drugs; he has been saved thus far from a life in a lunatic asylum and restored in usefulness and health; he has had, except on three occasions, complete immunity from his horrible disease in spite of the total cessation of bromides; he has returned to his former association with his school companions; and he is today able to go about without an attendant, or the dread of impending disaster and possible confinement.

He has happily learned, I trust, that excessive and violent exercise is dangerous to his comfort, as it tends to cause an epileptic attack, and also to derange his digestive apparatus seriously. Had it not been for such extreme imprudence, he would probably have been entirely free from attacks during the past year.

Do we know that this remarkable change is due to the eye treatment? Most certainly!

The patient had never before passed so long a time without attacks as he has since eye treatment was begun, although he had been constantly drugged, according to the most approved fashion of the present day, for his epileptic seizures. He had found in the bromides for some years the only refuge that medicine offered to keep these frightful attacks within bounds that did not seriously endanger

life. He naturally felt, as did his parents, that to let go that anchor was to drift beyond aid into hopeless despair. When, therefore, I stopped his bromides at the first visit, every one concerned (the patient, his parents, his friends, and myself) felt quite sure that, unless something was done as a substitute for the drugs, the fits would surely become more frequent and severe. This substitute for drugs took the form of an operation for what I deemed the exciting cause of the attacks. Another operation was done on the corresponding muscle of the opposed eye, as soon as the necessity for it became apparent. Then we felt comparatively safe, and the patient could await with greater safety the effects of prismatic glasses.

CASE III. *Chronic Epilepsy (of Twenty-four Years' Standing).*—This case is of great interest if taken in connection with the case that precedes it. In this instance five years and nine months of immunity has followed eye treatment and the cessation of all drugs.

Mr. H., aged forty-three, merchant, began to have severe epileptic fits when seventeen years of age. Had masturbated when a boy, and had been addicted in later years to excessive venery.

*Family History.*—One brother is a confirmed dipsomaniac; the father died of paralysis; one sister is a victim to sick headaches; no phthisis has existed in the family, so far as could be ascertained.

*History of the Case.*—The epileptic seizures of this patient varied in frequency from two or three a week to one in three months. He came under my care in 1871 (when twenty-eight years old), and was treated by me for many years with enormous doses of the bromides of potassium and sodium. These salts reduced the attacks to about four a year. Stopping the bromides invariably increased the frequency of the attacks.

*Eye Defects.*—In January, 1886, his eyes were examined after his return from an extended residence in the South. He showed under atropine a latent hyperopia of 2.50 D., and also a manifest esophoria of 4°. Subsequently several degrees of "latent" esophoria also manifested itself.

*Treatment and Results.*—Partial tenotomies were performed upon both interni, and hyperopic glasses were given him. Since the first operation (January, 1886) he has taken no bromides and has not had a convulsion. He has twice been at "death's door" with fevers, but he has shown at no time any epileptic tendencies.

It may be asked, "Can this be done for the relief of every epileptic?" I would reply, "By no means!"

Some epileptics owe their disease to depressed fracture of the skull, a tumor, a cicatrix, or some other form of direct irritation of the brain itself. Others, who were undoubtedly affected with epileptic seizures as the result of eye-strain only at the onset, fail to apply for the relief of that defect until after they have been drugged with bromides and chloral for many years to an extent that has seriously undermined the recuperative power of the patient. Bromides may likewise have impaired the normal sensitiveness of the retina, as well as the tendency of the ocular muscles to accurately adjust the eyes for visual images. In many other ways these drugs sometimes so complicate matters as to make improvement slow and complete recovery improbable in spite of the satisfactory removal of the original eye defect.

When a house has been partially burned, no one expects that putting out the fire will at once restore the house. It does, however, prevent further damage, and materially decreases the time and cost demanded for its restoration. Hence it is always deemed imperative to extinguish the fire without unnecessary delay.

We must all admit, I think, that epilepsy is certainly the gravest of all the functional nervous maladies, and that it is, as a rule, incurable by drugs; hence, as I have remarked in a previous discussion concerning this subject, "one radical cure of epilepsy without the aid of drugs offsets a thousand failures as a scientific proof of a discovery."

It may be well, however, for me to mention in this connection a few of the reasons why, in my judgment, the treatment of the eyes has totally failed, in the hands of some observers, to relieve or modify some nervous conditions that had withstood judicious medication for years; and why it is that subsequently, in more experienced hands, treatment of the same patients directed to their eye muscles has led not infrequently to the happiest results.

(1) I would call attention to the fact that *preconceived notions about old methods must be abandoned without prejudice* when a new method is to be tried.

(2) Each observer must, of necessity, make himself *thoroughly familiar with all the details of the method* which he proposes to employ before he is competent to decide *pro or con* respecting its merits. This can not be done exclusively by reading. No one can describe with a pen the many intricacies that are apt to arise in solving complex optical problems. It is certainly not beneath the dignity of even an eminent man to learn (by personal observation of the work of another whom he perhaps thinks is misled, and by timely suggestions thus obtained) how facts that bear upon successful treatment may be determined that were, perhaps, at first obscure and difficult to ascertain.

(3) With a full knowledge of the method, its intricacies, and its difficulties, *conclusions should never be too hastily arrived at* in any given case. It is always "better to be sure than sorry." Those who have had the largest experience may occasionally make mistakes in judgment when a peculiarly complex problem is presented for solution.

(4) The old methods of testing the eye muscles will have to be abandoned at no distant date. A "phorometer" is now essential to all accurate work. Moreover, the separate muscles should be individually tested and their power accurately measured.

Not long since a physician who had twice collapsed from nervous prostration at the very threshold of his professional labors came to me for advice. He showed at intervals an apparent condition of equilibrium in the orbits, but welcomed prisms for a deviating tendency of one eye above its fellow, and improved rapidly under their influence. Within a week he showed unconquerable double images without his prism, and a radical step for the correction of his vertical strabismus was advised. At the advice of friends he then consulted an oculist of international repute, who not only failed to recognize the fact that the

patient saw double images, but even pronounced the eyes normal in their adjustment. The description by the patient of the rough and unscientific tests upon which that judgment was made showed clearly that the oculist was either woefully negligent of his obligations to the patient or incompetent to decide the point at issue.

Another patient upon whom I have lately performed a graduated tenotomy of the external rectus muscle with the happiest results (as it brought about a rapid and complete restoration to health), came to me originally with an eye that diverged at times, when her vision was not attentively engaged, almost to the outer canthus; yet she bore a certificate from one of the leading oculists of America that she had no defect in the refraction or adjustment of the eyes, and that her terrible headaches and difficulty in using her eyes required only constitutional treatment.

*CASE IV. Chronic Epilepsy (apparently Cured by Glasses alone).—*Mr. T., aged thirty-five years, clerk. This patient was sent to me from a neighboring State as a chronic epileptic. He stated, at his first visit, that "he could remain in New York only a day or two, and *simply wanted to see if his eyes had anything to do with his epilepsy.*"

He was a clerk in a store and had had severe fits quite frequently.

The full details of his family history, frequency of attacks, medicinal treatment, etc., were not taken at that time by me, and can not therefore be given here.

*Eye Defects.*—Without atropine this patient showed a marked myopic astigmatism in each eye that was apparently corrected by  $-2.75$  c. axis  $180^\circ$ . Under atropine a latent hypermetropia of  $+1.50$  s. was also found to exist in addition to the astigmatism.

*Treatment and Results.*—Glasses were ordered for each eye from the following formula (in April, 1890):

$$-2.75 \text{ c. axis } 180^\circ \text{ } \ominus \text{ } +1.00 \text{ s.}$$

The patient also showed esophoria of four degrees with the glasses that insured a full correction of his refractive errors.

In discussing the question of treatment with the patient he was told to wear his glasses constantly, and, if the fits continued, to return for a correction of the esophoria. I impressed upon him the fact that the use of atropine might have to be repeated, and that I could not hope and did not expect that the glasses alone would exert any very marked influence upon his epileptic seizures. I impressed upon him the fact that after wearing his glasses for a month or two it was possible that his apparent error of adjustment of the muscles might be modified somewhat. He left my office with instructions to abandon all drugs: to keep a strict record of all his epileptic seizures, whether light or severe; and to return later for further eye treatment in case the seizures continued to be frequent or severe.

Since that interview about twenty-six months have elapsed. During this time I have heard from him several times through patients that he has sent to me and once or twice by letter. Last week one of his friends reported that never since he had worn the glasses that I ordered for him had he been attacked with an epileptic seizure of any kind. This report was a verbal one that this patient had intrusted him to deliver to me. He is still a clerk in the same store, and uses his eyes constantly in his business.

*CASE V. Chronic Epilepsy, with Serious Mental Deterioration as the Result of the Administration of Bromide Salts.*—Mr. H., aged twenty-four, single, manufacturer.

*Family History.*—Father has a nervous temperament. Mother has gout badly and defective eyes. Paternal grandfather died of bowel trouble. Paternal grandmother died suddenly from some unknown cause. All paternal uncles and aunts, seven in number, lived to be from seventy-five to ninety years of age. Maternal grandmother died of phthisis and insanity (after childbirth), and was nineteen years in an asylum. One of her sisters died of phthisis. One maternal aunt died of phthisis at sixteen years of age. Maternal grandfather had gout terribly, drank heavily, and died of paralysis.

*Eye Defects.*—This patient showed an enormous amount of unilateral astigmatism. Right eye  $+0.50$  c., axis  $90^\circ$ . Left eye  $+4.00$  c., axis  $180^\circ \text{ } \ominus \text{ } -1.00$  c. axis  $90^\circ$ . Esophoria  $11^\circ$ , adduction  $35^\circ$ , abduction  $3^\circ$ , right sursumduction  $4^\circ$ , left sursumduction  $4^\circ$ .

*History of the Case.*—Patient was perfectly healthy until he went to Exeter to fit for college. While in Exeter he had several epileptic seizures.

He had no special aura, but usually bit his tongue.

Had masturbated before his attack, but has not since.

He then entered Harvard and stayed a year. He had, he thinks, four attacks during that year, during which he took no medicine.

He left Harvard in June, 1885, and in September, 1885, he went into the draughting-rooms of his father's factory. For eighteen months he took no medicine, and in that time had several attacks.

While in Cuba in 1887 he had a bad attack and began taking bromides. Within two months, while in Mexico, he had two serious attacks, cutting his chin badly in one and knocking out a front tooth in another.

He then came to New York and consulted an eminent neurologist, who increased his bromides and put him on restricted diet. He had only one severe attack and one of *petit mal* during the next year, but his mental condition became seriously impaired.

When he came to me his whole appearance and manner showed markedly the poisonous effects of the bromides. His face was covered with acne. His mental condition was so bad that an interested conversation was almost impossible. In fact, it had become so alarming that his father, with tears in his eyes, said that although he was his only son, he would rather see him dead than in his present condition.

*Treatment and Results.*—All bromides were at once stopped. A full correction of his astigmatism was given for constant wear, and graduated tenotomies were performed on both internal recti for the relief of his esophoria.

During the first six months of treatment, while his glasses were being changed and operations performed, he had five attacks—four very light ones and one medium attack. All of these occurred after excessive indulgence in rich and indigestible food late at night, and one after indulging in too much alcohol.

*During the past eighteen months he has had no attack of any kind.* He has been actively engaged in business and has gained twenty pounds in weight. He has regained perfectly his mental condition; travels without an attendant, runs a yacht, and is considered perfectly well by his parents and physician.

(To be concluded.)

**The Kings County Medical Association.**—The next meeting of this society will be held on June 14th. The leading paper of the evening will be presented by Dr. Thomas H. Manley, of New York, on The Therapeutical Value of the Mercurial Salts in Surgery. The association will then take a recess until the second Tuesday in October.

## ATHETO-CHOREIC MOVEMENTS.

BY JOHN FERGUSON, M. A., M. D. TOR.,

L. R. C. P. EDIN., L. F. P. S. GLAS.,  
DEMONSTRATOR OF ANATOMY, WINTER SESSION, AND  
LECTURER ON NERVOUS DISEASES, SUMMER SESSION, UNIVERSITY OF TORONTO.

THE subject of athetoid and choreic movements is a highly important and engrossing one. Little by little, progress is being steadily made on the morbid anatomy and pathology underlying these movements. In all conditions of brain pathology, and in the varied symptoms resulting from these morbid cerebral changes, many cases must be carefully collected and collated with each other before any definite conclusions can be deduced from the observed anatomical changes. The lesion must be limited to one special part of the brain in order that exact opinions may be formed. Should there be structural change involving two portions of the brain possessing well-known and different functions, the study becomes more complicated by the mixing of the resultant symptoms. If, however, the morbid process extends into parts of the brain of unknown, or slightly known, functions, it is quite impossible to disentangle the varying features of the symptom group, and say what is due to the pathological changes affecting one or other of the parts. Taking the contents of the cranial cavity as a whole, there are many sections whose functions are extremely obscure. A definite lesion, then, of any part of the central nervous system, where the symptoms have been carefully noted *intra vitam*, is of the utmost importance as a means of guiding medical science one step farther in the pursuit of information bearing on the question of the localization of function, and, consequently, clearing up points in diagnosis.

It is a well-known fact that after some attacks of hemiplegia these athetoid or continuous and choreic or jerky movements come on. Another fact is that these movements may continue after the paralysis has passed away. From this we conclude that the source of irritation must be located somewhere else than in the motor areas or tracts of the brain, but yet so placed as to indirectly affect these. W. R. Gowers, in his work, says: "Regarding the nature and position of the disease causing these disorders of movement, we have as yet but little pathological evidence. The symptom is observed after recovery from the paralysis, and hence in patients who for the most part live on and pass out of observation. But two ætiological facts are of great significance. The first is, that these disorders of movement are far more frequent after cerebral softening from vascular occlusion than after cerebral hæmorrhage. The second is that they follow hemiplegia far more frequently when this comes on in infancy or childhood than when it comes on in adult life. Regarding the seat of the lesion which gives rise to these symptoms, the facts are too few to permit of accurate generalization. In most of the recorded cases the disease has been situated either in or outside the optic thalamus. Since the optic thalamus is not in the motor path, disease limited to this must produce the symptoms indirectly by disturbing the function of the motor cortex."

At a meeting of the American Neurological Society Dr. G. M. Hammond reported the pathological findings in the original case of athetosis on which Dr. W. A. Hammond's

description of athetosis was based. The portion involved in the lesion was a lengthy one in the antero-posterior direction, parallel in its short axis with the internal capsule. Its posterior end had invaded the stratum zonale of the thalamus in its posterior half of the internal capsule. In its anterior extension it had crossed the capsule, invading the posterior third of the outer articulus. The author called attention to the fact that the motor tract was not implicated in the lesion, and argued that this case was further evidence of his theory that athetosis was caused by irritation of the thalamus, the striatum of the cortex, and not by a lesion of the motor tract. Dr. Spitzka reported a case in which the lesion was found in the same situation as in Dr. Hammond's case. Dr. E. C. Seguin also gave a paper on athetoid and choreic movements in a patient. The post-mortem revealed a glioma of the left thalamus and internal capsule, the movements having been on the right side. The author's views were that all cases of athetoid and choreiform movements following hemiplegia were due to injuries of the thalamus and adjacent capsule.

To the foregoing cases I shall now add the details of one that was under my own observation in which the athetosis was well marked and was not clouded by any other motor or sensory disturbances.

The patient was a tall, thin man, of about thirty years. On December 3, 1890, I saw him for the first time, and made the diagnosis of diabetes mellitus. For this he was under treatment to the time of his death, in January, 1892.

In the early part of July, 1891, he was taken ill with the continuous movements of his right arm and leg, which lasted unabated to the evening of his death. The movements were slow and continuous, rather than short and jerky; and in these respects more closely resembled athetosis than chorea. The movements of the arm, hand, and fingers were extensive. The arm would be carried with a steady swinging motion round behind the back, up over the neck and head, and round to the front again. Flexion, extension, abduction, and adduction of the fingers would succeed each other in endless rotation.

There were no sensory disturbances other than the existence of neuralgic pains. The knee-jerk was wholly gone on both sides, and sexual power was equally lost.

The post-mortem was made about twelve hours after the death of the patient. The brain, cerebellum, medulla, and pons were removed for examination. The left thalamus opticus presented the appearance in its substance of an old but distinct blood clot. Around this clot there were evidences of degenerative changes, the thalamus being much reduced in consistency. The changes in the left thalamus were both gross and minute. The above conditions were visible to the naked eye. Under the microscope both fresh and hardened sections revealed abundant signs of degenerative changes. This was very patent in the region of the pulvinar. No definite histological characters could be made out in either the central gray matter or in the stratum zonale, due, no doubt, to the softening caused by the irritation of the clot.

The commissura mollis was not invaded, and the right thalamus perfectly normal. The disease had not extended outward so as to involve the internal capsule, with the slight exception of a very small amount of degeneration that extended for some distance upward in the most anterior part of the capsule; or in that part which constitutes the anterior peduncle of the thalamus, by means of which it is brought into direct connection

with the frontal lobe. Along the inferior peduncle of the thalamus which joins it with the temporal lobe, degeneration could be traced for only an exceedingly short distance. No pathological changes could be discovered in the lenticular or caudate nucleus. The floor of the fourth ventricle was examined, but with negative results.

In this case there are several features of extreme importance. First, we have the positive existence of athetosis. In the second place, the occurrence of both gross and microscopic changes in the left thalamus. Thirdly, the entire absence of any diseased conditions in the motor tract, either cortical, capsular, crustal, or pyramidal. And, finally, the important fact that there were no sensory derangements.

How are we to account for the athetoid and choreoid movements in these cases of lesion in the thalamus. It would be somewhat beyond the object of this paper to quote from all the cases that have been reported to show the constancy of disease in the thalamus in such cases. Gowers believes that disease limited to these ganglia causes the movements by indirectly irritating the motor cortex. Ross says, in his work on nervous diseases, that it is not easy to give reasons why choreiform movements are so liable to occur when the lesion is situated in the region of the posterior external optic artery. Two probable explanations of these clonic spasms suggest themselves. The first is that fibers connecting the cerebrum with the cerebellum are injured by these lesions, so that the regulation between the tonic (cerebellar) and clonic (cerebral) actions of the body is lost. The second is that the spasms are caused by partial injury of the fibers of the pyramidal tract, which regulate the fundamental movements of the body. The fundamental actions are regulated from the convolutions near the longitudinal fissure. Fibers from these convolutions would descend on the inner side of the internal capsule, and consequently on the side in contact with the thalamus. They would therefore be more liable to injury, or irritation, in disease of the thalamus than the fibers lying more external.

With regard to these views of Dr. Ross, it may be remarked that though the latter might explain some of the cases, it could not explain the one I have recorded in this paper, as the internal capsule was entirely free from disease of any kind, and therefore the fibers governing the fundamental movements could not have been in any way interfered with. The former view is negated by my case also, as there was no disease or degeneration in the peduncular fibers leading to or from the cerebellum. It is not possible to say whether or not Gowers's view is true, as the thalamus is so extensively connected with the cerebral cortex. My own view is that the gray matter of the thalamus must be regarded as cortical in function, and therefore an originator of nervous energy, and not merely a transmitter by means of the numerous bundles of fibers connecting it with other portions of the central nervous system. If it originates movements, when diseased, they partake of the purposeless character of athetosis or chorea. In the case now recorded there was no motor paralysis; but the athetoid movements were greatly increased by all attempts at definite voluntary actions. This fact alone, taken in conjunction with the other considerations of positive disease in

the thalamus, while there was no disease elsewhere, goes to show that the thalamus must have some regulating function to fill toward our voluntary motor impulses. When this regulating function is lost, we are able to originate movements, but no longer able to so harmonize these movements as to execute a regulated and purposive work by their aid. I would therefore regard the thalamus opticus as an originator of movements; and, secondly, as a regulator, in some way, of the movements emanating from other motor areas. The thalamus may have other functions besides the above; but I think the two mentioned can be safely inferred from my case.

## PHTHEIRIASIS CILIORUM.

BY CHARLES W. ALLEN, M.D.,  
SURGEON TO CHARITY HOSPITAL, ETC.

In the *Journal of Cutaneous and Venereal Disease* for July, 1886, I reported a case of pediculi upon the eyelids. I had observed the condition a number of times previous to this, and have seen quite a number of instances since; still, the location must be considered an unusual one in comparison with phthiriasis pubis. The parasite is the same in both situations. I have not yet met with an instance of the pediculus capitis located upon the ciliary margin of the lids. Nor have I seen the nits of the head louse upon the lashes. The following case, just observed in my service at the hospital, has one or two points of interest:

Dora K., twenty-one years old, was admitted with multiple chancroids and one indurated sore upon the vulva. She also presented a pigmentary syphilide upon the neck.

Five weeks ago she noticed something on the eyelashes and tried to wash it off, thinking it was dried secretion. There has never been the slightest itching, or symptom of irritation of any kind referable to the lids or eyes, and, as no complaint was made by the patient, she had already been in the hospital for some time before the attention of the house staff was directed to the quite extensive deposit of eggs upon the lashes. Even then the pediculi themselves were seen with difficulty, so closely were their flat bodies applied to the margin of the lid.

My method of treatment consists in removing all the pediculi and their nits at a single sitting by mechanical means, stripping off the hairs with a small, sharp-pointed forceps, which will permit the nit to be drawn the whole length of the hair without making traction enough to pull the lash out. The pediculi cling so tenaciously to the hair whose follicle furnishes the receptacle for the animal's head that in removing them the hair is often sacrificed. The farther back the body of the louse is grasped, the more readily is its hold relaxed. In this case about a dozen pediculi and probably fifty nits were removed. The removal having been accomplished, attention must be directed to the axillæ and pubic region. Pediculi are almost invariably found in both these situations, and often too in some other portions of the body. I have seen them as far down as the ankles. Removal with the forceps can be practiced here as well, unless the pediculi are too numerous; then a chloroform spray, inunction with mercurial ointment, appli-

cation of strong bichloride solution (1 to 100), or petroleum, staphisagria, sabadilla, etc., will be required.

In regard to the frequency of phtheiriasis ciliarum, much depends on the source of statistical information. Jullien says it occurs but once in five thousand cases of eye diseases seen in clinics, while out of five thousand nine hundred and seventy-four eye cases seen at the Good Samaritan Dispensary, in this city, during 1891, where most of the patients are Russian Poles, there were no fewer than eighty-five instances of pediculi of the eyelashes, or fourteen per mille. Subjects of this affection do not come much to the dermatologist, and are discovered by the general practitioner, often only by accident.

696 MADISON AVENUE.

### A CASE OF OBSTRUCTION OF THE SUPERIOR VENA CAVA.

By A. O. PFINGST, M. D.,  
HOUSE SURGEON, LOUISVILLE CITY HOSPITAL.

On October 11, 1891, an apparently healthy man, forty-five years of age, was admitted to the surgical ward of the City Hospital, complaining of a sense of pain and weight in the neck, and a feeling of fullness over and between the orbits on assuming a stooping posture, which he attributed to a blow on the occiput received a month previous.

On examination, a point in his skull was found somewhat depressed, but no symptom whatever of compression was present; and if there was at this time any interference in the circulation, it was so slight as to be overlooked. He was thought to be feigning sickness, and was consequently discharged by the visiting staff officer.

On November 27, 1891, this being about a month after his discharge, he was readmitted to the hospital, when there was a decided cyanotic condition of the upper extremities. The external jugular vein on each side was very much dilated, but non-pulsating. As this condition grew worse, the subclavian vein became similarly involved. His neck gradually became larger, as did also his arms and hands, both being decidedly cyanosed, but not œdematous.

The lower extremities were never affected. The patient has grown gradually weaker, suffering more or less from insomnia, with considerable cough and impaired digestion. His principal symptom, however, was a feeling of dizziness upon stooping or on muscular exertion, or, as described by the patient, as a feeling as if there was a rush of blood to the front of his head which caused a dizziness and partial blindness.

The previous history of the patient is good, having always been a stout, healthy man, accustomed to leading an active life. He had an attack of pleurisy on the left side, for which he was aspirated in December, 1890. Outside of this and the blow on the head, he gave no other history, having no specific history.

On physical examination, the apex beat of the heart was found displaced to the left and downward somewhat, the impulse having a heaving character. There was no heart murmur. The pulse was full and strong. The lungs showed no abnormality. The cause of the obstruction is very obscure. No pulsation could be detected by pressure between the intercostal spaces to indicate an aortic aneurysm, and there was no bruit discernible by the use of the stethoscope. There was no pain or sense of constriction in the chest or elevation of temperature to indicate a mediastinal tumor of some other character, nor was there

any dullness on percussion over the region of the superior vena cava.

The attack of pleurisy, which occurred on the left side, could hardly be considered as a cause for this disturbance on the right side. The condition could be brought about by a vaso-motor disturbance, although such a disturbance is usually more general. By the exclusion of these probable causes and by the progressiveness of the case, it leaves a thrombosis of the superior vena cava as the most likely cause. The patient was on no medicinal treatment until December 23, 1891, when he was put on full doses of bromide of potassium until symptoms of bromism were produced. There was from this on an apparent improvement in his condition for several days, his neck becoming smaller, as also the varicosities, while the cyanotic condition almost entirely disappeared.

When the effect of the bromide had worn off, however, the same conditions were again present, and they have grown gradually worse until at present the least exertion causes a blueness of almost the entire face. For the past two weeks there has been an overflow of the blood of the upper extremities, evidenced by a varicose condition of the superficial veins of the abdomen, with the flow of blood toward the lower extremities.

### A PRECOCIOUS DEVELOPMENT.

By W. R. HOWARD, M. D.,  
FORT WORTH, TEXAS.

On the 16th of April, 1891, Mr. H., of Zephyr, Brown County, Texas, brought his son to my office by request. The boy was born on October 20, 1887, and was at this time three years and a half of age. He was born in Mills County, Texas, and his age is sworn to before the county clerk at Goldthwaite, the county seat.

He is three feet ten inches in height; waist measure, twenty-eight inches and a half; circumference of head, twenty-one inches and a half; neck, twelve inches; arms over biceps, ten inches; calf of leg, eleven inches and a half; weight, sixty-six pounds. Hair on his head very thick and dark; eyebrows heavy; downy moustache; hairs under arms, about the nipples, and on the lower half of the abdomen; heavy growth of hair on the pubes; penis and testicles those of an adult, well developed. Glans penis naked, and during erection the penis is four inches and a half in length and four inches and a half in circumference.

His body and limbs are well developed; pulse rate, 84; respiration, 18; respiratory and circulatory organs, normal. He has a deep bass voice; face, teeth, and mental development those of a child.

I have had his photograph made and present him to the readers of the *Journal* in representation of the production and resources of Texas, the greatest State in America.



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NEW MEXICO AS A RESORT FOR CONSUMPTIVES.

DR. A. PÉTIN has contributed to the *Journal of the American Medical Association* a strong commendation of New Mexico as offering peculiar advantages to certain classes of consumptives. He states that a great variety of climatic conditions can be found in that Territory, but that which has pleased him best is found in the southern and southwestern counties; he has observed there the most sunshine, a minimum of humidity, and the least amount of dust in the air when put in motion by the winds. This latter feature of dust-laden winds was, in his experience, a troublesome one along the Rio Grande, in the valley of which there was almost always a dust, "brought by the river, which is so fine as to fly at the smallest breeze." Malaria was also reported along that river by some of the older residents. Not until he found the district in which are situated the San Augustin plains was Dr. Pétin quite satisfied. At Las Cruces he found some cases of cured consumption in permanent residents of that part of the country, some of whom, when they first came to the San Augustin plains, had not been able to walk alone. Most of them had speedily begun to improve, and had been in the enjoyment of good health ever since. "There is a peculiarity in this country," he says; "no sooner does any one get there than *he begins to feel happy!* The amount of rain in three years was an average of about four inches a year. Fogs are entirely unknown, and very seldom is there great wind. There is plenty of game of all kinds, good fishing, and beautiful shade trees at the foot of the mountains. There any patient can sleep out of doors eight months in the year without fear of taking cold."

These plains have an altitude of 4,800 feet above the sea, and are surrounded by mountains from 1,200 to 1,500 feet higher. The water supply is unsurpassable. There are mineral springs, one of which contains a large proportion of iron and manganese, and others have various sulphates in unusual quantities. The plain is quite level, 170 miles long by 80 miles wide, supporting the palm, the cactus, the Panama plant, and an endless variety of flowering vegetation, "with every kind of flowers all the year round." The temperature is most even, averaging about 62° F. all the year through, with hardly any snow-fall in the winter. When the snow does fall it does not last more than an hour or two. The soil is porous and absorbent, so that there is no ponding of rainfall and no malaria. Exercise on horseback or in any kind of vehicle can be had at all times.

Dr. Pétin has traveled extensively in Central America and South America, as well as through the Pacific and Western States of our own country, and was for a time a resident of

Colorado; but all these places, many of them very interesting and attractive, fail, he says, to combine the same number of advantages for the cure of the invalid that are afforded by the sheltered yet elevated plains of southwestern New Mexico. According to his experience, there are few sections that are at all available to consumptives where life can be passed in the open air to the same extent as in the San Augustin valley. And it is probably this opportunity for open-air life, together with the dry and rarefied atmosphere, that contributes to that feeling of "happiness" or exhilaration spoken of as being so common among those who have recently come to those plains. The bounteous sunshine is agreeable also to almost all visitors from the East, and the "tonic effect of hope" adds its influence when the patient sees that his old habits of expectoration, cough, and embarrassed respiration have been broken in upon.

POST-FEBRILE INSANITY.

DR. HENRY M. HURD read a paper on this subject at the recent annual meeting of the Medical and Chirurgical Faculty of Maryland. The *Maryland Medical Journal* for May 28th contains the full paper, in which the author mentions the recorded cases, from Chomel's, in 1834, to the present time, and reports three cases observed by himself and Dr. Thayer at the Johns Hopkins Hospital. Of the three new cases, one was a case of melancholic insanity coming on during convalescence after typhoid fever; the second was one of insanity developing from pneumonia, with systematized delusions originating in the delirium of fever; and the third was one of maniacal excitement following the removal of two diseased ovaries. In this last case there was incoherence lasting several months, after which complete recovery took place. The second case—not a hospital case—was marked by hallucinations, and delusions affecting the patient's husband; she believed that he and the female nurse had improper relations in her presence, and her embitterment against him became so extreme that she was placed in an asylum. After a year of confusion and delusions recovery set in, and she was restored to perfect mental balance.

Dr. Hurd offers the following suggestion as to an improved classification of post-febrile mental disorder: 1. Cases of insanity following shock. 2. Those developing from diseases due to specific poisons—such as puerperal fever, pneumonia, uræmia, and the exanthemata. 3. Those originating from nervous exhaustion and anæmia. In this group will be found those insanities, secondary to fever, that are an expression of an exhausted physical state; they take the form of delusions of apprehension and fear, hallucinations of sight and hearing, and perversions of taste and tactile sensibility, at times going on to stupidity and mental impairment.

Out of twenty-three cases that have been adequately reported, eleven were of typhoid origin. In four of these delirium was present during the attack; in seven, after it. Eight patients recovered, two died, and one remained insane. The pneumonic cases were two in number, one occurring during the pyrexia and the other after it. Both patients recovered after a

tedious convalescence. Nine of the twenty-three cases were subsequent to surgical operations, and the mental trouble came on at about the ninth day in several of them. In four cases there was excitement, in five there was depression; four patients recovered, four died, and one remained insane.

The author attaches no small importance to the treatment of typhoid fever with cold baths, and considers that it is one of the notable features of that method that so few of the patients develop acute head symptoms. Another suggestion offered by Dr. Hurd is that the patient after febrile disease is very frequently insufficiently fed—with perhaps at the same time insufficient quiet, too many friends or “callers,” and a premature sitting-up—and the prolonged abstention from food becomes the determining factor of mental impairment. The term “post-febrile insanity” should, in the author’s opinion, be restricted to cases that follow upon exhausting attacks of fever or upon operations and the like, and should not embrace the prolonged delirium that is engendered by toxic conditions.

### MINOR PARAGRAPHS.

#### CHEAP STERILIZED MILK FOR TENEMENT-HOUSE BABIES.

An experiment is about to be made, during the coming hot season, in providing sterilized milk for the poor in the vicinity of the Good Samaritan Dispensary. Some charitably-minded ladies and others began in 1891 the operation of a sterilizing plant as a means of teaching the tenement-house population on the east side that something could be done for the protection of infants against some of the germ diseases incident to the hot weather. This plant has been allotted a room at the dispensary, and milk devoid of germs will be sold below the cost of production, so as to enable it to compete with unsterilized milk.

#### THE KELVIN.

A NEW electrological term is the “kelvin.” Says the *Electrical World*: “The commercial unit of electricity, formerly known as the Board of Trade unit, is hereafter to be called the kelvin.” The English Board of Trade has taken formal action advocating the new term. This unit is one kilowatt hour—that is, one thousand watt hours. The new name is derived from the title of the well-known Sir William Thomson, now Lord Kelvin.

#### ITEMS, ETC.

**The Medico-legal Society of Chicago.**—At the annual meeting, held on June 4th, officers were re-elected as follows: President, Judge Oliver H. Horton; vice-presidents, Dr. Daniel R. Brower and Dr. James Barry; treasurer, Dr. Joseph Matteson; secretary, Dr. Archibald Chureh.

**A New Medical College in Chicago.**—The Clinical College of Medicine and Specialty Hospital is the title of an institution recently organized in Chicago by a company of physicians. Dr. J. E. Harper is the president and Dr. S. A. McWilliams the secretary.

**The Honorary Degree of LL. D.** has been conferred on Dr. Fessenden N. Otis by Columbia College.

**The Medical School of Columbia College.**—It is announced that Dr. T. Mitchell Prudden has been made professor of pathology.

**The Death of Dr. William R. Birdsall** is announced as having taken place on Tuesday, the 7th inst. Dr. Birdsall was forty years old and a graduate in medicine of both the University of Michigan and the College of Physicians and Surgeons.

**The Death of Dr. Charles E. Delavergne, of Brooklyn,** took place last Saturday from diphtheria. He was born in Brooklyn about thirty-five years ago, was educated at the Polytechnic and the Long Island College Hospital, taking his medical degree in 1878. He was ex-president and councilor of the alumni of the latter college, and a lecturer on practice for the summer term. He was secretary of the Medical Society of the County of Kings for several years and a member of the Board of Pharmacy of the same county. He was formerly surgeon of the Thirteenth Regiment, N. G. S. N. Y., and a member of a great number of societies, clubs, etc. He was a general practitioner of unusual prominence for one of his years, with a special tendency toward diseases of the throat and chest.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from May 29 to June 4, 1892:*

MACAULEY, C. N. B., Captain and Assistant Surgeon, is granted leave of absence for three months.

HUNTINGTON, DAVID L., Major and Surgeon, having reported in accordance with Par. 9, S. O. 107, c. s., Headquarters of the Army, is assigned to temporary duty in charge of the office of the Medical Director, Headquarters Department of Arizona, pending the absence of the Medical Director, Colonel JOSEPH R. SMITH, Surgeon.

O'REILLY, ROBERT M., Major and Surgeon, Fort Logan, Colorado, is granted leave of absence for fifteen days, to take effect in the early part of next month.

WALKER, FREEMAN V., Captain and Assistant Surgeon, Fort D. A. Russell, Wyoming, is granted leave of absence until June 30th instant, to take effect on arrival at Fort D. A. Russell of Captain JULIAN M. CABELL, Assistant Surgeon.

#### Society Meetings for the Coming Week:

MONDAY, June 13th: New York Academy of Medicine (Section in General Surgery); Lenox Medical and Surgical Society (private); New York Ophthalmological Society (private); New York Medico-historical Society (private); Boston Society for Medical Improvement; Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

TUESDAY, June 14th: Delaware State Medical Society (first day—Dover); New York Medical Union (private); Kings County Medical Association; Medical Societies of the Counties of Chemung (annual—Elmira), Chenango (semi-annual), Delaware (annual), Erie (semi-annual—Buffalo), Genesee (annual—Batavia), Livingston (annual), Onondaga (annual—Syraeuse), Oswego (annual—Mexico), Rensselaer, St. Lawrence (semi-annual), Schenectady (semi-annual—Schenectady), Steuben (annual—Bath), Warren (annual—Lake George), and Wyoming (Warsaw, N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Baltimore Gynecological and Obstetrical Society; Northwestern Medical Society of Philadelphia.

WEDNESDAY, June 15th: Minnesota State Medical Society (first day—St. Paul); Delaware State Medical Society (second day); Northwestern Medical and Surgical Society of New York (private); New York Academy of Medicine (Section in Public Health and Hygiene); Harlem Medical Association of the City of New York; Medico-legal Society; Medical Societies of the Counties of Alleghany (annual) and Tompkins (annual—Ithaca), N. Y.; New Jersey Academy of Medicine (Newark); Philadelphia County Medical Society.

THURSDAY, June 16th: Minnesota State Medical Society (second day) New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, June 17th: Minnesota State Medical Society (third day); New York Academy of Medicine (Section in Orthopaedic Surgery); Baltimore Clinical Society; Chicago Gynecological Society.

SATURDAY, June 18th: Clinical Society of the New York Post-graduate Medical School and Hospital.

## Proceedings of Societies.

### AMERICAN MEDICAL ASSOCIATION.

*Forty-third Annual Meeting, held in Detroit on Tuesday, Wednesday, Thursday, and Friday, June 7, 8, 9, and 10, 1892.*

The President, Dr. HENRY O. MARCY, of Boston, in the Chair.

**The Case of Dr. Potter, of New York State.**—The meeting was practically opened by the session of the Judicial Council on Monday, to consider the matter of charges against Dr. W. W. Potter, of Buffalo, late president of the Medical Society of the State of New York, and two years ago Chairman of the Section in Obstetrics and Gynecology of the American Medical Association. Dr. Potter has been a permanent member of the association for fifteen years, and heretofore his rights as a member have never been questioned. At the annual meeting at Washington last year he was elected by the association as one of its trustees. This was the signal for the preferment of charges against him as a member of the unaffiliated New York State society. Instead of the presentation being in writing, as the by-laws require, the charges were made verbally, and were not reduced to writing until two weeks after the adjournment of the meeting. The Council then referred the matter to Dr. N. S. Davis, of Chicago, as a committee, who brought to the meeting on Monday the decision of Dr. Potter's ineligibility, and this decision was sustained by a vote of seven to three of the Council. This nullifies the action of the association in electing Dr. Potter to the trusteeship, and virtually, if not actually, expels him from membership. Of course it must affect in a similar way all other members of the dissenting New York society who belong to the association, and logically disfranchises all who believe that its present code of ethics is antiquated and worn out. They include a large number of its most influential and valuable members, and, judging from the expressions of discontent which are heard on all sides, the issue may be more serious than was expected by those who have precipitated the disturbance.

The meeting was formally opened on Tuesday morning with an address of welcome by Dr. Walker, chairman of the local committee.

**The President's Address on the Evolution of Medicine** was then read. He had observed that the wise student profited by the history of the past, and drew inspiration from its pages as he confronted the present and with earnest endeavor shaped the future. We were too apt to forget the past in our exultation over the achievements of our own time. We should not forget that much that was appropriated by us as modern had been quite clearly comprehended by our predecessors.

Concerning the status of the association, it had been wisely enacted that it should consist largely of delegated members, thus making it a representative body. As such, it was the exponent of the thought and progress of the medical profession of the United States. Such an organization needed its inherent law, or code of ethics. This determined only in a general way the proper relationship of the members of a great profession to each other and to the body politic, but it had furnished for many years, and was likely for years to come to furnish, a question for discussion upon which able and honest men differed. A distinction should be made alone between ignorance and knowledge, for it was only fair to grant that considerable classes of men devoted to a common calling must be adjudged alike honest, and that their own selfish interests in the attainment of

success in any given profession must be determined by the adaptation of what they considered the best means to a given end.

The warping of the judgment by conservatism and prejudice had oftentimes in medicine, as in the allied professions, retarded rather than encouraged independent original observation and research. The lines of future progress must be based upon scientific data, upon the abolition of -isms and -pathies, and upon the introduction of a more or less accurate interpretation of scientific laws as to the proper treatment of disease. The so-called homœopathic school of medicine owed its existence largely to two factors—unreasoning prejudice in the minds of a narrow, conservative medical leadership, which called forth the sympathy of the public, and an appreciation of the advantages obtained by public sympathy and the determination to make the most from a haughty, supercilious assumption of superiority by its critics. Under competent leadership there had resulted the most popular homœopathic school of medicine, with a four-years' graded course of instruction, with restrictive, critical examinations in all the fundamental branches of medical science, until the homœopathic part had been reduced to a mere addendum to the section of materia medica. Homœopathy had been given an opportunity to demonstrate its alleged superiority in the great universities of Europe, and the result had been that its professorships there were vacant and that one must come to the Modern Athens of America if he would learn of the development of the new art. As the indirect outgrowth of sectarian medicine and its influence upon the profession in a general way, the anomalous condition of the Medical Society of the State of New York was mentioned, under the leadership of men who openly declared that the future progress of our profession demanded the abandonment of restrictive rules of polity. This society had withdrawn from affiliation with the association. The speaker, after diligent inquiry during the past year, especially in New York city, had heard only universal deprecation of the present society relationships of the profession, coupled with the pronounced opinions that the time was ripe for early readjustment and harmony. He had hoped that this greatly to be desired end would be consummated during the period of his administration, and advised moderation in the council of the association, that such an end might be attained. The outgrowth of the differences in New York had been the development of the New York State Medical Association, which was entirely in harmony with the national organization. The formation of the American Congress of Physicians and Surgeons, composed of societies of limited membership and including members who were devoted to special lines of work, was approved of and believed to be helpful, especially to those who were bound by the common tie of special study and research; but neither this nor any other similar society should overshadow the work of the American association, which was the representative body of the entire American medical profession. The interest of the State societies in the national association, especially in the East, was not so great as it should be. It was suggested that measures be instituted for developing a much closer relationship between them than now existed.

The condition of the *Journal of the American Medical Association* was believed to be entirely satisfactory, but it should be our aim to make it the leading journal of the world. It was believed that too much time in the general sessions of the association was wasted in the discussion of subjects of minor importance. Encouragement should be given on all sides to the work that was done in the sections, for here was where the chief power of the association should be felt.

The valuable work of the American Academy of Medicine in stimulating an appreciation of the value of a thorough pre-

liminary training prior to the study of medicine was acknowledged. The publishing of the details of surgical operations in the daily press was deprecated. The importance of developing and encouraging State medicine was forcibly dwelt upon, and in particular the necessity for the revision of the coroner laws in the different States.

The question of intemperance was one that was engaging the attention of many physicians, and the organization which had been effected among physicians for the study of this subject and the best methods for its repression was commended to the sympathy and attention of the members. The organization of a national board of health, with a secretary who should hold a position in the Cabinet of the President, was believed to be a great desideratum. The bill that was at present before Congress for the prevention of adulteration of food and drugs was also heartily commended. The great value of intercommunication of thought between physicians of all nations, as exemplified in the ten International Medical Congresses of the past thirty years, was regarded as a happy evidence of progress in medical science. The great progress which had been made in bacteriology and preventive medicine was also deemed a subject for grateful felicitation. Allusion was made to the losses of the association and the world in the deaths of members during the past year. Special mention was made of the deaths of four ex-presidents, Dr. Campbell, Dr. Storer, Dr. Bowditch, and Dr. Richardson.

Dr. MURDOCK, of Georgia, moved that the president's address be referred to the Committee on Publication for consideration of its recommendations. Seconded and carried.

Dr. GIBSON, of the navy, moved that letters of condolence be sent to the families of all the ex-presidents who had died during the past year, and added to the list of deaths mentioned in the president's address that of Dr. Brodie, of Detroit.

Dr. BRAY, of Canada, president of the Canadian Medical Association, was introduced to the meeting, and an invitation was extended by him to the members to attend the next meeting of its sister organization.

**The Secretary's Report** was read by the secretary, Dr. W. B. ATKINSON, of Philadelphia. An important point in it was the question as to the status of delegates from societies other than State medical societies. The by-laws recognized only those who came from duly accredited State societies, and it was recommended that other societies should come into sufficiently close relations with the State societies, or that an amendment to the by-laws should be made whereby the members of such societies could become eligible for membership.

**The Report of the Committee on Sections** was read by Dr. MARSHALL, of Chicago. It was urged that the association appreciate the importance of developing the work of the sections, some of which were suffering from lack of interest and enthusiasm. An amendment was proposed (as a substitute for an amendment offered last year by Dr. Culbertson) that each section have an executive committee composed of three members to serve one, two, and three years, respectively, and that as these members retired their places should be filled by the retiring chairman of the section, the committee subsequently being supplied with membership in that way. The committees of the sections collectively should constitute a nominating or executive committee which should nominate officers of the association.

This motion caused a most intense and heated discussion, in which, but for the admirable and temperate chairmanship of Dr. Willis P. King, of Kansas City, Mo., the meeting would have been strongly suggestive of pandemonium. The amendment was finally adopted with the exception of the last clause.

**The Committee on Public Health** reported that a bill had been introduced into both houses of Congress proposing a

bureau of public health, with a presiding officer who should be a member of the Presidential Cabinet.

**The Report of the Judicial Council** was read by the secretary of the association. It was occupied entirely with a statement as to the relation of Dr. W. W. Potter to the association. [The facts in the case will be found in the first portion of this report.]

Dr. REYNOLDS, of Kentucky, moved that the report be laid upon the table. Seconded.

Dr. N. S. DAVIS, of Illinois, objected that a report of the Judicial Council was final, and could not be debated or laid upon the table.

Dr. REYNOLDS then moved that the case of Dr. Potter be referred back to the Judicial Council, with a request that the causes for its action in this matter be specified. This was ruled out of order, and the secretary read the by-law defining the finality of the action of the Judicial Council.

Dr. REYNOLDS then appealed from the decision of the chair to the association as an authority superior to the Council.

Dr. GIBSON, of the navy, rose to a question of privilege, and declared, amid much excitement and many interruptions, that the status of permanent members who had registered year after year and against whom no charges had been preferred during that period, as in the case of Dr. Potter, could not be legitimately acted upon by the Council as it had done in the case of Dr. Potter. He cited the precedent of the case of the members representing the navy who were refused recognition at the meeting in New York in 1880 by the Council, but Dr. S. D. Gross objected, the association unanimously sustained the objection, and the members were received. The meeting sustained the chair in the ruling that the action of the Judicial Council was final.

**The Report of the Committee on the Pan-American Medical Congress**, to be held in Washington, in September, 1893, was read by the secretary-general, Dr. C. A. L. Reed, of Ohio. An organization had been effected, a bill for the incorporation of the Congress had passed the United States Senate, and was now in the House. The members of the association were appealed to to register as members of the Congress. The secretary of the association read the names of the members who had been appointed to the committee on nominations.

Dr. VAN DERVEER, of New York State, asked for information as to the present status in the association of members of the Medical Society of the State of New York, who were also permanent members of the association. The action in reference to Dr. Potter had made their standing indefinite, and he desired to know whether their membership, which in some cases had extended over many years, was now to be considered invalidated. He expressed the belief that but for the action of the Council in the case of Dr. Potter, the differences between the association and the New York State society would have been adjusted in the course of the coming year.

Dr. DAVIS, of Illinois, repeated the statement that all such matters were adjudicable by the Judicial Council alone and without debate. If the by-laws were wrong they should be changed, but as they stood at present the matter was not under discussion.

Dr. C. A. L. REED, of Ohio, moved that the inquiry of Dr. Van Derveer be referred to a committee to be appointed by the chair, to report, if possible, to the present meeting.

Dr. HEMENWAY, of Illinois, moved as a substitute that the matter be referred to the Judicial Council, to be reported on tomorrow.

Dr. REYNOLDS, of Kentucky, moved as a substitute that the Judicial Council decide whether permanent members were eligible to office, and whether the accepted registration of such mem-

bers, year after year, should not be taken as evidence of their rights and privileges as members of the association.

Dr. KING, of Missouri, proposed as a substitute that a committee of five be appointed by the association to confer with five members of the Medical Society of the State of New York to discuss the question proposed by Dr. Van Derveer, and report upon that and all kindred issues at the next annual meeting of the association.

Dr. DAVIS proposed as an amendment that five members of the New York State Medical Association be added to this committee of conference.

Dr. KING replied that he thought no assistance from the New York State Medical Association was needed in the matter, there being no question concerning its status in the association.

Dr. HEMENWAY objected to Dr. King's substitute, believing that it did not cover the original motion. The substitute was accepted in lieu of the original motion.

Dr. GIBON moved as an amendment to the substitute that those members of the Medical Society of the State of New York who had registered should be entitled to all the privileges in the association which they had heretofore enjoyed pending the decision of the question at issue. This proposal met with the almost unanimous approval of the meeting.

Dr. TRUAX, of New York State, believed that the New York State Medical Association should have a voice in the settlement of this question, and that five of its members should be added to the proposed committee. The previous question was then called for, and was put and carried. Dr. King accepted the amendments proposed by Dr. Gibon and Dr. Truax.

**The Address in Surgery** was delivered by Dr. JOHN B. HAMILTON, of Chicago. The subject was *The General Principles of the Surgery of the Human Brain and its Envelopes*. The diseases and injuries of the seat of the soul could never be a matter of indifference to the physician or surgeon; mental diseases must occupy the highest place in pathological study. Though injuries to the cranium had long been the subject of surgical measures of treatment, the brain itself had seldom received such attention. Numerous quotations from the ancient writers were made, showing the methods of treating cranial injuries which were in vogue among them. The present century had the benefit of the knowledge of past ages in respect to this department of surgery, but it had also improved vastly upon them, and would transmit to posterity a precious inheritance that it had developed and acquired.

The term "cerebral localization" was criticised as inapt in reference to the diagnosis of disease and injury of the brain. Diagnosis was difficult according to the location of the brain lesion. With some lesions the symptoms were too obscure to admit of accurate diagnosis. Oppenheim had formulated the proposition that in cases in which there were rhythmic contractions of the velum palati, the vocal cords, and the muscles supplied by the lower branches of the facial nerve, without accompanying eye lesions indicating the presence of a tumor, there was probably a purulent center resulting from encephalitis. The causes of abscesses of the brain were now definitely known to be directly infectious, except when there were infected emboli, and in most cases they followed aural or ethmoidal disease or traumatism. Robin had also observed that such abscesses were seldom uncomplicated. They had frequently been successfully treated by trephining, incision, and drainage.

Horner's conclusions from the consideration of the reports of a hundred cases of intracranial abscess due to aural disease, nine operations, and ninety-one necropsies were given in detail.

An abstract of the recent literature was also given, with reference to the subject of cerebral injuries and intracranial hæmorrhage. Asepsis and drainage were the principal factors

in the treatment of such conditions, and a number of most interesting cases were quoted in which a correct diagnosis as to the seat of the lesion had been followed by a successful operation and the recovery of the patient.

Cases were also quoted in which a correct diagnosis of tumor of the brain had been made, the cerebral and cerebellar tumors being usually associated with optic neuritis and in some instances causing epilepsy.

Cerebral injuries in the new-born, due to pressure, had been recently studied to a certain degree, but the results of operative interference had as yet been negative.

Craniotomy for intracranial pressure, incorrectly termed craniectomy, was also an innovation of importance. Lannelongue, the author of the operation, had performed it twenty-five times, without very definite results as yet.

Spinal laminectomy had recently been proposed by Tuke as the ideal surgical measure for the relief of intracranial fluid pressure. This would seem to be a reasonable procedure before performing the more radical operation of craniotomy. Trephining for mental disease had recently been revived as an operative procedure, but doubt was expressed as to the permanency of benefit to be obtained by it. The same could be said with reference to a similar method of treating epilepsy. Horsley and Agnew believed that five years should elapse after an operation for epilepsy before a conclusion should be reached as to the status of the subject of the operation.

Intracranial neurectomy had also recently been performed in a number of instances for the relief of neuralgia and paralysis, and such operations would occasionally offer good prospects of successful result. Thus it would be seen that much progress had been made in brain surgery, but much still remained to be perfected.

(To be concluded.)

## Reports on the Progress of Medicine.

### OTOLOGY.

BY CHARLES STEDMAN BULL, M. D.

**A Case of Living Larvæ in the Ear.**—Baxter (*Arch. of Otol.*, xx, 1) reports a case of a man, aged thirty-four, a farmer, who stated that, four days previously, a fly had crawled into his right ear. He removed the dead fly, and there was no feeling of pain or discomfort until two nights later, when the ear commenced to bleed, and at the same time an intense pain began. On inspection, the auricle was found red and swollen, the bandage was saturated with blood, and the meatus was full of squirming larvæ. The ear was immediately syringed with warm water, and twelve larvæ were thus removed. The auditory canal was abraded throughout its entire length, and the membrana tympani was red, inflamed, and macerated, but not perforated. At the end of a week the hearing was normal, and all appearances of inflammation had subsided. The larvæ averaged six mm. in length and two mm. in breadth. They were of a yellowish-white color and filled with blood. They remained alive for over twelve hours in the water to which about three per cent. of chloroform had been added.

**Operative Measures for the Relief of Impaired Hearing.**—Deuch (*Arch. of Otol.*, xx, 1) reports four cases of suppurative inflammation of the middle ear in which improvement in the hearing followed incisions through dense membraniform adhesions surrounding the ossicula and their articulations. He recognizes the fact that every case of impaired hearing due to suppurative inflammation in the middle ear can not be improved by operative interference. In none of the cases reported were the operations followed by inflammatory symptoms, and the pain in all was insignificant. He concludes that it seems but just, in

any case where there is a possibility of improvement by simple operative measures not attended with risk, to give the patient the benefit of the doubt, after explaining that the matter of improvement is a matter of conjecture. In cases, also, not dependent on suppurative disease, but upon eatarrrhal inflammation, with the formation of adhesions within the tympanic cavity, he thinks it justifiable to open the tympanic cavity, using antiseptic precautions, and to attempt the liberation of the ossicular chain, either by disarticulation of the incudostapedial articulation, or the division of existing adhesions, or by Miot's *brisement forcé*.

**A Blow upon the Ear followed by Death in a Week.**—Heiman (*Arch. of Otol.*, xx, 1) reports the following interesting case: A soldier, aged twenty-one, had been struck on the left side of his face and ear, which caused severe vertigo. The blow caused severe hæmorrhage from the ear, which, however, came on forty hours after the blow. The ear had previously at times discharged pus. The patient died delirious on the seventh day after the injury. The autopsy showed pachymeningitis interna purulenta diffusa, numerous small subarachnoid hæmorrhages, hyperæmia of the substance of the brain and its membranes, and circumscribed basilar meningitis. A decolorized thrombus was found in the superior longitudinal sinus, and dark-red thrombi were found in the transverse sinus and internal jugular vein. Three small openings were found on the inner surface of the pyramid which led to the tympanum. The upper surface of the mastoid was found sclerosed, and here there were several small softened areas containing pus and particles of bone. The tympanum and mastoid process were filled with thickened pus. In the mastoid were several large cavities containing pus. Pseudo-membranous bands were found in the middle ear, and the mucous membrane was ulcerated. There was a small perforation in the anterior part of the drum-head.

**A Rare Case of Auditory Reflexes.**—Steinbrügge (*Arch. of Otol.*, xx, 1) reports the case of a man, aged forty-four, who suffered from a remarkable reflex spasmodic condition, involving the respiratory apparatus in particular. This spasm follows every sort of sensory, optical, and auditory impressions of a sudden character; the patient moves both legs in a kicking, spasmodic manner, suddenly jumps up, and then makes expirations through the nose, rapidly following each other, the mouth being closed during each expiration, but making a kissing sound during each inspiration. The respiratory movements are at first very rapid, and subsequently become slower and shallower. The patient walks like an ataxic, and has been impotent for years. Vision, pupils, sensibility of skin, smell, taste, and muscular sense are all normal. Acuteness of hearing is slightly diminished. On both sides there is moderate galvanic hyperæsthesia of the auditory nerves, with paradoxical reaction. The case was regarded as a functional neurosis, induced by a reflex spasm in certain muscles of the thigh.

**A New Aural Retractor.**—Barth (*Arch. of Otol.*, xx, 1) describes a new retractor for separating the divided soft parts during the operation of chiseling into the mastoid process. It consists of two bars, each provided with three sharp-pointed hooks; these bars are connected by two rods and a screw in such manner that when approximated the hooks form a single line. After having divided the soft parts, including the periosteum, and having separated the latter from the bone, the hooks of the retractor are applied so that the points touch the bone at the spot where we wish to continue to operate. Then they are separated; the points of the hooks grasp the deeper soft parts, while the arms from which the hooks spring separate the more superficial soft parts and especially the divided integument, and push the auricle forward. When completely separated, the space included between the two arms presents a clear field for operation.

**The Route of Respired Air through the Nose.**—Kayser (*Arch. of Otol.*, xx, 1) asserts that during inspiration in the normal nose the bulk of the air passes along the septum, above the inferior turbinated bone, describing a semicircle in its course, and extending upward nearly to the roof of the nose. The general opinion that the current of air passes through the *pars respiratoria* is erroneous. The division of the cavity of the nose into a *pars respiratoria* and a *pars olfactoria* is permissible anatomically, but not justifiable physiologically.

**Bacteriological Examinations of the Contents of the Tympanic Cavity in Cadavers of New-born and Young Infants.**—Gradenigo and Penzo

(*Arch. of Otol.*, xx, 2) conclude from their investigations that the changes which are found very frequently in the tympanic cavity in new-born and young infants depend, in the majority of cases, upon the rapid decomposition which the delicate tissues of the middle ear undergo at this age, and not upon inflammatory processes, since no pathogenic microorganisms are found.

**Some Points concerning the Opening of the Mastoid Process.**—Heiman (*Arch. of Otol.*, xx, 2) sums up the indications for the operation as follows: 1. In acute purulent otitis media, complicated with inflammation of the mastoid process, when the inflammatory symptoms do not yield to antiphlogistic treatment and Wilde's incision. 2. In acute and chronic purulent otitis media, when the escape of the secretion is impeded by granulations in the middle ear or stenosis of the external auditory canal, or when there is a suspicion of inflammation of the mastoid process. 3. When the mastoid process is apparently healthy, but the removal of pus or cholesteatomatous masses through natural channels is impossible, and symptoms dangerous to life manifest themselves. 4. In congestive abscesses and fistulas in the region of the mastoid process. 5. In persistent, continuous pain in the mastoid process, yielding to no other treatment, especially when it seems sensitive to pressure. 6. As a prophylactic operation, in symptoms of retention of secretion and inflammation of the mastoid process, when death is to be feared on account of imperfect disinfection. 7. In acute purulent otitis media, in which there is no inflammation of the mastoid process, and no retention of secretion, but in which the discharge is very profuse, does not yield to the usual methods of treatment after a certain time, or even increases. 8. When there are distinct symptoms of inflammation of the brain and the meninges.

Heiman has used the trephine à *crémaillère* of Pasteur for opening the mastoid, and has received the following impressions from its use: 1. The removal of the compact portion of the mastoid process is much more rapid than with the mallet and chisel. 2. The edges of the wound need not be rendered smooth after the operation. 3. The different size of the trephines permits the formation of a wound in the bone of the desired size. 4. Shock is entirely obviated. 5. The depth of the wound can be graduated with exactness.

**Operation for the Relief of Deafness, Noises in the Head and Ears, and Vertigo, due to Chronic Catarrh of the Drum of the Ear.**—Sexton (*Arch. of Otol.*, xx, 2) reports seven such cases with results obtained from the operation suggested and practiced by him. He considers that in certain cases the advance of progressive sclerosis, and consequent deafness, tinnitus, etc., can not be arrested, nor, indeed, can any permanent improvement in hearing be made by means of any known local medication directed either to the ear itself or to the throat. The deafness due to progressive ankylosis of the ossicula may be arrested in most cases by an operation, however, and where the operation does not improve the hearing, the further increase of deafness is thus prevented. The operation, performed under narcosis, is not attended with any pain, and there is seldom any reaction or feeling of soreness in the ear afterward. Where there is a difference in the hearing power of the two ears, Sexton usually selects the worse ear for the operation, but this rule is by no means always to be observed. The operation itself is entirely devoid of danger. Antiseptic precautions are always to be taken. He does not always attempt to remove the incus, since it sometimes lies beyond the range of vision. As an immediate result of the operation, it will generally be found that the hearing for high tones has been improved sometimes very greatly. The ability to hear low tones is not always improved at first, but develops gradually. There is in some cases a consciousness of an entire change in the transmission of sound, which is confusing. More sound enters the ear, and it seems distant or crude. Sometimes tinnitus is increased for the first few days, but it gradually subsides. The drum of the ear requires no special after-removal of the drum-head, its lining soon being transformed from a mucous membrane to a dry, insensitive one, of a cicatricial or dermoid character. In some cases, after repair has taken place, an exfoliative process goes on for a short time in the drum or adjacent portion of the external auditory canal, giving rise to discomfort and even slight deafness, when the epithelial layer thus formed detaches itself. For a few hours after the operation the patients should remain in a recumbent position, and afterward confine themselves to the room for a day or two. Regeneration of the

drum-head can not be prevented from taking place in a certain number of cases, and when this occurs deafness returns, but the other symptoms, as a rule, do not return.

**A Contribution to the Histology of Aural Polypi.**—Klingel (*Arch. of Otol.*, xx, 2) reports an examination of fifteen cases of aural polypi. A purulent otitis was the cause of the polypi in all the cases. He considers that the majority of polypi are developed by chronic (more rarely acute) middle-ear suppuration, and primary inflammation of the external auditory meatus. The structure of the specimens showed three kinds of tissue: Myxo-fibroma, angelo-fibroma, and granulation tissue. The growth of aural polypi appears to take place in the separate lobules and particularly at the surface. The basal tissue is usually denser, poor in cells, and appears to cease to develop. Growth takes place chiefly in the recent, many-celled areolar tissue, in the granulation tissue, at the periphery of the tumors. The neighborhood of the vessels in the interior of the growth consists of granulation tissue, and it is by no means disproved that these are not the beginnings of vascular and other new formations. As regards retrograde changes, in addition to some hæmorrhages and pigment formation, there are small vitreous spots, which gave the impression of amyloid degeneration.

**Two Cases of Adenoma of the Sebaceous Glands of the External Ear.**—Klingel (*Arch. of Otol.*, xx, 3) reports two such cases, in which the tumors were of equal size, about as large as a pea, soft and sponge-like to the touch, with slightly roughened surface, and showing a few scattered hairs. The sections of these growths showed connective-tissue tumors covered with epidermis, in which there is seen a marked new formation of glandular elements, similar in character to normal glands. These growths should not be classed as papillomata, although the warty exterior, and the fact that they arise from the subepithelial connective tissue of the skin of the auricle, might suggest this view. But, in addition to the warty hypertrophy of the papillæ, there is a marked new formation of glandular elements. Hence these tumors should be called adenomata sebacea fibrosa.

**A Contribution to the Morphology of the Human Auricle.**—Gradenigo (*Arch. of Otol.*, xx, 3) calls attention to an anomaly occasionally met with in the human auricle, a minute stripe, which belongs to the set of longitudinal striæ, in the so-called triple division of the antihelix. This is represented by the third anomalous division starting from the locality of the usual bifurcation of the antihelix, or about the middle of the upper limb, and running backward and upward toward "Darwin's tip." The oblique striæ in transverse sections in the longitudinal axis of the auricle are less distinctly represented in man, but to this group belong the body and upper limb of the antihelix, and the lower limb of the antihelix. Gradenigo has also recognized the existence of two well-marked striæ, which must be regarded as accessory antihelices. One of these marks the elongation of the lower limb of the antihelix downward and forward, so that the stripe runs almost parallel with the antihelix itself, and terminates on the floor of the cymba conchæ directly over the erus helieis. The second very rare stripe is concentric with the body of the antihelix.

**Remarks on the Use of Styrene in Chronic Suppuration of the Middle Ear.**—Spalding (*Arch. of Otol.*, xx, 3) recommends the use of styrene, a compound of styrax and balsam of Peru, especially in cases of perforation of Shrapnell's membrane. It has a somewhat pleasant odor, which masks that of the most disagreeable discharges from the ear. It can be used, largely diluted with alcohol (one per cent. to five per cent.), to syringe out the meatus. It reduces the amount of the discharge and overcomes the latter's disagreeable odor.

**The Lesion in Deafness due to Mumps.**—Gellé (*Arch. internat. de laryngologie et d'otologie*, iv, 2) concludes from his observations that the infectious process, in the graver complications of the ear in parotitis, invades especially the nervous apparatus, and thus destroys the function of hearing. The delirium, vertigo, tinnitus, and absence of gross objective lesions seem to indicate the labyrinth as the seat of this destructive lesion. The atrophic sclerosis of the tympanic membrane and of the tympanum may also be the consequence of mumps.

**Two Cases of Carcinoma of the Auricle.**—Valyor (*Rev. de laryngologie et d'otologie*, Feb. 15, 1891) reports two cases of this rare disease. The first was a man, aged sixty-two, who ten years ago had noticed a moist, whitish, hard, wart-like mass, as large as a bean, near the in-

*cisura intertragica* of the left auricle. It was covered with a scab which he occasionally removed. Nine months before he presented himself the mass had begun to increase in size and to ulcerate, and eight months later he began to have severe pain in it. When Valyor saw him the whole auricle was thickened and increased in size, was indurated, and of a purple color. In the concha was a hard tumor, the size of a walnut, which extended upward to the *crus furcata inferior*, outward to the margin of the helix, and downward to the antitragus. The whole concha projected outward, was uneven, ulcerated, and bathed in pus, and was apparently divided by a broken margin, continuous with the auditory canal. Below the tumor was a flat, round, hard surface, as large as a walnut. The hearing was markedly diminished. An oval incision was made in the upper third of the helix, in a line with the center of the *fossa intercruralis*, as far as the outer margin of the concha; thence behind the auricle to the skin of the cranium, thence beneath the lobe of the ear to the incision made along the anterior plane of the concha. Having removed the latter, a curette was passed into the auditory canal, and all the carcinomatous masses were removed. The wound healed rapidly, and for eight months there has been no return of the growth.

The second case was a man, aged seventy, who for two months had noticed an increase in size of one of his ears. The auricle was purple in color, and looked as if it had been frozen, and was involved throughout its entire extent in a carcinomatous growth. All surgical interference was contra-indicated, on account of the great extent of the tumor, and the age and cachectic condition of the patient.

**An Electro-acoumeter.**—Cheval (*Rev. de laryngologie et d'otologie*, July 15, 1891) gives a description of an electrical acoumeter devised by himself, which consists simply of three spools or bobbins—the central one fixed, the other two movable in a slot or gutter. The electric current traverses the first spool or coil and reaches a commutator, which has three parts—an electro-diapason, a microphone, and an interrupter. Each of the induced coils may be attached to either of two telephones, which the patient keeps constantly in contact with his ears. The diapason and the microphone, when connected in the primary circuit, interrupt or modify its intensity, and consequently give rise to induced currents in the movable coils, which vary in intensity with the distance between the movable and stationary coils. The instrument permits (1) the operator to vary not only the intensity of the sound, but also the nature of this sound; (2) it allows of the verification of the patient's statements; (3) the course of the coils is more than 500 mm.; (4) the intensity of the sound is inversely to the square of the distance; (5) the hearing may be examined for any sound—for a musical note, for a combination of harmonic sounds, for the human speech, for the watch, or for the metronome.

**Deafness caused by Dry Inflammation of the Middle Ear and Ossicula, and the Surgical Treatment of the Same.**—Miot (*Rev. de laryngologie et d'otologie*, August 1 and 15, 1891) thinks that the extirpation of the tympanic membrane and extraction of a part of the ossicula, though a modern operation, has great advantages in certain cases, and he gives the following indications and contra-indications for performing the operation: The operation is indicated (1) whenever an artificial perforation sensibly ameliorates the hearing; (2) when the chain of bones and the drum-head have lost their motility; (3) when the patient has a paradoxical deafness, and hears the tuning-fork on the vertex best in the worse ear; (4) in cases of unilateral deafness, with vertigo and violent tinnitus. The operation is contra-indicated in cases of unilateral deafness without other objective symptoms, and in all cases where the tinnitus and deafness seem to be of nervous origin, reflex or central. He draws the following conclusions: This operation is the last resource to be employed in the treatment of dry catarrh of the ear. The removal of the drum-head and malleus may suffice whenever the membrane is much thickened and the motility of the bones is free. The malleus and incus must be removed in all cases of rigidity of the chain of bones. The result of the operation is generally very favorable, both as to tinnitus and deafness.

**A Case of Osteoma of the Cartilaginous Portion of the External Auditory Canal.**—Lichtenberg (*Rev. de laryngologie et d'otologie*, Oct. 1, 1891) reports a case of this kind occurring in a man, aged twenty-five, who had been very deaf for a year and had suffered great pain and

unbearable tinnitus in the left ear. There was a smooth, red tumor, completely filling the left auditory canal, eight millimetres long, and movable on its pedicle. It looked like a polypus, but there had never been any discharge from the ear. An exploration with the sound proved that it was attached to the internal wall. The case was removed easily by a snare without much hemorrhage. It was as hard as stone, and covered by a smooth, reddish capsule. An examination showed it was a neoplasm, containing a bony nucleus, surrounded by periosteum. It weighed eighteen centigrammes, was eight millimetres long, six millimetres wide, and five millimetres high. It proved to be an osteoma.

**Avulsion of the Stapes in Animals.**—Botey (*Ann. des mal. de l'oreille et du larynx*, xvii, 1), draws the following conclusions from his experiments: 1. The avulsion of the stapes in animals is an entirely innocuous operation. 2. Whether the oval and round membranes are torn or not, and whether labyrinthine fluid flows out or not, a new membrane, much thicker, is always formed after this operation. 3. In all cases, after removal of the stapes, the animals hear well, but at a shorter distance than before. 4. In animals which have neither drum-membrane nor columella, hearing is a little better than in those in whom the drum-membrane has been removed, while the stapes is left in place. 5. This operation would probably be equally innocuous in man, if it were possible to execute it equally well and under strict antiseptic precautions. 6. The drum-membrane and ossicula are not indispensable to hearing, but they simply re-enforce the intensity of sound-waves.

**A Theory of the Functions of the Sinuses of the Face, the Cells of the Ethmoid, and the Mastoid Apophysis.**—Coëtoux (*Ann. des mal. de l'oreille et du larynx*, xvii, 3) gives the following epitome of his views on the above subject: The ethmoid is primarily a respiratory and olfactory organ. The sinuses of the face share in this rôle, and later diminish its influence. Olfaction seems to owe its mechanism to the *alæ* of the nose and the vault of the palate. The ethmoid aids in the formation of the nasal fossæ, and preserves them from the deforming effects of aspiration in diffusing them. The moist and overheated air which it contains pushes the odoriferous particles toward the convexity of the middle turbinated bone. The sinuses, being developed with the olfactory sense, share with the ethmoid in its functions of diffusing the deforming effects of the negative pressure due to olfactory respiration. In the adult the sinuses leave to the ethmoid the first place. The mastoid cells relieve the tympanic membrane from the deforming effects of the barometric vacuum, which is due not so much to the olfactory respiration from which the narrowing of the Eustachian tube already protects it, as to the effects of this narrowing, which coincides with the development of olfactory respiration.

**Removal of a Revolver Bullet from the Temporal Bone by the Use of the Chisel; Recovery, with Preservation of Hearing.**—Wolf (*Arch. of Otol.*, xx, 3) reports the case of a girl, aged seventeen, who was shot by a revolver on October 15, 1889, the bullet entering the right ear. She fell, but did not lose consciousness, and was able to rise soon. There was but little hemorrhage from the ear and not much from the wound. Moderate facial paralysis developed on the eighth day, and there was a slight purulent discharge from the auditory canal. The bullet had entered just in front of the tragus, had crossed the external auditory canal obliquely, penetrated the posterior wall near the drum-membrane, and had lodged in the temporal bone. Wolf operated sixteen days after the injury. The auricle was detached posteriorly and pushed forward, the periosteum of the bony auditory canal was loosened, and the posterior wall of the canal was chiseled away in a backward direction. Constant oozing of blood from the bone interfered with the view of the bottom of the hole, and, as the porcelain-tipped probe did not locate the bullet, it was decided to postpone the completion of the operation for forty-eight hours. Two days later a good view of the depth of the hole was obtained and a small, shining, metallic point showed the position of the bullet. The bone was chiseled away around it, and after much difficulty it was removed by a pair of dressing forceps. An examination showed that the bullet had rested directly on the sinus. The auricle was reattached, the lower end of the wound being left open, and the subsequent course of the case was favorable. After three weeks, faradization of the facial was begun and caused a gradual improvement. The bony canal became pervious and the hearing distance became normal. During the operation no important parts con-

cerned in hearing were injured. The canal which was chiseled in the bone was located close behind the annulus tympanicus, so that the various parts of the tympanum and the semicircular canals remained intact. The facial nerve seems merely to have been compressed and not torn by the bullet. The occurrence of facial palsy only after several days was due to a neuritis from pressure, and when this subsided the nerve became again capable of conduction.

**The Use of Electricity in Chronic Affections of the Middle Ear.**—Baxter (*Arch. of Otol.*, xx, 3) reports ten cases of disease of the middle ear treated by the constant current. He thinks that when improvement takes place it is most noticeable in the increased ability to understand speech, the tinnitus is lessened, the feelings of pressure, fullness, and dullness are lessened or removed. The method of application is as follows: After placing the patient with the head inclined the external auditory canal is filled with warm water, the aural electrode (a small wire insulated to within two millimetres of its point) is introduced into the auditory canal and retained there by the fingers of one hand, leaving the other hand free to manipulate the switch, rheostat, and pole-changer; the other electrode, covered by a sponge, is held in the patient's hand. The current is then switched on and gradually increased, watching the milliampèremeter until from five to ten milliampères of current are passing through the parts; then, retaining the electrodes in position, the poles are changed two or three times a minute. From three to six minutes suffice for an application. The ear is then dried and the patient kept quiet for a short time to recover from any possible vertigo.

**The Symptomatic Value of the Pulsations noticed in the Ear by the Endoscope.**—Gellé (*Ann. des mal. de l'oreille et du larynx*, xvii, 9) draws the following conclusions from his observations: By the aid of the endoscope the state of the circulation of the blood in the tympanic cavity can be studied; in active congestion of the tympanic mucous membrane this instrument shows pulsations isochronous with the pulse. This demonstration is especially useful when the objective symptoms are wanting. The pulsations of the endoscope actually show the activity of the inflammatory process in the middle ear. They disappear when the process declines, but persist as long as the abnormal vascularity lasts. Hence they have an important prognostic value in chronic diseases. Their absence in certain cases of subjective affections of congestive appearance enables us to localize the seat of the exudation in the deeper parts of the organ, or to recognize the purely nervous origin of the phenomena.

**Diagnosis, Prognosis, and Treatment of Progressive Deafness due to Chronic, Non-purulent Otitis Media.**—Gradenigo (*Ann. des mal. de l'oreille et du larynx*, xvi, 12) summarizes as follows: Chronic catarrhal otitis media is generally characterized by a slowly progressive morbid process, which is usually located in the middle ear, but which often extends to the internal ear, and causes more or less complete deafness. As regards the prognosis, two principal circumstances are to be considered: 1. The existence or absence of functional lesions attributable to the internal ear, in addition to functional lesions located in the transmitting apparatus. 2. The existence or absence of retraction of the drum-head.

Some cases are distinguished by the predominance of morbid phenomena, which must be referred to the drum-head and Eustachian tube—such as redness and retraction of the membrane. In other cases the lesions are generally located in the vestibular wall—such as ankylosis of the stapedo-vestibular joint. In still other cases the lesions of the internal ear predominate.

Gradenigo considers the subject of treatment under five heads, as follows: I. Direct treatment of the ear: 1, through the external auditory canal, by massage of the ossicles, by massage of the tympanic membrane, and by intratympanic surgery; 2, through the Eustachian tube by catheterism with a simple air-douche, by injection of medicated vapors through the catheter into the drum, by injection of liquids through the catheter into the drum, or by the methodical introduction of bougies and massage of the Eustachian tube. II. Local treatment of the nose. III. General constitutional treatment. IV. Treatment by the electric current.

**Cholesteatoma of the Ear.**—Kuhn (*Arch. of Otol.*, xx, 4) reports a case of "true cholesteatoma"—that is, a tumor which originated pri-

marily in the mastoid process, and which had during many months, and perhaps years, grown to its tremendous dimensions. The symptoms which appeared during the last year (tinnitus, dizziness, and deafness) were due to erosion of the external portions of the ear, and to pressure on the cerebellum. Exposure toward the end caused the acute symptoms of inflammation and disintegration of the tumor, which had then extended to the posterior wall of the auditory canal. The presence of a membrane lining the bony cavity is not proof of the primary origin of the tumor, for it may have been due to the pressure of the tumor on the periosteum and bone. Cholesteatoma of the temporal bone is either a true heteroplasmic neoplasm, or it may develop in the course of chronic suppuration of the middle ear, from epidermis which had grown into the tympanic spaces from the perforated drum or external auditory canal, which has slowly and continually shed its horny layer, thus forming the stratified cholesteatomatous mass.

**The Treatment of Cholesteatoma of the Middle Ear.**—Bezold (*Arch. of Otol.*, xx, 4) thinks that if in these cases the cavity is rendered free by a large opening into the wall of the canal or of the mastoid process, suppuration ceases, and so also does the hyperproduction of epidermis. More than half the cases are complicated by polypoid granulations, usually exposed by pressure from the cholesteatomatous masses which act as foreign bodies. Only a portion of the granulations is found in the canal, the greater part being at the margin of the perforation. On this account it is frequently impossible to remove all the granulations with the snare. The operation of excision of the malleus and incus is an aid in the treatment. It seems absolutely necessary to use Hartmann's or some other tympanic syringe in all cases, not only therapeutically, but also for the purpose of diagnosing the existence of cholesteatomatous masses. Bezold uses an injection of a four-per-cent. solution of boric acid. When preliminary softening seems necessary, diluted liquor ammoniac may be used. When the size of the cavity admits, he uses a sharply bent tympanic tube of large cavity, for direct insufflation of boric acid.

**A Case of Deaf-mutism caused by Measles, with Post-mortem Examination.**—Mygind (*Arch. of Otol.*, xx, 4) reports a case of this sort occurring in a man aged twenty-eight. At the age of eighteen months the patient contracted measles, and during the attack a bilateral inflammation of the middle ear set in, probably secondary to an acute catarrh of the naso-pharynx. The former existence of such an inflammation was proved by the inflammatory residua found at the autopsy, viz.: 1. On the external wall the left membrana tympani almost entirely wanting, while the right one was the seat of a large calcareous deposit, and there was a bilateral purulent discharge. 2. On the posterior wall of the tympanum the aditus ad antrum mastoideum was closed and the mastoid process was sclerosed. 3. The internal wall of the tympanum was the seat of stalactitic formations which exhibited strong evidence of a severe inflammation of the osseous structure of the tympanum. 4. The normal muscles of the tympanic cavity were missing on either side. The inflammation was propagated from the middle ear into the labyrinth through the fenestra rotunda, destroyed the cochlea, and in its place produced sclerosed osseous tissue.

**A Case of Partial Development of both Auditory Organs.**—Heiman (*Arch. of Otol.*, xx, 4) describes an interesting case in a child two days old. There was complete absence of both external meatus, with an incomplete development of the auricles. The posterior part of the palate was absent, the articulation of the temporal bone with the zygoma was incomplete, and the middle ear undeveloped. The skin and cartilage of both ears were well developed. The lobules and helices were normal. The upper border of the left helix is adherent to the facial skin. The antihelix and crura bifurcata are replaced by a cartilaginous, ring-like tuberosity, whose convexity is directed inward. There is a distinct depression in this circular piece of cartilage. The site of the external opening of the meatus on both sides is marked by a slight furrow. On the right side, in front and above this furrow, are two cartilaginous tubercles covered with normal skin. The cartilage of the tragus could be plainly felt. The nasal structure was normal.

**A New Universal Double-acting Snare.**—Bucklin (*Arch. of Otol.*, xx, 4) has devised an instrument in which the wire is attached to a solid stylet, drawn by a powerful ratchet motion. A screw motion is also attached to the same stylet, thus enabling the operator to use a very slow-

cutting snare, while the ratchet motion provides a rapid-cutting one when desired. The handle and ratchet motion may be detached at pleasure. The instrument has a straight tip for the nose and curved tips for reaching the larynx and naso-pharynx through the pharynx. The straight cannula is armed with wire by passing it through the eyes of the slightly projecting stylet from opposite sides. The required loop having been formed, the stylet is drawn by the ratchet motion, and the projecting ends of the wire are cut. The curved tips are armed with wire by bending one sixteenth of an inch of the end of the wire at an angle of forty-five degrees. It is then passed through the first eye of the stylet into the opening at the curve of the cannula. When the wire appears at the opening it is twisted until the bent point is opposite the second eye in the stylet, which it enters easily and the loop is complete.

**Different Diagnostic Points between Human Olfactory Epithelium and Respiratory Ciliated Epithelium.**—Suchanek (*Arch. of Otol.*, xx, 4) considers that the normal human olfactory epithelium consists: 1. Of a living membrane of finest ciliated epithelium of easily differentiated, easily destroyed cilia, and therefore only to be seen in fresh specimens. 2. A protoplasmic border of unpigmented and pigmented cells containing the extreme terminations of the supporting and olfactory cells. 3. A full development of supporting cells, and particularly of the zone of olfactory cells, together with a row of basal cells, which, without a dividing cuticle, rest directly upon the tunica propria. 4. A moderate amount of pigment which surrounds Bowman's glands and the olfactory fibers in heaps and stripes.

**Aural Complications in the Course of Leucocythæmia.**—Lanouis (*Ann. des mal. de l'oreille et du larynx*, January, 1892) draws the following conclusions from his observations: 1. Leucocythæmia may be accompanied by symptoms of the presence of lesions in the auditory apparatus. 2. These symptoms are either unilateral or bilateral deafness, accompanied or not by subjective noises and vertigo. 3. This variability of symptoms depends upon the fact that the lesion does not always involve the same region in the auditory apparatus. 4. In four cases out of five the anatomical lesion is a hæmorrhage. 5. These complications are relatively rare.

**Malignant Tumors of the Ear.**—Charazac (*Rev. de laryngologie et d'otologie*, Jan. 1, 1892) refers to the fact that all the cases hitherto reported seem to prove that cancers of the auricle and external auditory canal are the most frequent of all malignant diseases. Epithelioma is the most frequent form of cancer of the ear, and sarcoma is the next most common. Carcinoma is the least common form of malignant disease of the ear. We meet here with both forms of epithelioma—the cylindrical and squamous—the latter being both tubular and lobulated.

Malignant tumors of the ear are met with at all ages, though epithelioma and carcinoma are most frequently met with in declining years, while sarcoma is more frequent in the young. Cancer of the auricle is not more frequently met with in women than in men, though it might be expected to occur oftener in the former, because of the piercing of the lobules for ear-rings. Epithelioma is much more frequently met with in men than in women.

Cancer of the ear may develop primarily in all parts of the auditory apparatus—even in the middle ear and mastoid cells. Epithelioma of the auricle and auditory canal sometimes occurs as the result of traumatism. In many cases it is developed in the course of cutaneous diseases, like eczema, impetigo, and psoriasis. According to Politzer, epithelioma of the auricle appears most frequently on the skin of the upper part of the helix. Sarcoma most often attacks the lobule. In the auditory canal the cartilaginous portion is the most frequently affected.

Whatever the variety of cancer, when the parts have become ulcerated the pain is often intense, radiating from the interior of the ear to the corresponding side of the head. The engorgement of the pre-auricular glands occurs sooner or later, presenting itself very late in the case of sarcoma. When ulceration has occurred, the growth is usually very rapid. Carcinoma, as a rule, grows very rapidly. As regards prognosis, sarcoma is less grave than epithelioma, and the latter less grave than carcinoma.

Cancer of the middle ear may be primary or secondary. The latter arises very often from a neoplasm of the auricle or canal. The prog-

uosis is absolutely fatal, for it is impossible to extirpate the neoplasm totally. The treatment should, therefore, be merely palliative.

Primary cancer of the labyrinth, if it exists, is excessively rare. It is almost always secondary, epithelioma and carcinoma being the most frequent, if derived from the middle or external ear, while sarcoma derived from the intracranial cavity is the most frequent.

## Miscellany.

**The Legal Requirements for entering upon the Practice of Medicine in the State of New York.**—The following report has been prepared under the auspices of our State board of medical examiners, which, in brief, outlines the law of the State and its operation since September 1, 1891. It has been prepared more particularly with a view to disseminating knowledge on a subject concerning which frequent inquiries are made, and it is thought that the profession will be pleased to have the opportunity of reading a concise statement of the essentials for entering on the practice of medicine in the State of New York, and of knowing the result of a nine months' trial of the latest legislation.

The report is as follows :

The many inquiries directed to the regents' office and to the secretaries of the various State boards of medical examiners indicate that the profession is largely interested in the operations of the law at present governing the practice of medicine in the State of New York. This interest is accepted as of sufficient moment to warrant the publication of the salient features of the law, and at the same time to give the profession an insight into the methods and machinery necessary to its proper enforcement. The law signed by the Governor on June 4, 1890, went into effect on September 1, 1891, and has been operative since that time. It provides: "From and after the first day of September, 1891, any person not theretofore lawfully authorized to practice medicine and surgery in this State and desiring to enter upon such practice" may, after the following conditions have been fulfilled, receive an order to be examined before one of the three State boards of medical examiners as to his medical qualifications :

1. Applicant must be more than twenty-one years of age.
2. Must present certificate of moral character from two legalized resident (State) medical practitioners.
3. Must be a graduated doctor of medicine from some legally incorporated medical college in the United States, or have received a diploma or license conferring the full right to practice all the branches of medicine or surgery in some foreign country.
4. Must have attended at least three full courses of lectures in different years in some legally incorporated *medical* college or colleges.
5. Must pay twenty-five dollars into the treasury of the University of the State of New York.
6. Must present evidence of preliminary education, as follows :  
Either—  
(a) Usual academic degree.  
(b) One year at academic degree-conferring college.  
(c) Three years in a high school or academy.  
(d) Be in possession of regents' medical-student certificate.  
(e) Matriculation certificate required by present medical act of Canada.  
(f) Matriculation certificate from any university in Great Britain or Ireland.  
(g) Certificate of having passed examinations of any registered institution equivalent to one year in academic college or three years in high school.

All these preliminaries having been complied with, upon proof presented by the applicant, in his or her own handwriting, to the satisfaction of the regents (on blank forms furnished on application), an order is given admitting the candidate to the next examination. Five regular examinations are held during the year (during the year 1892 there are still three regular examinations to be held, as follows : June 14th–17th,

September 27th–30th, and November 22d–25th) simultaneously at New York city (21 Cooper Union), Albany High School building, Syracuse High School building, and Buffalo High School building, and as many special examinations are ordered as are deemed necessary by the regents, depending upon the exigencies which may arise. At these examinations the candidates are examined on the subjects of (1) anatomy, (2) physiology and hygiene, (3) chemistry, (4) surgery, (5) obstetrics, (6) pathology and diagnosis, and (7) therapeutics, including practice and materia medica. The candidate is allowed three hours' time in which to answer ten from among the fifteen questions submitted on each topic; each answer, if correct, has a value of ten points, and *each* full paper of ten questions answered must have a total value in markings of at least seventy-five points; otherwise the candidate is rejected. There are two sessions of three hours daily, each session devoted to one of the seven topics; thus three days and a half are requisite for completing the examination. The candidates are examined according to number, no name being allowed to appear on the answer papers; the name of the candidate is placed in an envelope marked with the corresponding number, is sealed, and left unopened until the final report of the examiners has been made.

There are three boards of State medical examiners as follows, representing the—

*Medical Society of the State of New York.*—William C. Wey, M. D., president, physiology and hygiene; Maurice J. Lewi, M. D., 71 Lancaster Street, Albany, secretary, chemistry and materia medica; William S. Ely, M. D., anatomy; George Ryerson Fowler, M. D., surgery; William Warren Potter, M. D., obstetrics; J. P. Creveling, M. D., pathology and diagnosis; Eugene Beach, M. D., theory and practice and therapeutics.

*Homœopathic Medical Society of the State of New York.*—Asa S. Couch, M. D., president, pathology and diagnosis; Horace M. Paine, M. D., 105 State Street, Albany, secretary, anatomy; A. R. Wright, M. D., physiology and hygiene; John McE. Wetmore, M. D., chemistry; E. E. Snyder, M. D., surgery; William S. Searle, M. D., obstetrics; Jay W. Sheldon, M. D., therapeutics, practice, and materia medica.

*Eclectic Medical Society of the State of New York.*—Hugh J. Linn, M. D., president, obstetrics; Edwin S. Moore, M. D., Bay Shore, secretary, surgery; William L. Tuttle, M. D., anatomy; Robert Hamilton, M. D., physiology and hygiene; Harry B. Smith, M. D., chemistry; John P. Nolan, M. D., pathology and diagnosis; John H. Dye, M. D., therapeutics, practice, and materia medica.

They are appointed by the regents from nominations submitted by the State, Homœopathic, and Eclectic Medical Societies, for a term of three years, for every vacancy two names being submitted by the societies. The principal work of the examiners is to formulate questions for examination purposes and to mark the answers thereto. The questions submitted at each examination are the same for all candidates, excepting on the seventh topic (therapeutics, practice, and materia medica), three sets of questions being furnished at each examination, each set representing the views of one of the three legally incorporated schools of medicine in the State on this subject, the candidate receiving the set for which he had expressed a wish in his original application for license. The questions to be used at the various examinations are decided upon as follows, those previously secured in a similar way having become exhausted: The regents issue a notice requesting each of the twenty-one examiners to forward, on or before a certain date, sixty questions on the special topic to which each is assigned; subsequent to this date the questions board, consisting of six members, two from each board, is called in session. The questions on the seventh topic are handed to the two members representing their special board, who, as previously stated, and as particularly specified in the law, have complete charge of this subject. With the other six subjects, one hundred and eighty questions having been submitted in each, the questions board acts as follows, taking anatomy, for instance: The secretary reads a question alternately from each of the three papers submitted by the examiners in this topic, and, unless each receives the unanimous vote of all present, it is stricken from the list of available questions. The one hundred and eighty questions, having passed through this process, are arranged in sets of fifteen, each set is numbered and sealed, and thus at one sitting, lasting, however, many hours, an average of ten complete sets of questions is pre-

pared, thus providing for ten future examinations. These sets of questions are placed in the custody of the regents, who, as the time for the next examination approaches, call upon the secretary of the questions board to review the printer's work after the questions are put up in type. The examinations proper are conducted by a sworn official of the regents' office, who is not a member of any one of the State boards of medical examiners. As soon as the examinations are concluded the answer papers are delivered to the secretary of the board selected by the candidate in his application, and by him in turn sent to the different individual examiners, who return the papers with their markings to the board of regents; these answer papers thereupon become a part of the public records of the State. If a favorable report is made by all of the examiners on the answers of any applicant, a license is immediately forwarded to his address, thus enabling him to register at once and commence the practice of his profession. The last examination was concluded on May 6th, and on May 14th the licenses were forwarded from the regents' office to the successful candidates. Arrangements are now being made for the next examination which will enable the regents to forward these licenses within five days of the close of the examinations. The income accruing from this law goes to the Board of Regents, who, after paying all proper expenses, will, if ever there should be a surplus, apportion the money among the twenty-one examiners according to the number of candidates examined by each. Graduates in medicine who have been licensed by State examining boards of other States of the United States only, on convincing the Board of Regents that the standard of requirements adopted by the board of examiners which granted them the license is substantially the same as in New York State, may, upon the payment of \$10, have such license indorsed. The following summary of the laws has been made:

1. The University of the State of New York is the only organization having authority to issue licenses to practice medicine in this State after September 1, 1891.

These licenses must be registered by county clerks on application. (*Laws of New York*, 1890, ch. 507, § 8-9.)

2. Licenses issued before September 1, 1891, can be registered only as follows:

(a) A diploma granting the degree M. D. issued before September 1, 1891, by an incorporated medical college in this State is a license to practice medicine and must be registered on application. (*Laws of New York*, 1889, ch. 647, § 2.)

(b) A diploma granting the degree M. D. from a medical college out of the State, or a license to practice medicine in some foreign country, can be registered only if it was indorsed between June 18, 1880, and June 24, 1890, by an incorporated medical college of the State of New York or by the University of the State of New York, or, if between June 24, 1890, and September 1, 1891, it was indorsed by the University of the State of New York. (*Laws of New York*, 1880, ch. 513, § 4; 1887, ch. 647, § 2; 1890, ch. 500.)

3. Students who had matriculated in a New York State medical college prior to June 5, 1890, and had not received the degree M. D. prior to September 1, 1891, to be exempt, must have filed a certificate with the University of the State of New York before August 4, 1891. (*Laws of New York*, 1891, ch. 311.)

Licenses of such candidates may be registered as follows:

(a) A diploma granting the degree M. D. from a New York State medical college issued after September 1, 1891, can be registered on presentation of a certificate from the secretary of the University of the State of New York that the applicant had matriculated in some medical college of the State prior to June 5, 1890. (*Laws of New York*, 1891, ch. 311.)

(b) A diploma granting the degree M. D. from a medical college not in the State or license to practice in a foreign country, if indorsed by the University of the State of New York, can be registered on presentation of a certified copy of a certificate filed with the secretary of the University of the State of New York that the applicant had matriculated in some medical college of the State prior to June 5, 1890. (*Laws of New York*, 1891, ch. 311.)

All diplomas issued by medical colleges in this State prior to January 1, 1880, which are presented for registration after this date should be referred to the University of the State of New York for examination

before being registered, and further, to quote the exact wording of the law:

SECTION 10. Nothing in this act shall be construed to interfere with or punish commissioned medical officers serving in the army or navy of the United States or in the United States marine-hospital service while so commissioned, or any one while actually serving as a member of the resident medical staff of any legally incorporated hospital, or any legally qualified and registered dentist exclusively engaged in practicing the art of dentistry, or interfere with manufacturers of artificial eyes, limbs, or orthopaedical instruments or trusses of any kind from fitting such instruments on persons in need thereof; or any lawfully qualified physicians and surgeons residing in other States or countries, meeting registered physicians and surgeons of this State in consultation, or any physician or surgeon residing on the border of a neighboring State, and duly authorized under the laws thereof to practice medicine or surgery therein, whose practice extends into the limits of this State; providing that such practitioners shall not open an office or appoint a place to meet patients or receive calls within the limits of the State of New York; or physicians duly registered in one county of this State, called to attend isolated cases in another county, but not residing or habitually practicing therein.

Appended will be found the examination results thus far obtained:

Total number of applicants for license to practice medicine to date .....	56
Number of those who fulfilled all requirements and received license.....	34
Number of applications still unacted upon.....	10
Rejected for failure to reach seventy-five per cent. at final medical examination.....	1
Deficient in preliminary education.....	6
Had never attended three full courses of lectures....	4
License withheld because of moral reasons.....	1
	56

*Addenda.*

All examinations are conducted in English unless the applicant expresses a desire to be examined in *Latin*. In that event the application, with the reasons therefor, is placed before a committee consisting of the presidents of the three boards, whose decision is accepted by the board of regents. The candidate must pay the expenses of translation. Whenever it is found necessary to obtain the opinion of the boards of examiners, the university authorities are requested to confer with a sub-committee of the conference consisting of the president and secretary of each board, who are the executive committee of the boards. The boards proper meet twice in each year.

A syllabus is in course of preparation and will be issued shortly. A candidate having failed, whether in one or all seven branches, his application for license is rejected. On re-examination no fee is exacted, but the candidate must pass the examinations on all seven topics, regardless of the number he passed at the previous examination. Appeal for a reopening of any examinations may be made to the regents of the University.

Indicating point to a class of from fifteen to twenty applicants at the next regular examination, June 14, 1892.

By order of the State board of medical examiners representing the Medical Society of the State of New York.

MAURICE J. LEWIS, *Secretary.*      WILLIAM C. WEY, *President.*

**District Nursing in Germany.**—The following letter from an occasional correspondent of the *British Medical Journal* was published in that journal for May 21st:

Supposing a working man or a member of a family with limited means, but not exactly paupers, were to fall ill, who would look after and nurse the patient if his own people were not in a position to do so, and if the case was not taken to a hospital? In answer to this question, I am happy to be able to point to a pretty considerable number of extensive and well-organized institutions in the German Empire, all devoted more or less exclusively to this duty.

Foremost among these, at least in the Protestant parts of the Fatherland, stand the highly esteemed and meritorious Deaconesses' Homes

(Diakonissen Anstalten). The first institution of this kind was founded in the very humblest fashion, and under great difficulties and privations, by the late Theodor Friedner, in Kaiserwerth, on the Rhine, in the year 1836. From lowly beginnings, however, his work has spread all over Germany, and even beyond the limits of Europe. At present most of the chief towns of the empire (Berlin, Hamburg, Dresden, Karlsruhe, Darmstadt), in all about sixty, contain similar independent centers of organization in conjunction with a hospital (Mutterhäuser), from which the sisters are sent out to yield the aid required in the respective provinces. The number of deaconesses at work in Germany in 1888, exclusive of those engaged in foreign parts, amounted in round numbers to 5,000, and is still steadily increasing. Their duties extend a good deal beyond district nursing. They apply themselves, if so qualified, to teaching, to taking care of little children in crèches (Krippen), etc. The institution of the last seems to be a very useful complement to the work of district nursing, the children informing the sisters of cases of sickness in the family, and, on the other hand, the parents showing much more inclination to send their children to the preliminary school after having made the acquaintance of the deaconesses in illness and distress.

The working of all these homes appears to be pretty much the same everywhere. Reputable females of all stations, not younger than eighteen and not older than forty years of age, are always admissible to become members. They are required, first of all, to pass a few weeks on preliminary trial; if found fitted, both mentally and bodily, for the duties of the order, they are received as probationers, and are further trained for two years or more as may be judged appropriate in each individual case. Much weight is given to the religious part of the training, but the practical portion of the education in nursing, as far as my experience in a number of hospitals goes, is most efficient and thorough. On entering, a novice is required to bring with her nothing but a limited supply of clothing, her Bible, hymn-book, and prayer-book, and a very little ready money in case of need. If received as a probationer (Probeschwester), she is supplied with the dress of the order, and receives a small monthly allowance. The number of those who quit the service, unless compelled to retire from failing health, is very small. Occasionally a deaconess will resign in order to marry, or on account of her own people being in need of her aid, but this does not happen very often.

Although their expenses are comparatively inconsiderable, almost all these houses are continually in want of pecuniary aid, and their sphere of work might be vastly extended. Unnecessary outlay is carefully avoided. Their income is derived chiefly from voluntary contributions, their capital not being very extensive, and the income gained by services rendered being proportionately very small, as most of the work is done entirely gratuitously. In some places the congregation of the district makes arrangements with the Deaconesses's Home, and engages one of the sisters to act as nurse of the district (Gemeindepflegerin) by the year, for which the home receives a small remuneration. In other towns, again, there are so-called Krankenvereine—sickness associations—of which the members pay regularly a small subscription toward the funds of the home, which entitles them to free nursing in case of need. As a rule, however, the sisters thus subsidized are engaged in attending the poor of the district, so much so that the money received is far more than fairly earned by the work done.

At some of the homes—for instance, at Wehlheiden-Cassel—arrangements are now made for the purpose of supplying small towns and villages with trained nurses in the same manner as the state provides them with trained (and registered) midwives. Any respectable female, between twenty and forty years of age, chosen by the authorities or by associations willing to pay the necessary twenty shillings a month to the home, can be received as a pupil under the same conditions as the probationers, and having received six months' education in nursing, and having passed an examination, can return home and begin work as a certified nurse. Similar dispositions have been made by some of the Frauenvereine—for instance, in Karlsruhe. In this way even small villages will be possessed of at least one inhabitant with some idea of the necessities of a sick-bed and capable of yielding help to the destitute during illness.

A new extension of the deaconesses's work in Berlin was recently

set on foot at the instigation of the Empress, and promises to prove of great value. It consists in the formation of an extensive series of deaconesses's stations distributed throughout the laborers' quarters, each station to contain five sisters, whose sole duty it is to attend to the sick poor in their own homes. All the mother houses have been called upon to depute a number of members for the work; here there is certainly a wide field of labor, the homes already in activity there, with thirty sisters engaged especially in district nursing, not being at all sufficient to meet all the demands. It may be as well to mention that the homes are often called by different names in the different towns. Thus, in Berlin there are four houses—the Elizabeth Hospital, Bethania, Lazarus Hospital, and the Paul Gerhardtstift, all conducted independently of each other by deaconesses. In Hamburg the home is also called "Bethania"; in Wielefeld, "Sarepta"; in Hanover, "Henriettenstift"; in Darmstadt, "Elizabethhaus," etc. At the head of each home is a committee composed of influential and well-known—sometimes royal—persons, while the daily care for the institute devolves on the matron (or Oberin). The homes just mentioned are all in connection with a hospital, except the Paul Gerhardtstift, which serves chiefly as a place of abode for elderly females who are without families. Besides the deaconesses, we have also deacons, as at the fraternity house, Nazareth, near Wielefeld, and at Karlshöhe, near Ludwigsburg, in Württemberg; but their sphere of action extends only quite exceptionally to district nursing.

Very extensive and useful institutions are the Associations of the Red Cross, the Prussian Vaterländischer Frauenverein, which is extended to some of the non-Prussian German states, then the Bayerischer Frauenverein in Bavaria, the Badischer Frauenverein in Baden, the Alice Verein in Hesse-Darmstadt, the Marien Frauenverein in Mecklenburg, the Albert Verein in Saxony, the Wohlthätigkeitsverein in Württemberg, and the Frauenverein in Saxe-Weimar-Eisenach. These seven corporations constitute together the Verband der deutschen Frauenvereine, the Conjoint Woman's Association of Germany, but each is conducted and organized quite independently of the others. They are under the patronage of the Landesmutter—that is, the consort of the reigning sovereign of the land, and all persons willing to take part in the work of the association are readily admitted on payment of an annual subscription of six shillings. In consequence, the number of the members is very large, and they command a very fair annual income. In conjunction with the Männer Hilfsvereine, Men's Aid Association, their prime object is to supply the necessary means of nursing the sick and wounded in case of war; but, besides this, they aim at affording relief of all kinds to the needy both in case of unusual calamities (floods, fire, famine, etc.), and also in the usual course of things. These associations are in possession of a large number of hospitals throughout the land, where nurses are educated both for voluntary and for paid service. The course of instruction is arranged and conducted in about the same way as with the deaconesses, and comprises periods of novitiate, probation, and qualification. They, too, have a uniform kind of dress for the sisters, who are especially distinguished by the brooch bearing a red cross on a white field. The pecuniary remuneration is a little higher than that of the deaconesses, and, owing perhaps to this circumstance and to the patronage of royalty, many ladies are to be found among the sisters. Their labor is chiefly, indeed, directed to hospital nursing, but district nursing is also largely attended to. In the latter direction, too, a great deal of good is done in all the branches by supplying the indigent sick with the necessities of life, and often, also, by procuring the necessary funds to sustain a deaconess for the respective congregations. The Frauenvereine comprises both Protestant and Roman Catholic members. Of the Roman Catholic religious orders a very considerable number are engaged in nursing, both in hospitals and in the district, and they are universally most highly esteemed on account of their eminent qualities in this respect. They are extremely reticent with regard to their organization, and a few have, on inquiry, declined to give further information. I am, therefore, unable to mention details with regard to them. Suffice it to say that, as in the purely ecclesiastical monasterial orders, a novitiate has to be passed, and that for their training, in consequence of the numerous hospitals in which these orders are engaged in nursing, ample opportunities exist. Among the most extensive orders may be

mentioned the Sisters of Mercy of the Order of Karl Borromaeus, with their center in Trebnitz (Silesia); the Gray Sisters of the Labor of St. Elizabeth, originally of Neisse and Breslau, and extended through a very great part of Germany. Further, we have the Handmaidens of Christ, of whom about 800 are engaged in district nursing here. Their center is in Dernbach (Nassovia). The Sisters of the Congregation of the Very Holy Saint Saviour (Niederbronn, in Alsatia) number about 1,400, including novices, and are for the greater part solely engaged in nursing the sick poor. There are also the Sisters of St. Clement (Aix-la-Chapelle), of St. Celestine (Cologne), of St. Francis, in Gengenbach (Baden), and elsewhere; of St. Vincent de Paul, founded in Metz in 1633, and widely distributed also in Protestant parts—districts, for example, in Württemberg. In some places associations have been formed among the laity (for instance, in Karlsruhe, in combination with the Sisters of St. Francis in the St. Bernhard House), the members paying a small annual subscription toward the expenses of the order, and receiving in case of need gratuitous nursing in the same way as has been described with regard to the Protestant deaconesses. As a rule, no sisters of the Catholic orders are permitted to attend in cases of midwifery unless a fortnight has elapsed since the birth of the child. An exception to this law are the *Sœurs de la Charité Maternelle*, established in Metz, who make it their chief duty to attend poor mothers in child-bed, and to supply them with the necessary help, and also, if need be, with nourishment, medicine, and articles of clothing. Among the monks, some of the Franciscans (Capucins) in various cities also devote themselves to nursing; likewise the Brothers of Mercy in Werne, Montabaur, Straubing, Treves, Breslau, and other places; and the Brothers of St. Alexis (Münster, etc.), but their number is comparatively limited. In general, it would appear that the number of institutions, both Catholic and Protestant, founded for the purpose of helping and nursing the sick poor, is large enough, but by almost all the same lament is made—that they are unable to cope with the ever-increasing demands made on them both for want of funds and of active members.

**III. The Ideal Consultant.**—When, says the *Lancet*, nearly a generation ago, Sir Henry Acland in a memorable publication introduced the Oxford Museum to the academic world and foreshadowed the benefits it would bring to liberal culture as a whole, and more particularly to that of the physician, he gave a picture of the "ideal consultant" which, if more comprehensive than detailed, may be said to come as near perfection as such compendious characterizations are capable of reaching. In a quotation from Suidas he adduced the answer of the consultant Trophilus, when asked to define the all-accomplished physician: "It is he," said Trophilus, "who is able to distinguish between what can and what cannot be done." This definition may be said to cover every requisite in the medical adviser in whatever circumstances the exigences of his calling may place him; but it does not, of course, enter into native aptitudes, or acquired dexterities, or, in short, into the *ensemble* of qualifications which combine in the physician who is ever ready and never at fault. One definition, or rather indication, of what the successful consultant really is was incidentally given some years ago, by an outsider, in a strictly professional controversy—a definition which embodies the lay belief in the personal power of the physician apart from what special discipline can make him. "A great physician," he said, "is a great artist." This also is true, and will be found on closer analysis to explain the extraordinary success of practitioners whose book-learning or laboratory training is notoriously far inferior to their power in diagnosis and their success in treatment. The Athenian intellect at its best and in its most characteristic mood—essentially artistic as it was—seemed to fulfill the requisites which from time to time attain medical embodiment in a Sydenham, or, to come within our own day, in a Bamberger, whom, *consensu omnium*, each morning's encounter with cases of every kind in the Vienna wards found seldom or never at a disadvantage. That intellect, in its combination of nimbleness with strength, of centripetal insight with sense of proportion and judicial balance, has been described for all time by Thucydides in his wonderful picture of Themistocles. He dwells on the native understanding of "that Athenian of Athenians"; on his power, without previous information or after-thought, with, indeed, the briefest consideration of the problem in hand, to form a picture in his mind of what it really implied and of what its solution

would yield—diagnosis, in short, and prognosis, almost improvised as to readiness; and again, when the problem admitted of only an approximate or provisional solution he could—"this way and that dividing the swift mind"—alight on the better and avoid the worse interpretation, even in the absence of previous prompting or of the data indispensable for less artistic minds. The whole passage (*Thuc.*, i, 138) is well worth pondering in this connection, and will serve to explain how the idea of an "artist" dominates the popular conception of the consummate physician—as is, indeed, involved in the German word "Arzt," which Becker rightly derives from the Low Latin "artista." Noteworthy, too, is the fact that the intellect here typified is always genial, always repays the confidence it invites by possessing the patient with the belief that his malady is indeed of personal interest to his adviser, who considers, and pronounces, and prescribes as if he were in the other's place. That is what Celsus means when he talks of the "hilaris vultus" of the ideal consultant—what Horace implies by the "deformis ægrimoniam dulcibus alloquitur." The character thus equipped by nature becomes more and more developed by experience, till, as statesmen and men of letters, and indeed the moral and intellectual grandees of every age, combine in attesting, humanity appears in no more admirable or lovable form than in that of the "ideal consultant."

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Original Communications.

ON THE EARLY DIAGNOSIS AND TREATMENT OF SEPTIC PERITONITIS.\*

By HENRY L. ELSNER, M. D.,

PROFESSOR OF CLINICAL MEDICINE, SYRACUSE MEDICAL COLLEGE, SYRACUSE, N. Y.

While bacteriologists and pathologists have taught us much with regard to the various inflammatory processes affecting the peritonæum, the clinician has yet much to learn of the early diagnosis and treatment of septic peritonitis.

While we have been taught by the brilliant achievements of abdominal surgeons that the peritonæum is no longer a *noli me tangere*, their experience has established the fact beyond controversy that septic material is not tolerated by the peritonæum. There is no serous surface which revolts so quickly against the invasion of any agent capable of carrying infectious material as the peritonæum.

In this short introduction, the time for which is necessarily limited, I am to say a few words to you on the subject of the early diagnosis and treatment of septic peritonitis, and in discussing it I shall confine myself strictly to those forms of peritoneal inflammation dependent upon putrefactive and septic agents for their propagation.

This at once involves a question which I see from your programme you have relegated to another—whether there exists, in fact, an idiopathic peritonitis. While my views upon this subject may differ from those of many of you, my clinical experience has taught me that idiopathic peritonitis is a disease which is rarely found, and the existence of which may indeed be doubted. I shall hold, therefore, that much the larger number of cases of peritonitis which we are called upon to treat are either septic from the beginning or become so before they have run their course.

This being my opinion, it is hardly necessary for me to tell you that in all forms of septic peritonitis it is the duty of the physician to ascertain, if possible, the pathogenic factor which was the original cause of the septic process. While Habershon, in over five hundred autopsies, claims to have found no single case of peritonitis in which he could not establish the fact that disease existed in some organ besides the peritonæum, the physician finds in many cases great difficulty in determining the source, ante mortem, of the septic process.

When we take into consideration the innumerable sources from which a septic process may attack the peritonæum, we find that there is reason for our repeated failures. It is, nevertheless, necessary for us to bear in mind the fact that we are dealing with a secondary process, and it should be our aim to make a most rigid inspection of all portals through which the materies morbi may gain entrance, in conjunction with the most cautious and searching investigation into the preceding history of the patient, as well as a careful consideration of each and every symptom present.

\* Being part of a discussion before the Onondaga Medical Society January 28, 1892.

The diagnosis of those forms of septic peritonitis which follow injury to the abdominal wall—surgical operations either for abdominal diseases, including hernia, diseases of the genito-urinary tract, or puerperal processes—is easily made. We have in all of these cases the previous history, which aids us. Peritoneal symptoms would be more likely to be due to a septic than to any other process.

Inflammatory diseases in the neighboring organs, which give rise to peritonitis by contiguity, are not particularly difficult of diagnosis. The cases which interest us most are those of perforative peritonitis, which may be either circumscribed or diffused, and it appears to me safely considered to be septic.

It has been my misfortune to see, in the course of my experience, a number of cases where a septic process followed perforation of the stomach wall, either from round ulcer or from cancer. In these cases there was present the collapse which followed perforation, the characteristic appearance of the patient, more or less reaction, and then the evidence of diffuse peritonitis; all of these cases ended fatally.

I have also had some experience with septic peritonitis, both localized and diffused, following perforation of tuberculous ulcers of the intestine, in which there was no preceding tuberculous peritonitis.

The diagnosis in such cases is easily made. The preceding history of tuberculosis, with alternating diarrhœa and constipation, the presence of symptoms of perforation, collapse, without, as a rule, much reaction, following a short period of septic peritonitis, with rapid death, would be sufficient to warrant the diagnosis.

The most frequent cause of septic peritonitis has been disease of the vermiform appendix, and it appears that in this discussion our time can be best spent in considering the early symptoms of peritonitis which follow the various forms of appendicitis.

The literature of this subject has grown amazingly during the past ten years, and while many lives have undoubtedly been saved as a result of our better understanding of this subject, there has not been a single article written, to my knowledge, which can be said to offer positive signs or symptoms for the detection of septic peritonitis, in cases where it develops without preceding well-marked symptoms of vermiform disease in which such disease really pre-existed.

If this question could be solved—if we could diagnose the condition of the vermiform appendix before its disease makes itself manifest by the sudden development of either a localized or general peritonitis—much would be gained.

While we may not profit greatly from a consideration of the frequency with which the vermiform appendix is found to be diseased, it is, nevertheless, interesting for us to remember that the statistics of Matterstock, Toft, and Kraussold show an amazingly large proportion of diseased appendices. It is hardly credible that every third person whom we meet between the ages of twenty and seventy has some trace of inflammation in the vermiform appendix. Equally surpris-

ing is the fact that five per cent. of all bodies examined show evidences of ulceration in the vermiform appendix. Kraussold maintains that five per cent. is too low a figure.

These statistics, and the result of our own post-mortems, have been sufficient to arouse in us a desire to explain the cause of this enormous amount of appendiceal disease. If all diseased appendices were followed by a perforative or septic peritonitis, that would at once become the most frequent cause of death.

If you will allow me, I will offer an explanation for these many evidences of appendiceal disease. To my mind, there can be no doubt that there is a latent appendicitis; that this latent appendicitis in many cases runs its course without sufficient symptoms to make its existence known; that it may remain latent for years; that there may remain within the appendix products of inflammation, foreign substances, and micro-organisms without exciting the least suspicion; that in some cases a slow, chronic, but yet protective peritonitis of a localized character surrounds the appendix, preparing the way for its perforation, guarding the general peritonæum at the same time. In other cases a latent appendicitis may lead to the changes which are found in patients who die from other diseases, where the appendicitis never gave rise to more than local and unrecognized disturbance.

That this theory is not without foundation must be admitted when we consider the frequency of diseased appendices found post mortem and the evidences which we have all found of a perityphlitic inflammation. Remember, please, that when I use the term "perityphlitic" it refers to a process secondary always to appendiceal disease.

On the other hand, this theory would account for those cases in which we have, without warning, a rapidly spreading diffuse and septic peritonitis as the result of perforation of the appendix. The appendicitis, latent for days or months, suddenly causes by a fresh catarrhal inflammation an increase in the contents of the appendix; either dilates, its circulation is interfered with, or, by pressure, a localized spot becomes gangrenous, perforation results, with immediate septic peritonitis.

This explains still another fact, and that is that the serious cases of appendicitis are those in which we have the fewest symptoms of local disease. Those cases of appendicitis in which there is tumor formation, well pronounced, are more likely to have accompanying adhesive inflammation to guard the general peritonæum.

Experience has still furthermore established the fact that a large number of these cases do not come to us for diagnosis or treatment until the appendix is perforated and the peritonitis has commenced. The diagnosis of a septic peritonitis following perforative appendicitis, in which there has been tumor formation, need not detain us for its consideration. It would be a presumption on my part.

The difficult cases to detect in their incipency are those in which there is perforation *without preceding tumor, and it is these cases which we must detect early if we are to reduce the mortality from appendicitis.* A septic peritonitis following will run its course rapidly, and with certainty lead to death unless relieved early.

In these cases we must be guided by both subjective and objective symptoms. Most of the patients, if closely questioned, will give a history of preceding indigestion, both intestinal and gastric. There may or there may not have been preceding pain in the right inguinal region. As a rule, there has been no appreciable elevation of temperature. Suddenly a chilly sensation follows a few hours of pain, localized over the right inguinal region, rarely a well-defined chill. The pain may become intense at once, the facial expression markedly changed, the surface circulation impeded. The patient now refers all pain to the actual seat of the disease.

As a rule, we are not even called at this stage. The patient, imagining that his trouble is a simple colic, postpones medical attention, but septic peritonitis has nevertheless commenced. We find the abdominal wall in the region of the appendix most tense, tender, and possibly slight localized œdema. The abdominal wall in its lower half is everywhere abnormally tense and tender also. The patient already lies on his back with knees drawn up; the pulse is at first tense, but does not remain so long, becoming more rapid as the disease progresses. The temperature is slightly elevated, rarely above 102° to 102.5°. The McBurney point is a valuable aid in the diagnosis of this form of peritonitis when the patient is seen early.

With the above history and the presence of the McBurney point the diagnosis of a peritonitis following appendicitis can be made. Want of time prohibits an enumeration of the many other symptoms, but in these forms of perforative septic peritonitis, either from perforation of the vermiform or perforation of other abdominal viscera, we have in the effacement of liver dullness a very reliable symptom, when the perforation has not been preceded by adhesive peritonitis to limit or encapsule the escaping gas and fœces.

To those of you who have studied the views of the various writers on this subject it must appear surprising to find such a wide difference of opinion as to the value of effacement of liver dullness in cases of perforation or air in the free peritoneal cavity.

Flint wrote a paper in which he held that this was one of the most characteristic signs of perforation. The difference of opinion with regard to the effacement of liver dullness, it appears to me, can be reconciled if we take into consideration the two great sources of error. First, an unusually distended transverse colon, by its presence between the liver and abdominal wall, yielding on percussion tympany anteriorly over the area of normal liver dullness without perforation existing.

Second, perforation in those cases where, as the result of adhesive inflammation, encapsulation, bands, or from other causes, air or gas is held within a circumscribed area, or in the lower half of the abdomen, without effacement of liver dullness. The careful examination of the abdomen would reveal the presence of these sources of error by placing the patient upon the left side and percussing in the axillary line, on the right side over the liver, from the eighth rib downward, the presence of free air in the peritoneal cavity showing itself by a disappearance of dullness in that

line, while there would be a persistence of dullness if the anterior tympany had been caused by the distended transverse colon.

Typhoid ulceration, perforating, may give rise to either general or circumscribed peritonitis. If adhesive peritonitis precedes perforation sufficient to include the ulcer in a capsule of fibrinous exudate and adherent intestinal coils, general peritonitis may not result and liver dullness may persist. Usually, however, there is more or less septic peritonitis accompanying these rapidly fatal cases.

Recurrent appendicitis has never, in my experience, given rise to more than localized inflammation. Indeed, most of these cases are so surrounded by dense bands of new connective tissue and peritoneal adhesions that the general peritonæum is surely guarded.

I have seen but four cases of recurrent appendicitis. Three of these recovered perfectly; one committed suicide after repeated attacks, the post-mortem showing dense bands and peritoneal adhesions, the vermiform appendix no longer recognizable; a thickened cord of connective tissue was found over its original seat.

I will not dilate longer on the other early symptoms of septic peritonitis. It does not appear to me to be necessary to do so before a body of educated physicians. I wish only to call your attention to the fact that all forms of septic peritonitis are early in their course associated with extreme prostration, in many cases collapse, and that in all cases the well-understood physical signs of peritonitis are present.

We are not to forget those forms of septic peritonitis in which the disease remains localized owing to preceding adhesions. Here there is usually tumor formation, and there may be pus accumulation. In these cases there may or may not be perforation of a hollow viscus. There is often, if this localized peritonitis is neglected, breaking down of the inclosing structure, and a rapidly fatal diffuse septic peritonitis.

With regard to treatment, the indications are offered by the process which led to the septic peritonitis. It is safe to say that this form of peritonitis is rapidly becoming a surgical affection, and in no other disease is concerted action of physician and surgeon more important or more necessary. The successful treatment, whether medical or surgical, must necessarily be instituted early.

The operative treatment of septic peritonitis, I see from your programme, has been referred to others more competent to cope with the subject than myself. I wish to add, however, my disapproval of too hasty operative interference in cases where there are evidences of protective adhesions, and my hearty approval of early and prompt operation in cases with or without tumor, but where a tense abdominal wall, tenderness at the McBurney point, and evidences of spreading septic peritonitis are present.

The tendency now, since the opium treatment of peritonitis is being more and more slighted, will be to give salines in all forms of that disease. Inasmuch as the majority of cases of septic peritonitis are due to perforation of some one of the hollow viscera, we must warn against the indiscriminate and careless use of any measure which

will increase the trouble, and prevent by its physiological action the formation of adhesions or agglutination.

While I do not advocate the opium treatment which was instituted by the late Alonzo Clark, I, nevertheless, believe that in many cases a judicious use of morphine hypodermically materially relieves suffering and adds to the chances of the patient's recovery. In all cases the extreme exhaustion and collapse require judicious stimulation and a proper liquid diet.

In conclusion, I wish to express my belief in the treatment of all forms of septic peritonitis arising in the puerperal period by an early and thorough antiseptic cleansing of the uterine cavity; if a simple washing out is insufficient, let us remember that the curette has in a few alarming cases done yeoman's service.

## PLACENTAL LOCALIZATION BY ABDOMINAL PALPATION.

By T. RIDGWAY BARKER, M. D.,

DEMONSTRATOR OF OBSTETRICS IN  
THE MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA;  
OUTDOOR OBSTETRICIAN TO THE PENNSYLVANIA DISPENSARY.

In the scientific study of any subject it is necessary that we employ scientific means; otherwise our conclusions have no foundation in fact, and may be likened to the observations of the balloonist, whose statements, while they are perhaps true, lack one essential element—verification. With this thought uppermost in our minds, we are prepared to investigate the truth of the assertion "that the placenta can be definitely located by abdominal palpation." It would appear extremely doubtful, however, if its position can be determined when situated on the posterior wall of the uterus, as the intervening tissues, liquor amnii, and fœtus must prove formidable obstacles to the practicing of palpation with this object in view.

Should the placenta, on the other hand, occupy an anterior position, then the task becomes a comparatively simple one under favorable circumstances. In cases of placenta prævia this somewhat novel method of localization has been more extensively employed than in any other form, owing to the great importance of making an early diagnosis, thereby materially lessening the dangers to both mother and offspring.

While the researches of Spencer, of the University College Hospital, London, have been conducted with great care and thoroughness, and have been verified in seven of his cases by subsequent intra-uterine manual explorations, yet, withal, other investigators have no such success to report, though possessing equal skill and knowledge.

Duncan states that he has tried and always failed, while Galabin agrees with Spencer in a measure, but does not think localization can be successfully practiced invariably or as a general rule.

If we turn to Barnes in our dilemma, we find he expresses himself very clearly and unmistakably on this subject, going so far as to declare that he has "confirmed Spencer's observations, that when the placenta is situated in the upper zones and in front of the uterus, the wall is

thickened and raised above the level of the general smooth surface of the uterus." This he has confirmed by auscultation. Thus we see several unquestionably accurate observers of undoubted ability arranged on opposite sides of the question, occupying what would at first appear irreconcilable positions, but which is not really the case, for their investigations, it is but fair to assume, were carried on under radically different conditions. Spencer's cases of placenta prævia in which he was able to diagnosticate the location of the placental site occurred in women with thin abdominal parietes, which rendered manipulation much easier and permitted a thorough outlining of the uterus, while those examined by Duncan were presumably women with large adipose deposits in the abdominal walls, masking the contour of the uterus and materially interfering with the efforts directed toward placental localization. One could scarcely expect to experience Spencer's sensations "of an elastic mass, of the consistence of a wetted bath sponge, which keeps the examining fingers off the head" in obese pregnant women. Nor could one define the edge of the placenta, which is described by the same author "as conforming to the shape of the segment of a circle in which all is obscure to the touch, while outside the head or other part of the child is plainly felt."

To accomplish such a delicate procedure it is absolutely necessary that the abdominal walls shall be thin and the uterus not unduly distended by amniotic fluid. That such localization may be effected under favorable circumstances in a certain percentage of cases there appears to be no doubt.

One is scarcely prepared, however, to rely implicitly upon this method, since mistakes have already been made, and the knife carried through the placenta in the performance of a Cæsarean section when the placenta was supposed to be at some distant point from the line of incision. The existence of a placenta succenturiata should also be borne in mind in this connection. If we employ this method when about to perform an abdominal section for the release of the imprisoned fœtus, we should not fail to take the additional precautions laid down by Leopold, of Dresden, with reference to determining the site of the placenta after making the abdominal incision, in order to avoid including this vascular structure in the uterine wound.

The diagnosis as to the anterior or posterior insertion of the placenta may be made out by the following relations of the oviducts to the fundus of the uterus: "When the major portion of the uterus is anterior to the insertion of the tubes, the placenta is anterior, and *vice versa*."

Thus we have a definite rule for diagnosticating the situation of the placenta, which is less likely to mislead the operator than that by abdominal palpation.

To sum up, then, the value of abdominal palpation in locating the displaced placenta, one is justified in considering it an additional means of verifying the existence of placenta prævia; and, while characterized by clearly defined physical signs, it can only be practiced satisfactorily when the abdominal walls are thin and the uterus is not unduly distended by liquor amnii.

In Cæsarean section, or one of its modifications, we

ought not to rely upon this procedure alone, but should deem it necessary to re-enforce our opinion by observing the situation of the uterus with reference to the Fallopian tubes as laid down by Leopold.

## SOME PREVALENT ERRORS RELATING TO "EYE-STRAIN" AS A CAUSE OF NERVOUS DERANGEMENTS.

WITH ILLUSTRATIVE CASES.

BY AMBROSE L. RANNEY, A. M., M. D.

(Concluded from page 656.)

CASE VI. *Complete Nervous Prostration (of over Five Years' Duration) with Constant Pain in the Head, Inability to use the Eyes, and to walk but a Few Steps.*—Miss F., aged twenty-one years.

*Family History.*—Maternal aunt and five paternal relatives died of phthisis; two cousins had chronic chorea.

*Eye Defects.*—Patient had hyperopia (latent) of 1.25 D. and exophoria (manifest) of 2°. A latent hyperphoria of 2° was subsequently discovered.

*History of the Case.*—This young lady was brought into my office (September 29, 1886) by two assistants, who were obliged to carry her from the carriage. For several years she had been carried daily from her room to the library of her father's house, and, after reclining in a chair for a few hours, she would be again carried to her bedroom. She could manage with difficulty to walk slowly across a room. She had not been able to write, read, sew, or see her most intimate friends for five years on account of a constant pain in her head, which was rendered intolerable by any use of the eyes or excitement. Her symptoms began while at boarding school, from which she was removed to her home in a recumbent posture and by easy stages.

*Treatment and Results.*—I used static electricity upon this patient for some weeks with a slight improvement in her power of walking, but no relief to her head.

I then persuaded her to consent to a relief (by graduated tenotomies) of her abnormal eye-tension. Tenotomies were then performed upon her left superior rectus and both externi within the space of two weeks. From that date her improvement was very rapid. She was sent home a few weeks later practically cured.

A letter from her physician, received by me, says:

"Your patient is the wonder of this region. She rivals the 'Jersey Lily' in her feats of walking."

Before this patient was sent home she ascended and descended five flights of stairs daily, and averaged over a mile's walk each day without a companion to assist her.

The last report from this case was made about one year ago when the patient called to say that she "was engaged in teaching physical culture in a ladies' school." The improvement gained by eye treatment has therefore been demonstrated to be not only permanent, but progressive.

CASE VII. *Complete Nervous Prostration (of Sixteen Years' Duration), with Terrible Attacks of Neuralgia of the Stomach and Persistent Trembling of the Head, Face, and Limbs.*—Mrs. G., aged forty-two.

*Family History.*—Several blood-relatives died of phthisis; father and brother died of phthisis.

*Eye Defects.*—The patient was found to be emmetropic (when under atropine). Esophoria (manifest) of 8° existed.

*History of the Case.*—This is quite as striking a case as the

one last narrated, although of a different character. The patient had been for sixteen years a chronic invalid. She was unable to bear the least excitement. Even the companionship of her family for an evening was at times too great a strain upon her nervous system. She was at times a great sufferer from severe paroxysms of neuralgia of the stomach, and frequent attacks of alarming shortness of breath and a sense of impending suffocation would occur. I personally witnessed one of these attacks in my office, and it was entirely free from a trace even of hysteria. It was of much shorter duration than an asthmatic attack, and seemed to be due to a spasm of the larynx. She became markedly cyanotic, and suffered alarming shortness of breath.

In addition to these symptoms, this patient suffered from an uncontrollable trembling of the facial muscles and limbs when at all startled or excited. She had been for years unable to attend places of amusement or to bear physical exertion.

*Treatment and Results.*—Much to my surprise (as she had a marked phthisical history), an examination of her eyes showed no refractive error (even when under the influence of atropine). She showed, however, a very high degree of esophoria, and a partial tenotomy was performed upon both of her interni. The effect was magical. She recovered her health completely within two months, and is to-day able to endure as much as when a young girl. One of the last reports from her, some time ago, states that she had "shopped all day and attended the theatre in the evening." An old friend of the family lately alluded to the case, in my presence, as one "not of cure, but of resurrection."

Five years have now elapsed since this patient was relieved of her "eye-strain." During this period no return of her old symptoms has occurred; nor has she had to resort to drugs or doctors for relief of any physical ailment.

*CASE VIII. Nervous Prostration, with Symptoms of Melancholia, Confirmed Sleeplessness, Confusion of Mind, and Constant Headache.*—Miss B., aged forty, single.

*Family History.*—One sister was for over a year a victim to "complete nervous prostration." Father is a very nervous man.

*Eye Defects.*—Vision  $\frac{2}{3}$ , without atropine. Under atropine, a latent hypermetropia of + 0.75 s. in each eye. Patient had never used a glass for reading, but accepted + 1.50 spherical glass. Esophoria, 3° (which ultimately, under influence of prismatic glasses, exceeded 7°). Adduction, 23°. Abduction, 5°. R. sursumduction, 1° +. Left sursumduction, 2°. The adducting power later on exceeded 43°, and the abducting power fell below 3°. At no time did homonymous diplopia disclose itself (with or without a red glass).

*History of the Case.*—This lady had for some years been doing an excessive amount of mental work. Her profession required an enormous amount of reading. This had been done largely at night. Although small in stature, she had always been vigorous and had taken an unusual amount of exercise. She had always considered her eyes very strong, and was loath to believe, when she first came under my care, that her eyes could constitute a factor in her serious nervous condition. Furthermore, she was strengthened in this belief by the fact that she had not long before consulted an oculist of prominence, who had stated that he found no defect requiring treatment or glasses, and who had sent her to one of his friends (a specialist in nervous diseases) for treatment.

The "break-down in her health" began about twelve months before she came under my care. It was attended with an extreme and persistent loss of sleep, a loss of emotional control, an utter inability to read or sew (which aggravated all her symptoms), a more or less constant headache, an inability to concentrate her intellectual faculties for any length of time, and

an aggravated type of mental depression. She feared, and had every apparent reason to fear, that her professional labors were imperiled and that her mind might possibly give way. The neurologist, who endeavored to build her up by tonics, rigid diet, rest, etc., assured her (after some improvement had occurred) that he feared at first that "melancholia" might be the end of the case. At his advice, she spent the summer at the sea-shore; but, beyond a certain point, she failed to progress satisfactorily, and her headache and sleeplessness would at times be as bad as ever. Any attempt to prepare herself for her fall engagements would cause a return of her old symptoms to a very marked degree, accompanied by physical weakness, mental fatigue and depression, extreme despondency, and a lack of control over her emotions. After any attempts at study, she would frequently lie awake most of the night. This was her condition when she first came under my care.

*Treatment and Results.*—In this case a full correction of the hypermetropia was made for distance, and + 2.00 spherical glasses were given for reading, as she showed some failure of accommodation. Prisms of various strengths were employed over her distance and reading glasses for about two weeks, and 7° of latent esophoria were found to exist. This was rectified by a graduated tenotomy of one internus and the prisms were then discontinued. During this interval the patient had improved very rapidly, had become very dependent upon her spherical glasses, and become cheerful and hopeful of recovery. She had, moreover, entirely regained the normal power of sleep. During this interval she had frequently slept twelve hours without awakening and without recourse to any drug. As atropine had been used during the early part of the treatment, she had been allowed during the two weeks of treatment to use her eyes very little in reading or study. During the following two weeks two degrees more of latent esophoria disclosed itself. For the relief of this defect a prism was combined with the spherical glass worn over the eye which had not been subjected to a tenotomy.

For the past twenty months this patient has been able to fill all her engagements without any return of her bad symptoms. She has read and studied at night, attended church and places of amusement that previously she dared not attend, has accepted more work than for some years past, and has continued to sleep well and enjoy perfect health. During this interval she has taken no medicine, nor has she been restricted by me in her diet or in any other way. Her reading-glasses have been increased to + 2.50 s.

A graduated tenotomy of the internus of both eyes was eventually performed, in order to properly adjust the balance between the two eyes, and the right superior rectus was also subjected to a graduated tenotomy for a right hyperphoria that disclosed itself.

During one of her last visits this patient said: "I think I am stronger to-day and have better health than I have had for many years. I certainly do my work with less fatigue, and enjoy things that my ill-health has previously debarred me from."

In a letter received a few months ago this patient says: "I can out-eat, out-sleep, and out-walk any woman in this place."

Just as this article is going to press, the sad news of this patient's death reaches me. A relapse of her nervous symptoms occurred a few days before her death, after a very severe winter of persistent labor attended also with great care and much worry and anxiety. Moreover, an inquiry into the causes of this relapse discloses the fact that she had disobeyed my instructions and discarded her spherical glasses

for distance after her health had been apparently restored; that she had even read for hours daily without her reading-glasses; and that she had seriously overtaxed her mind and physical strength in many ways.

**CASE IX. Melancholia with Morbid Impulses, associated with Great Mental Confusion and Distress and an Obstinate Neuralgic Affection of the Prostate Gland.**—Mr. S., aged twenty-three, unmarried.

**Family History.**—The mother of the patient suffers from neuralgia and headache. The paternal grandfather had paralysis. The paternal grandmother was "extremely delicate." One brother suffers from headaches. Another brother is very excitable and of a highly nervous temperament. No case of consumption has ever occurred in any branch of the family.

**Eye Defects.**—Hyperopia (latent) of 2.50 D. Esophoria (manifest) 4°. Subsequently, 12° were elicited prior to any operative procedure.

**History of the Case.**—This patient had been under medical care for many months for a prostatic neuralgia, and had derived no benefit from local or general treatment. He developed *melancholia*, and would frequently retrace his steps for several blocks, during a stroll, in order to touch some object which he felt he should have touched when he passed it. The use of his eyes intensified his mental symptoms markedly. He also suffered from morbid fears. He had never had venereal disease.

**Treatment and Results.**—After partial tenotomies were performed upon his interni, and his hypermetropia was corrected by +1.50 spherical glasses, his recovery was very rapid and complete. He has had no abnormal mental symptoms or neuralgia of his prostate since the first operation (now nearly six years). His father, one brother, and a sister have since been examined by me, and all had very marked eye defect.

In some respects this is one of the most remarkable cases I have yet observed. The mental condition of the patient, prior to the relief of eye tension, was such as to justify the worst forebodings. Neither he nor his family had ever suspected any eye defect in spite of the fact that his "latent" hyperopia was of a very high degree (nearly 3 D.), and his "latent" esophoria was of an equally high degree. His prostatic neuralgia was of a severe and intractable type, and its cause could not be discovered; yet it disappeared at once after a free operation upon the interni.

The change in the mental condition of this patient after the relief of his eye-strain manifested itself at once in his desire to assume active employment. He immediately turned his attention to his profession (that of art), in which he soon gained an enviable fame.

**CASE X. Nervous Prostration, combined with Sleeplessness, Pain in the Head, Mental Confusion, Car-sickness, etc.**—Mr. H., aged forty-six, manufacturer, married.

**Family History.**—Both parents lived to seventy-six years. Two paternal uncles died of phthisis. No hereditary tendency to nervous diseases.

**Eye Defects.**—Vision  $\frac{2}{3}$ , without atropine. Under atropine a latent hypermetropia of +1.00 s. in each eye. Patient had never used a glass for reading. Esophoria, 5° (after using prismatic glasses for a short time, the patient showed esophoria of 13°). Adduction, 24°. Abduction, 4°+. Later on, the adduction exceeded 50°, and the abduction fell to 0. Homonymous diplopia with the red glass over one eye was usually present, and at times without the red glass.

**History of the Case.**—This patient had been a perfectly well man and had carried on a very large business up to fifteen years ago. At this time, while attending a sale in New York, he was suddenly seized with a dizziness, faintness, and a sore feeling in

his head. These symptoms lasted for three years in spite of all treatment, during which time he suffered severely from sleeplessness, extreme nervousness, and soreness in his head. He was unable to look out of a car window while traveling without great distress.

He had suffered all his life from obstinate constipation, and had taken cathartics so regularly that now any cathartic water causes intestinal hæmorrhage.

When this patient first came to me he was able, by the most careful diet, regular habits, and by retiring at eight or nine o'clock, to carry on his enormous business only with the greatest difficulty because of the following symptoms: Inability to sleep at night, which at times was very distressing and persistent; extreme nervousness after the slightest fatigue; mental depression without any cause; hot flashes up and down his spine; pain in his shoulders and across his back. His insomnia was often prolonged and very exhausting after any slight excitement or fatigue.

**Treatment and Results.**—The treatment of this patient consisted at first of the wearing of prisms to relieve the esophoria, and later on of graduated tenotomies on both internal recti. Subsequently, +0.50 s. glasses were given for constant wear, and +1.00 s. glasses for near work. The improvement in his condition was marked and continuous from the first, and he writes that he is so busy and feeling so well that he can not find time to have the slight remaining esophoria corrected. An extract from a letter received from him two months after the operation on his eyes speaks for itself. He says: "Seemingly I am all right, feeling better every day; have not had a headache for a month; appetite good and I sleep well." Over two years have now elapsed without any return of his former ill health, during which time he has constantly been engaged in active business pursuits.

**CASE XI. Complete Nervous Prostration, with One Year of Confinement in Bed and Chronic Bladder Trouble.**—Mrs. W., aged fifty-five, married.

**Family History.**—Not taken.

**Eye Defects.**—Hypermetropia, +1.75 s. Presbyopia (uses +4.50 s. for reading). Esophoria, 7°. Adduction, 23°. Abduction, 3°+. Later on she disclosed: Right hyperphoria, 3°; right sursunduction, 6°+; left sursunduction, 2°—.

**History of the Case.**—This patient is the wife of a prominent physician, and, as such, has had the benefit of the best medical talent of the State in which she resides. She had always been a delicate woman up to the time when my professional opinion of the case was asked. For a year or more before I first saw her she had been a victim to nervous prostration and confined most of the time to her bed or room. Her life had been despaired of during this interval at times, and the case seemed to present problems in diagnosis which puzzled the best medical men whom she had consulted. When she had gained sufficient strength to allow of her being moved with safety, her husband was advised to take her to a Southern climate. On her way to Florida he was advised to consult me in reference to the case, when he passed through New York.

When I first saw this patient she was in a state of extreme physical and mental depression, was unable to walk for even short distances without great fatigue, was sleepless and despondent, and was brought to my office in a carriage from a hotel not far from my residence.

**Treatment and Results.**—At the first visit prisms were given to relieve the esophoria, and in five days a graduated tenotomy was done on one internal rectus. The patient began to feel the benefit of this step from the first. The second day after the tenotomy she reported that she had walked a mile and a half—a thing which she had not done for over a year. Five days after

the first tenotomy, a second one was performed on the other internal rectus, prisms having been worn in the mean time. Two days following this the patient walked five miles, visited an art museum in the morning, and attended a theatre in the evening. In spite of the unusual fatigue and excitement, she was still sleeping well and feeling stronger than for many years. With the improvement of her general health came an entire cessation of an obstinate bladder trouble which had given her annoyance for many years, and was probably due to her weak muscular and nervous condition. The pain in the bladder, which was probably of the neuralgic type, ceased after the relief of the eye tension, and has never returned.

After an interval of four months, during which she had been comparatively well, she returned to New York to complete her treatment. A high degree of hyperphoria was found, and prisms were combined with her hypermetropic glasses to relieve it. With these glasses the patient passed eight months of almost absolute freedom from distress of any kind, when a graduated tenotomy was performed and the hyperphoria prisms removed.

At the present time she is sleeping well, is able to attend to her household duties, can walk long distances, has taken no medicine for over a year, and is regarded by her husband and friends as restored to perfect health.

**CASE XII. Facial Neuralgia, so Severe as to prompt Suicide and Uncontrollable by Drugs.**—Mr. L., aged twenty-three, single, minister of the Gospel.

*Family History.*—Father has severe headaches; one sister has severe headaches; all paternal relatives have headache or neuralgia.

*Eye Defects.*—Hypermetropia (under atropine), + 2.00 s. Esophoria, 6°. Adduction, 28°. Abduction, 2°. Right sursumduction, 2°. Left sursumduction, 2°.

The hypermetropia and most of the esophoria were latent.

*History of the Case.*—The patient began to have neuralgia ten years ago, and for the past five years the attacks have become more frequent and severe. They generally start in the left orbit and extend to both orbits, and at times are frightfully severe. They occur at intervals varying from six hard ones a year (each with four or five days of agony) to one every two or three weeks. He has comparatively slight headaches very often. Any excessive use of eyes or overwork brings on a neuralgic attack. He has suffered with quite constant pain in the back, and has had some asthenopic symptoms, smarting of eyeballs, pain after reading, etc. No drug has ever seemed to control these symptoms, and he was sent to me by his physician for advice. He came during one of his severe paroxysms of neuralgia, which had lasted for three or four days, in spite of all that his physician could do. Although hypodermic injections of morphine had been used every night, the pain returned with increased severity in the morning. So intense was his agony that he declared something must be done at once, as he feared that he could not restrain much longer his suicidal tendency.

*Treatment and Results.*—Tests were made upon his eyes as accurately as possible under the circumstances, and atropine was dropped into his eyes at once to determine his hypermetropia. He was told to protect his eyes from the light by a pair of dark glasses and return in two hours. He came in smiling at the appointed time, saying that his neuralgia had entirely disappeared. Two dioptries of hypermetropia was found, and a + 1.00 s. glass was given for constant wear. Later graduated tenotomies were done upon both internal recti for the relief of the esophoria, and a stronger glass (+ 2.00 s.) was given for reading. Since then he has had no attack of neuralgia, and has been perfectly well for two years. He occasionally, after severe eye work, has some slight symptoms of his old asthenopia.

**CASE XIII. Nervous Prostration, with Digestive Disturb-**

*ances and Great Physical Weakness.*—Mrs. W., aged forty, married, three children.

*Family History.*—Father died of softening of the brain; mother died of phthisis; one sister died of cirrhotic kidney and uræmic convulsions.

*Eye Defects.*—Hypermetropia, + 1.50 (under atropine). Esophoria, 4°. Adduction, 45°. Abduction, 4°. Right sursumduction, 2°. Left sursumduction, 2°.

*History of the Case.*—This patient had always been delicate, and had suffered some during her girlhood from sick headache and weak digestive functions. Six years previous to the examination of her eyes made by me, she had suffered from an attack of nervous prostration, with extreme physical weakness. At this time she was treated for several months by a prominent gynecologist for uterine trouble without very marked improvement in her general health. She was then placed under the care of Professor Weir Mitchell, of Philadelphia, and remained several months in his hospital undergoing the "rest treatment." For about a year her physical condition seemed to be very much improved; but at the end of that time her old symptoms returned in a very marked degree. She was then treated by static electricity for a period of several weeks without any very marked benefit. The administration of drugs and stimulants seemed to exert little if any control over her debilitated state.

At my suggestion, she consented to submit to a tenotomy for an esophoria of not very high degree.

*Treatment and Results.*—A graduated tenotomy was performed upon the left internus with very satisfactory results upon her eye tests. Within a month she had almost entirely regained her former vigor, and could walk several miles without fatigue. During the past five years she has suffered no relapse, and, in an interview lately held with her, she stated "that she had but little use for doctors, who formerly were constant visitors in her household."

**CASE XIV. Nervous Prostration, accompanied by an abnormally Large Pupil in One Eye, Insomnia, and Extreme Physical Weakness.**—Mrs. J., aged forty-five, married. Has had three children.

*Family History.*—Not taken.

*Eye Defects.*—Hypermetropia and astigmatism of + 1.50 s.  $\odot$  + 0.50 c. in each eye (under atropine). Right hyperphoria,  $\frac{1}{4}$ °. Esophoria, 0 — 1°. Adduction, 21°. Abduction, 8°. Right sursumduction, 2° +. Left sursumduction, 2°.

*History of the Case.*—For many years patient has been a delicate woman, becoming easily fatigued, and suffering more or less after fatigue from insomnia and extreme nervous debility. For the past ten or twelve years one pupil has been very much dilated. She had consulted an oculist of prominence in Montreal concerning this condition, but his treatment failed to give any permanent benefit. During the past twelve months the insomnia and nervous prostration had become very much intensified, and the patient had become so weak physically as to alarm her family. Any attempts at walking, attending places of amusement, or making ordinary social visits were followed by a marked increase in the symptoms. Her husband, a prominent physician, feared a complete physical collapse. One pupil was found to be more than double the size of the other.

*Treatment and Results.*—The treatment consisted of a full correction of the hypermetropia and astigmatism for distance by glasses, which the patient was instructed to wear constantly. Under these conditions her muscular tests seemed to be modified favorably. The patient was instructed to return home and to return for further observation after wearing the glasses for a couple of months. Even before her return there had been a marked improvement in her symptoms. Two weeks after her return the following report was made by her husband: "My

wife appears much better and more cheerful than for many years, the pupils are of equal size, appetite good, and the insomnia much relieved; is able to walk two miles without fatigue and enjoys the exercise, goes out evenings, and feels no unusual fatigue from lectures, concerts, and sermons." A report one month later says: "My wife appears to enjoy life as she has not done for many years. There has been a very slight return of her old enemy insomnia, but not to an alarming extent. She hopes to see you again in the near future."

In this case sufficient opportunity has not yet been afforded for a complete examination of the eye muscles. It is possible that there may be some lurking defect of equilibrium in addition to the error of focus. One thing, however, appears to be clearly established—*i. e.*, that her ill health and insomnia were directly dependent upon a condition of the eyes that had exhausted her vital forces and was keeping her in a state of extreme physical depression.

*CASE XV. Aggravated Type of Chronic Chorea, accompanied by Deformity, Headache, Asthenopia, and Inability to Work.*—Miss C., aged twenty-six, single.

*Family History.*—Not known.

*Eye Defects.*—Hypermetropia, + 0.75. Esophoria, 20° (mostly latent). Left hyperphoria, 3°. Adduction, 22°. Abduction, 5°. Right sursumduction, 2°. Left sursumduction, 5°.

*History of the Case.*—The patient was a poor factory girl that was sent to me by a medical friend (Dr. O'C.) in Massachusetts to see if anything could be done for her. No one who had seen her could make a diagnosis. Since her tenth year she had suffered with neuralgic headaches, asthenopia, and persistent trembling in her hands and arms. For the past four years there has been a stiffness and rigidity of the neck, accompanied by severe pain in the neck and "choking spells" when she attempts to speak or when excited. There is also marked contracture of the hands and arms.

Her appearance when she came to me was one of remarkable deformity. Her chin seemed to be held firmly in the region of the fourth button of her dress. Both upper limbs were contracted in the state of semiflexion at elbows, wrists, and fingers, and trembled excessively when she tried to use them. They could not be extended, nor could the patient make use of the hands. She had been obliged to give up work on that account. Whenever she talked her face became painfully drawn and distorted. The mouth would especially be drawn downward. Under the least excitement she would be seized with what she called "choking spells." The throat muscles would contract and interfere seriously with respiration. She had constant headache, chiefly in the forehead and occiput, and a persistent pain in the neck. No painful points existed, nor did pressure, movement, or other tests reveal the existence of organic disease of the spinal cord. Sensibility to touch, pain, and temperature was normal. Motility was unimpaired. The muscular sense was perfect. No inco-ordination existed. I considered the case one of aggravated chorea, complicated by headache and asthenopia.

*Treatment and Results.*—The muscular anomalies were satisfactorily relieved by graduated tenotomies of both internal recti and the left superior rectus. Applications of static sparks were made daily for about two months. The patient had by this time regained the use of both hands, carried her head erect, had no headaches, and little spinal pain. For a while she returned to work. The effect of hard labor brought back her "choking spells"; hence she was advised to take a year of absolute rest. She now has some asthenopia remaining and an occasional headache. Her facial contortions persist to a slight extent when she is unduly excited. I suspect that some latent hyperphoria exists still, and that further operative work on

the eye muscles will be demanded before the patient recovers completely.

*CASE XVI. Constant Headache for Sixteen Years, associated with Nervous Prostration that kept her in Bed for Five Months.*—Mrs. A., wife of a physician, aged thirty-three. Has had two children.

*Family History.*—Mother has headache. One sister has headache. Two sisters have poor eyes. One paternal aunt died of phthisis.

*Eye Defects.*—At the first examination the patient showed the following condition: O. D. + 0.50 s. C + 0.50 c. axis, 90°. O. S. + 0.50 s. Right hyperphoria, 2°. Exophoria, 1/3°. Adduction, 37°. Abduction, 10°. Right sursumduction, 8°. Left sursumduction, 4°. Later, under atropine, the refractive condition was slightly modified—*i. e.*, O. D. + 1.00 s. C + 0.75 c. axis, 115°. O. S. + 1.50 s.

Glasses were ordered for constant wear as follows: O. D. + 0.50 s. C + 0.75 c. axis, 115. O. S. + 1.00 s.

After wearing the glasses for three days there was no apparent muscular defect, the hyperphoria having disappeared. Adduction, 39°. Abduction, 8°. Right sursumduction, 6°. Left sursumduction, 5°. No hyperphoria. No exophoria.

*History of the Case.*—The patient began to have headache at seventeen years of age. About eight years ago she began to have more severe headache, which now has become constant, with exacerbations about every two weeks and also during menstruation. About five years ago she picked out a pair of glasses (+ 0.50 s.) for herself which helped her somewhat at first. She had been under the care of a prominent gynecologist for retroversion, but without improvement in her headache. The pain is in the left temporal region, running both backward and forward. For five months she was confined to her bed with headache, and her husband (a physician) thought she had organic trouble. She has tried all drugs, electricity, etc., without benefit.

For years she has only been able to walk short distances with the aid of her husband's arm.

*Treatment and Results.*—The treatment consisted simply in ordering the glasses for constant wear to correct her error of focus.

The result of wearing the glasses was almost magical. Within a week she reported that she had walked four miles, was up till 2 A. M. at an entertainment, and had had no headache; that she felt better than for nine years.

In a letter received from her husband three months later, he says: "I am very glad to say to you that Mrs. A. has improved very much physically and mentally since you fitted her with glasses. She has not had a particle of the old headache, with but one exception. The time I speak of was at her menstrual epoch, and then but slight and only for a short time."

*CASE XVII. Chronic Chorea followed by a Loss of Power in both Legs and the Right Arm.*—Miss S., female, aged ten. A large child for her age.

*Family History.*—Mother is perfectly well. Father has had some eye trouble. One cousin on maternal side had epilepsy. One maternal aunt has nervous prostration. Paternal grandmother has nervous prostration. Considerable phthisis in the father's family.

*Eye Defects.*—Latent hypermetropia, + 1.00 s. Esophoria, 8°. Adduction, 38°. Abduction, 2°. Right sursumduction, 2°. Left sursumduction, 2°.

*History of the Case.*—The patient has had several severe sicknesses from acute diseases.

Eight months ago it was noticed that she could not keep her hands still and was constantly knocking things over. This kept growing worse until, six weeks before she came to me, she lost

all use of the right hand. Her ankles, which had been weak for some time, turned over so badly that she occasionally fell down. At times her speech was badly affected, and her words often ran together so as to be almost unintelligible. When she reads, the letters blur badly and her eyes become very much inflamed. Her eyes had troubled her for some time before any choreic symptoms were noticed. One eminent neurologist of this city had seen the patient and pronounced the case as one of organic brain disease.

*Treatment and Results.*—The treatment consisted in giving 2° of prism, base out, over each eye for constant wear, and later in graduated tenotomies of both internal recti.

The improvement in the choreic symptoms began almost as soon as the prisms were put on. At the end of the first week her mother reported that she could dress herself much better than formerly; that her right hand rested quietly in her own when walking, whereas it used to be impossible to hold it on account of the twitching. She also began to use her right hand for the first time to denote the position of candles while being tested.

The patient now, four months after treatment was begun, writes and sews with her right hand, walks perfectly well, without turning of the ankles, and has no choreic symptoms whatever. The power in her right arm has been fully regained. The parents state that "she is as well as she ever was," and express the greatest gratitude because of her restoration to health.

CASE XVIII. *Constant Headache, suspected to be a Symptom of Tubercular Meningitis.*—Miss B., female, aged ten; a large child for her age.

*Family History.*—Father and mother both had headaches when young. Several cases of phthisis on maternal side. Patient has three sisters and one brother, all healthy.

*Eye Defects.*—At the first examination the patient showed a myopic astigmatism (− 0.75 c. axis 180°) in both eyes. Later, under atropine, there was found hypermetropia (+ 0.75 s.) and hypermetropic astigmatism (+ 0.75 c., axis 90°) in both eyes.

Her muscular condition, with her refraction corrected, was: Esophoria, 2°; no hyperphoria; adduction, 36°; abduction, 7°; right sursumduction, 2°; left sursumduction, 2°. One eye shows a decided tendency toward convergent squint.

*History of Case.*—In August, 1890, this little patient began to suffer with severe headache, which soon became almost constant. She was treated for malaria and other diseases by drugs, but with no improvement in her head. She was taken by the family physician to two prominent oculists in this city for examination, and both prescribed astigmatic glasses, which gave slight but temporary relief. As the headache again returned with great severity, the glasses were taken off by one of the oculists, and her mother was told by him "that the child probably had tubercular meningitis."

When she was brought to me the headache was almost constant, and so severe at times that she could neither eat nor sleep, and was steadily losing in weight. Three years ago she had a fall on her head, and had slight evidence of cerebral concussion. She has suffered with severe nose-bleed, especially when her headache is severe.

*Treatment and Results.*—Almost a full correction of her refractive error was given for constant wear—*i. e.*, + 0.50 s. ◯ + 0.75 c., axis 90°; and one degree of prism, base out, was added over each eye to correct the esophoria.

The patient reports that she has only had one slight headache since she put on the glasses four months ago. Her mother says that she "has never seen her child so exuberant in spirits, and she has never been so well since she was first taken ill in

August, 1890. She has no pain, her appetite is good, and she is perfectly well."

The clinical history and treatment of the preceding cases have been given with as full detail as a brochure will admit of; yet I have deemed it wise also to tabulate the more important points in order that the reader may be able to contrast them and note the details of each case.

If by the histories of these cases the fact is not established beyond cavil that "eye-strain" was a cause of the symptoms reported, and that its correction brought about a marked amelioration of the symptoms (if not a cure), then I shall lose faith in the value of evidence to medical minds in a scientific medical inquiry.

Personally, as a neurologist, I meet in my office (as do others in the same field) two types of cases:

(a) Those who have *organic brain* or *spinal-cord diseases*, and to whom little hope of eventual recovery can be honestly extended. Rest from care, massage, electrical treatment, diet, exercise, and drugs may prolong life and decrease suffering in these cases; but nothing can restore to them perfect health, because destructive processes in the nerve-structures have permanently impaired some part of the nervous mechanism.

(b) The second type of cases encountered comprises those whose sufferings may be equally acute (if not more so) as those of the former class; but in whom *no positive evidence of organic disease can be discovered* by any step known to medical science.

Among the latter class we meet hundreds where we encounter one of the former. We are appealed to by the victims of chronic or periodical headaches, neuralgias, sleeplessness, nervous prostration (with its endless variety of symptoms), St. Vitus's dance, some cases of epilepsy, and many of deranged mental functions, for relief that drugs, electricity, massage, etc., have failed to give.

It is absurd for any one to argue that in such cases as those reported in this brochure the recognized therapeutical agents have probably been injudiciously administered by physicians in attendance; or that, on the other hand, the existence of some organic disease must account for the persistency of the symptoms. It is begging the question for any medical man to assert that organic disease exists simply because drugs fail to arrest symptoms.

Case No. I, reported in this article, demonstrates most positively, I think, that the most serious prognosis was apparently justified by the symptoms; yet they were in this case arrested at once through a simple surgical step. How many more cases of a similar character may exist to-day with the exciting cause unrecognized? How many may have gone to their graves with the cause undetermined?

So it is, only perhaps to a somewhat less startling degree, with other cases reported in this paper. They all point with the strongest emphasis to the importance of *investigating the eyes and eye muscles of every patient with chronic functional nervous affections.*

Some of these cases had been examined by oculists who failed to detect the eye defects that existed; hence it is fair

to presume that the latest methods of examination for defective equilibrium in the eye muscles were not employed by the oculists in question.

In bringing this brochure to a close, I would advance the following conclusions as demonstrated by the facts here reported.

Case.	Sex.	Age.	Symptoms.	Duration.	Former treatment.	Previous diagnoses.	EYE TESTS.		Eyc treatment.	Results.
							Refractive errors.	Muscular errors.		
1	Male.	41	Complete mental and physical collapse. Insomnia. Severe neuralgic attacks.	1 year. 6 months. 30 years.	Medicinal, massage, water treatment, electricity, diet, etc.	Organic cerebral softening (by several physicians).	O. D. } +0.50 s. } +0.75 c., ax. 90° O. S. } +1.25 s. } +0.50 c., ax. 90°	Left hyperphoria, 4°. Esophoria, 7°.	Spherical and cylindrical glasses. Graduated tenotomy of left sup. rectus. Graduated tenotomy of right internal rectus.	A practical cure. Patient still has some headache, but has entirely regained his mind and is able to resume control of his finances. The insomnia and neuralgia have ceased.
2	Male.	19	Epilepsy. Epileptic mania.	5 years. 2 years.	Enormous doses of bromides, with chloral, arsenic, and other drugs, without any relief.	Epileptic mania (papers were drawn to commit the patient to an asylum as an incurable).	No defect in either eye, even when under full effects of atropine.	Esophoria (mostly latent). Right hyperphoria (entirely latent at first visit).	Wearing of prismatic glasses. Graduated tenotomy of right sup. rectus. Graduated tenotomy of each internus.	One attack during past two years. Patient has taken no drugs for nearly four years, and has entirely regained his mental and physical strength. Both had been seriously affected by the bromides in the past.
3	Male.	43	Epilepsy.	24 years.	Enormous doses of bromides for many years without benefit, cerebral galvanism, massage.	Epilepsy (from early masturbation and later sexual excesses).	Hypermetropia. O. D. } +2.50 s. O. S. } +2.50 s. (Entirely latent, and therefore unsuspected by the patient.)	Esophoria (mostly latent).	Full correction of the hypermetropia by spherical glasses. Graduated tenotomies upon both interni.	An apparent cure. Patient taken no drugs and has had no seizures for nearly six years.
4	Male.	35	Epilepsy	Unknown.	Unknown.	Epilepsy.	O. D. } +1.50 s. } -2.75 c., ax. 180° O. S. } +1.50 s. } -2.75 c., ax. 180°	Esophoria, 4°.	Spherical and cylindrical glasses only.	An apparent cure. Patient has not had a fit since April, 1890.
5	Male.	26	Epilepsy. An approach to mental imbecility from bromides.	6 years. Since bromides were begun.	Bromides in very large doses, causing serious mental sluggishness and apathy.	Epilepsy. This patient had seen many physicians of eminence and none had disagreed on the diagnosis.	O. D. } +0.50 c., ax. 90° O. S. } +4.00 c., ax. 180° } -1.00 c., ax. 90°	Esophoria, 11°.	Correction by spherical and cylindrical glasses. Graduated tenotomies upon both interni.	Patient has not had a fit for eighteen months. Has taken no drugs. Has regained his intellect and gone into business pursuits. Travels without an attendant and weighs eighteen pounds more than when eye treatment was begun.
6	Female.	21	Complete nervous prostration. Constant pain in head. Inability to walk.	5 years. 5 years. 5 years.	Electricity, massage, drugs of all kinds.	Organic spinal and brain disease (by several physicians).	O. D. +1.25 s. Hypermetropia.	Left hyperphoria, 2°. Exophoria, 2°.	Spherical glasses. Graduated tenotomies upon both externi and left superior rectus.	Patient is now teaching gymnastics in a ladies' school.
7	Female.	42	Nervous prostration. Trembling of face and limbs. Neuralgic attacks of a violent form.	10 years. 8 years. 16 years.	Electricity, massage, drugs of all kinds, ertine treatment.	Organic disease had been strongly suspected. This patient had employed physicians by the score and had received no benefits from drugs.	Emmetropia. (No defect, even under atropine.)	Esophoria, 3°. (A much higher degree of latent esophoria disclosed itself later).	Graduated tenotomies upon both interni.	This patient had never suspected any eye trouble; but made a perfect recovery within a month after the last tenotomy was performed. Five years have elapsed without a return of a single symptom. For over sixteen years she had been a hopeless invalid.
8	Female.	42	Great despondency. Confusion of mind and thought. Loss of emotional control. Confirmed sleeplessness. Constant headache.	1 year. 1 year. 1 year. 1 year. 1 year.	Had consulted an oculist who "found nothing wrong in the eyes." Had been under care of a specialist who prescribed drugs, electricity, and restricted diet, with only partial and temporary benefit. Had never used glasses, even for reading or sewing.	Organic brain disease had been suspected. One physician "feared the approach of melancholia." Undoubted symptoms of insanity had appeared at times.	Hypermetropia. O. D. +0.75 s. O. S. +1.25 s. (Under atropine.) Prosyopia. Spherical glasses (+2.50) tolerated well for reading, sewing, etc.	Esophoria, 7°. Right hyperphoria, 2°.	Spherical glasses for distance. Strong reading glasses. Graduated tenotomies upon both interni and right superior rectus muscle.	This patient was enabled to resume her profession, and was restored to health without the use of drugs until within a week of her death. The full history of this case is of special interest.
9	Male.	23	Melancholia. Morbid impulses. Severe neuralgia (of bladder and prostate gland).	1 year. 1 year. 8 months.	This patient had been treated for months by a specialist for prostatic disease. He had also taken drugs of all kinds for his mental condition.	Cerebral congestion. Organic brain disease had been suspected.	Hypermetropia. O. D. +2.50 s. O. S. +2.50 s. (Entirely latent and unsuspected by patient.)	Esophoria, 12°.	Spherical glasses for constant wear. Graduated tenotomies upon both interni.	Complete cure. The patient is restored to mental and physical health, and has resumed his profession. All neuralgic attacks have ceased for past five years.
10	Male.	46	Nervous prostration. Sleeplessness. Pain in head.	15 years. 15 years. 15 years.	This patient had been under constant medical care. Drugs gave no benefits or relief.	Cerebral congestion. Excessive business cares.	Hypermetropia. O. D. +1.00 s. O. S. +1.00 s.	Esophoria, 13°.	Graduated tenotomies upon both interni.	Complete recovery. During the past two years this patient has had no return of his former symptoms.

Case.	Sex.	Age.	Symptoms.	Duration.	Former treatment.	Previous diagnoses.	EYE TESTS.		Eye treatment.	Results.
							Refractive errors.	Muscular errors.		
11	Female.	45	Complete nervous prostration. Chronic bladder trouble. Chronic sleeplessness.	1 year. 5 years. 1 year.	Patient had been confined in bed for about one year from nervous collapse. Drugs of all kinds had been administered without permanent benefit. Uterine treatment had accomplished nothing.	Some obscure form of abdominal disease had been suspected by the many physicians who had seen her in consultation.	Hypermetropia. O. D. +1.75. O. S. +1.75. Presbyopia. +4.50 s. needed for reading or sewing.	Right hyperphoria, 3°. Esophoria, 7°.	Spherical glasses for distance, and stronger ones for reading or sewing. Graduated tenotomies upon both internal recti and the right superior rectus muscle.	This patient has been able to walk for miles and to take full charge of her house since the tenotomies were performed (two years and a half ago). She has taken no drugs, sleeps well, and is apparently restored to perfect health.
12	Male.	23	Chronic neuralgia. Asthenopia. Headaches.	10 years. 5 years. 10 years.	Drugs of all kinds without beneficial results. Patient had contemplated suicide.	Some local disease was suspected as the exciting cause of the neuralgic paroxysms.	Hypermetropia. O. D. +2.00 s. O. S. +2.00 s.	Esophoria, 6°.	Spherical glasses for distance, and stronger ones for reading. Graduated tenotomies upon both internal recti muscles.	Complete cure. (No neuralgia for past two years.)
13	Female.	40	Nervous prostration. Confirmed digestive troubles. Inability to walk or endure fatigues.	6 years. Most of her life. 6 years.	Uterine treatment for years. Drugs of all kinds. "Rest cure" (for 3 consecutive months). Electricity for months. Massage.	The uterine trouble was always supposed to be the chief cause of the physical weakness.	Hypermetropia. O. D. +1.50 s. O. S. +1.50 s.	Esophoria, 4°.	Spherical glasses for reading, sewing, etc. Graduated tenotomy upon the left internal rectus muscle.	Complete cure for past six years. This patient can walk for miles, and her digestive functions are perfect.
14	Female.	45	Nervous prostration. Abnormally large pupil in one eye. Confirmed sleeplessness.	Several years. 12 years. 1 year.	Had taken drugs of all kinds. Had consulted a prominent oculist without benefit. The wife of a prominent medical lecturer and practitioner.	The diagnosis in this case had been very obscure to all that had been called to examine this patient	Hypermetropia. Astigmatism. O. D. +0.50 s. C. +0.50 c., ax. 75° O. S. +1.50 s. C. +0.50 c., ax. 105°	Apparent orthophoria.	Spherical and cylindrical glasses for constant wear were alone prescribed.	A very rapid recovery of strength, and a return of the pupils to equal size. Almost complete relief of the insomnia.
15	Female.	26	Chronic chorea. Aggravated deformity of head and limbs. Headache. Asthenopia.	16 years. 4 years. 16 years. 16 years.	This patient had been seen by many physicians. Drugs and electricity had accomplished nothing.	Organic spinal disease had been suspected.	Hypermetropia. O. D. +0.75 s. O. S. +0.75 s.	Esophoria, 20° (mostly latent). Left hyperphoria, 3°.	Graduated tenotomies upon both interni and left superior rectus muscle.	Relief of the deformity of the head and neck, and marked amelioration of the other symptoms. The patient was enabled to return to her former position, and has since been self-supporting.
16	Female.	33	Constant headache. Nervous prostration.	16 years. 5 months.	Has been under uterine treatment without relief. Has taken drugs, electricity, massage, etc., without benefit.	Organic disease had been suspected.	Hypermetropia. Astigmatism. O. D. +1.00 s. O. S. +0.75 c., ax. 115° O. S. +1.50 s.	Orthophoria.	Spherical and cylindrical glasses to fully correct all latent errors of refraction.	Rapid and complete cure. The patient walked four miles in less than a week. No return of headache for past two years.
17	Female.	10	Chronic chorea. Loss of power in right arm and both legs.	8 months. 6 weeks.	Drugs of all kinds.	Organic brain disease (by an eminent neurologist of New York)	Hypermetropia. O. D. +1.00 s. O. S. +1.00 s.	Esophoria, 8°.	Graduated tenotomies upon both interni. Prismatic glasses for some months prior to tenotomies.	Complete restoration of power to the limbs, and disappearance of all choreic movements.
18	Female.	10	Constant headache (very severe). Steady decrease in weight.	14 months. 14 months.	Drugs. Rest from school. Country air. Had been examined by two noted oculists.	One oculist told the parents that the "child probably had tubercular meningitis."	Hypermetropia. Astigmatism. O. D. +0.75 s. O. S. +0.75 c., ax. 90°	Esophoria, 2°.	Cylindrical and spherical glasses, combined with prisms for the esophoria.	Immediate cessation of all headache, that has not since returned. This patient is now perfectly well.

CONCLUSIONS.

1. "Eye-strain" may be said to exist *whenever errors of refraction or a maladjustment of the tendons that move the eyeballs in unison with each other can be demonstrated.* The extent and type of the errors found modify in each individual the relative amount of this strain and its probable significance as a factor in influencing the physical state.

2. The *determination of refraction without the use of atropine is unscientific,* and usually unreliable as a matter of record.

3. The variety and extent of errors of adjustment of the ocular tendons *can not be positively determined without a phorometer and the judicious use of prisms.* Neither is one

test, or even a series of tests, necessarily conclusive in some complex ocular problems.

4. The tests for the detection of maladjustment of ocular tendons are of *little or no value until the errors of refraction are detected and rectified* by proper glasses—accurately centered to the pupils.

5. The methods employed in public institutions (to save time and trouble) of determining refraction by an ophthalmoscope are unreliable and unscientific. *Javal's instrument is a better one;* but even this instrument ought to be used with a pupil widely dilated with atropine, and its results confirmed by other tests commonly employed to detect astigmatism.

6. The condemnation of any method by those who have not perfected themselves by personal practice with its details has no bearing upon a scientific inquiry.

7. The conditions that cause eye-strain (see conclusion 1) are usually congenital; hence they are seldom the result of any debilitated physical state.

8. "Eye-strain" is a frequent cause and perhaps the most important of all factors that tend to produce functional nervous diseases. This is demonstrated, I think, quite clearly by the cases reported, which embrace examples of most of the functional nervous affections in an aggravated form.

9. Statistics drawn from the records of public charitable institutions, where large numbers of patients are examined, are of little or no value in this particular inquiry. The tests and records are usually made in such institutions with haste and without proper regard to the methods that should be employed to make them more than approximately reliable. It is almost impossible to do accurate work under these conditions. Few public institutions possess the necessary apparatus, or use it if they have it.

10. I have yet to encounter a case where typical sick headaches occur that is not associated with "eye-strain." Latent hypermetropia exists to a marked degree in most subjects that are so afflicted, and esophoria is also frequently present.

11. The table which accompanies this article shows at a glance (what, in my experience, is the rule) that esophoria, hyperphoria, and hypermetropia are the most common abnormal eye conditions encountered in cases of neuralgia, headache, epilepsy, chorea, insanity, nervous prostration, and other severe types of chronic nervous disturbances. Exophoria and myopia are far less frequently encountered among these subjects.

12. Hypermetropia is much less frequently corrected among sufferers than myopia, although it is by far the more important eye defect in nervous diseases. The condition of hypermetropia may exist to a very high degree and be totally unsuspected by the patient. It may even be undetected by an oculist until atropine is employed to fully dilate the pupil and arrest the action of the focusing muscle (ciliary action).

13. A typical "cross-eye," although a deformity, is not, as a rule, the cause of serious nervous disturbance. These subjects have habitual "double vision" in consequence of their eye defect; hence, since no effort on the part of the patient can result in the fusion of the images of the two eyes, the patient learns early to suppress one visual image and to use only one eye at a time for visual purposes. For that reason, "eye-strain" is practically absent in extremely "cross-eyed" subjects.

14. Respecting the relationship of chorea to anomalies of the visual apparatus, I would draw the following conclusions:

a. Choreic subjects belong to one of two classes: (1) Those who tend to get well under almost any treatment or even without treatment, and (2) those who fail to get relief from any medicinal aid. The latter tend to run a chronic course, usually one of unfavorable progression.

b. The chronic form of chorea is one of the most serious and hopeless of nervous maladies. It is not infrequently associated with epilepsy or with mental impairment.

c. Both forms of chorea are based, as a rule, upon a well-marked neuropathic or tubercular predisposition.

d. The pathology of chorea is not known. No one has ever proved that it was a "constitutional disease," in the sense that an organic lesion was essential to its development.

15. The accurate fitting of frames to the face of each patient is a factor too often overlooked in attempts to relieve "eye-strain." A glass not accurately centered to the pupil may cause great distress, and frames that allow the axis of either glass to be tilted so that they sit at an angle before one or both eyes cause a strain in themselves, as the glasses then act like prisms before the eyes.

I have seen many instances where serious nervous disturbances have been modified almost immediately by simply changing the frames of the glasses that the patient had previously worn.

156 MADISON AVENUE.

#### MANAGEMENT OF THE NEW-BORN INFANT.\*

BY FLOYD M. CRANDALL, M. D.,

NEW YORK.

THE subject of this paper, lying as it does on the borderline between two departments of medicine—obstetrics and pædiatrics—has, as a natural result, received very inadequate attention. Most works on diseases of children contain no reference whatever to the management of the healthy newborn infant, and but slight attention is given to the numerous ailments and disorders of the first two weeks of life. Works on obstetrics, while they contain numerous scattered references to the infant, are chiefly concerned with the mother and rarely give connected instructions upon the important matters pertaining to the child. It is a frequent complaint that mothers and nurses follow the physician's directions regarding medicine, but pay no heed to his instructions concerning diet and the details of management. This is usually the doctor's own fault, for while he gives definite orders regarding treatment, his instructions regarding management are vague and indefinite, chiefly because his ideas are vague and indefinite. Clear-cut and definite directions upon any subject will usually be followed faithfully, especially if written.

As my professional experience has been to a considerable degree in these two departments, my attention has been frequently called to the improper treatment which the infant frequently receives. I have ventured to present it to-night, therefore, not because there is anything new or remarkable to offer, but because it is a subject of interest to the general practitioner which is seldom discussed in a connected and compact manner. It has seemed almost impossible for writers who have attempted the subject to

\* Read before the Society of the Alumni of Bellevue Hospital, February 3, 1892.

confine themselves to their text. In an article upon the new-born infant, recently published in a series of monographs, the writer passes from tying the cord to dentition, both temporary and permanent. This paper is restricted to conditions arising during the first fifteen or twenty days of life.

During the progress of labor the interests of the child are to be considered in various ways. General discussion on the use of the forceps is not within the province of this paper. To the child I am convinced that they are less dangerous than ergot. Ergot babies are blue babies, and the more the ergot the bluer the baby. A physician, living in a locality where public opinion is intolerant of instruments, who has had considerable experience with ergot, recently expressed to me very strongly the same opinion. From a study of a considerable number of birth-palsies I have been led to the belief that forceps are a less potent factor in their production than prolonged and tedious labor. There seems to me little room for doubt that instruments in the hands of a reasonably judicious man are less dangerous to the child than the continued compression of the head attendant upon labor prolonged in the second stage, or a prolonged first stage, when the waters have broken.

The vaginal douche before delivery is also a matter of importance as regards the child. With ordinary precautions it can do no harm, and may save much trouble. A vaginal discharge, even when apparently simple, may be the cause of ophthalmia, and is sometimes the source of serious general septic infection of the child. The douche should certainly not be omitted when the slightest purulent discharge is present, and should be repeated at intervals sufficiently short to insure cleanliness of the parturient canal.

Asphyxia may be the result of premature separation of the placenta, certain morbid conditions of the mother, weakness of the child sufficient to prevent respiratory action and expansion of the lungs, or obstruction of the respiratory passages by some foreign substance, but the most common cause is doubtless long-continued compression of the head. When not due to actual organic lesion of the brain it appears under two general forms. In one the head is blue and turgid, the face puffed and swollen, the lips are livid, while the body is of a lighter hue. The heart may usually be heard beating, and sometimes can be felt by the hand, the rate being usually slow. Under these conditions the possibility of resuscitation is good. If, on the other hand, the surface is pale and shrunken, the limbs flaccid, and the muscles without tone, the prognosis is bad, and whatever is done must be done quickly. Fortunately, the infant tolerates the condition of cyanosis better than the adult, probably from the comparatively low grade of oxidation to which the blood has been accustomed. As long as cardiac pulsations can be detected by auscultation, efforts at resuscitation should not be abandoned. If the child fails to breathe, the throat should be cleared of mucus by the finger, when one or two slaps upon the back or a sprinkling of cold water are usually sufficient to induce respiratory movements. If this fails, the application of alcohol or whisky to the chest

may prove efficacious. If the child still fails to breathe, inflation of the chest by means of a catheter passed through the glottis is often effectual, and for this purpose the Mercier catheter, with its peculiar elbow, is admirably adapted. We are told that attempts to force air into the lungs without elevation of the epiglottis are futile. Practically, I have had better results by forcibly blowing into the mouth of the child, a thin handkerchief being spread over the lips and the nostrils being compressed, than by Sylvester's method of artificial respiration. Perhaps the air all goes into the stomach, but I certainly know that I have seen respiratory movements induced by the procedure. As I have thrown the head well back, the œsophagus may have been sufficiently compressed between the vertebrae and larynx to prevent the entrance of air into the stomach. The child is apt to be so relaxed and flabby that little or no expansion of the chest is gained by Sylvester's method. Marked results sometimes follow the alternate dipping of the child into hot and cold water, as described by Playfair. It is a great mistake to allow the child to lie unprotected from cold. If it is evident that prolonged efforts are to be required, the child should be placed in a bath of warm water and not removed until respiration is established. This maintenance of the vital heat, it seems to me, is a matter of the utmost importance.

I have recently in a single case had a satisfactory result by the method of inflation described last year by Dr. Forrest. The child is placed in hot water and the head is thrown backward so as to throw the vertebrae of the neck forward. The hands are drawn up and pressed against the sides. This compresses the œsophagus between the larynx and vertebrae, and at the same time the mouth opens. The physician then strongly blows into the mouth of the child. The head is then thrown forward and the arms are brought down to the side so as to compress the air from the lungs. The point of importance is the compression of the œsophagus, preventing the entrance of air into the stomach.

Under normal conditions, when the child is born the eyes should receive the first attention. They should be carefully washed with a boric-acid solution before the cord is tied. I have never abandoned the old Emergency Hospital practice in this regard, and have never regretted the slight trouble it costs. It is very easy to order a saturated solution of boric acid, or to carry a little powder from which a solution may be quickly made. It is placed in a cup with a small, soft handkerchief, or a few squares of cloth ready for use.

I now rarely use nitrate of silver. According to Credé's method, a drop of a two-per-cent. solution (ten grains to the ounce) is placed in each eye. The reaction is often severe and, as a routine practice, seems to me entirely unnecessary. In case of purulent vaginal discharge it should invariably be employed, but, as a rule, thorough use of the boric solution is sufficient. The satisfaction of having no ophthalmia to deal with would repay much more trouble than these simple measures cost. The necessity for prompt action when ophthalmia is present, and the method of treatment by silver, cold, and perfect cleanliness, is too well known to require comment.

While there is no necessity for undue haste in tying the cord, it is best to do so as soon as the eyes have been bathed. I have tried different lengths and have found a cord of about an inch and a half most satisfactory. I have also tried various forms of dressing, and have found nothing more satisfactory than the time-honored square of soft cloth cut in the center. Charred cloth, although recently commended by a high authority, in this day of antiseptics is a relic of barbarism. Cotton is better than linen, and should be rendered antiseptic by being soaked in a sublimate solution and dried. As the fluid of the cord exudes rapidly during the first few days, the dressing becomes damp, and should be changed every day. There is no need whatever of odor about the cord, and there will be none if it is kept clean and dry with powder, which for this purpose should contain salicylic acid. It will leave a better navel surface and will fall quicker, the average time being about the fifth day. The scar should be healed by the tenth day. With wet dressings, falling of the cord is usually later. The same is true with oily dressings, which some prefer. They are less cleanly and permit more odor.

The scar should be kept clean, and be dressed with the same powder. If a so-called umbilical polypus forms, it should be removed by means of a tight ligature. Smaller masses of granulation should be cut down with nitrate of silver and dressed antiseptically. The antiseptic care of the umbilicus can not be too strongly insisted upon. Simple moist antiseptic dressings or, still better, antiseptic powders are preferable to ointments.

The various diseases at and about the umbilicus are extremely rare when proper antiseptic treatment has been carried out. They require active surgical treatment and are beyond the scope of this paper. Tetanus neonatorum, now known to be of microbic origin, is, happily, a rare disease in this city, and will probably never occur under strict antiseptic management of the umbilicus and of abrasions upon the child's body.

The radical changes which take place at birth should not be forgotten. The child is suddenly transferred from an unvarying temperature of 100° F., where surface evaporation is impossible, to a varying temperature twenty degrees to forty degrees lower, where evaporation from surface and lungs is constant, and where it must rely wholly upon heat generated within its own body. It is wonderful that such a change is as well tolerated as it is. We should certainly do nothing to reduce the vital forces, and should take every precaution for preserving the vital heat. The child should be removed from exposure as soon as possible and wrapped in a warm flannel blanket.

It is best not to put the baby into the bath-tub at first. The *vernix caseosa* is soluble in fat, which should be employed for its removal. An animal oil is best, and every nurse will tell you that lard removes it more readily than any other substance. After thoroughly anointing every portion of the body, especially the folds and creases, the oil should be wiped away with a soft towel, a sponge, with a little warm water and soap, being used in places. On the following day, when the child has become more accustomed to its new surroundings, a more thorough bath may be

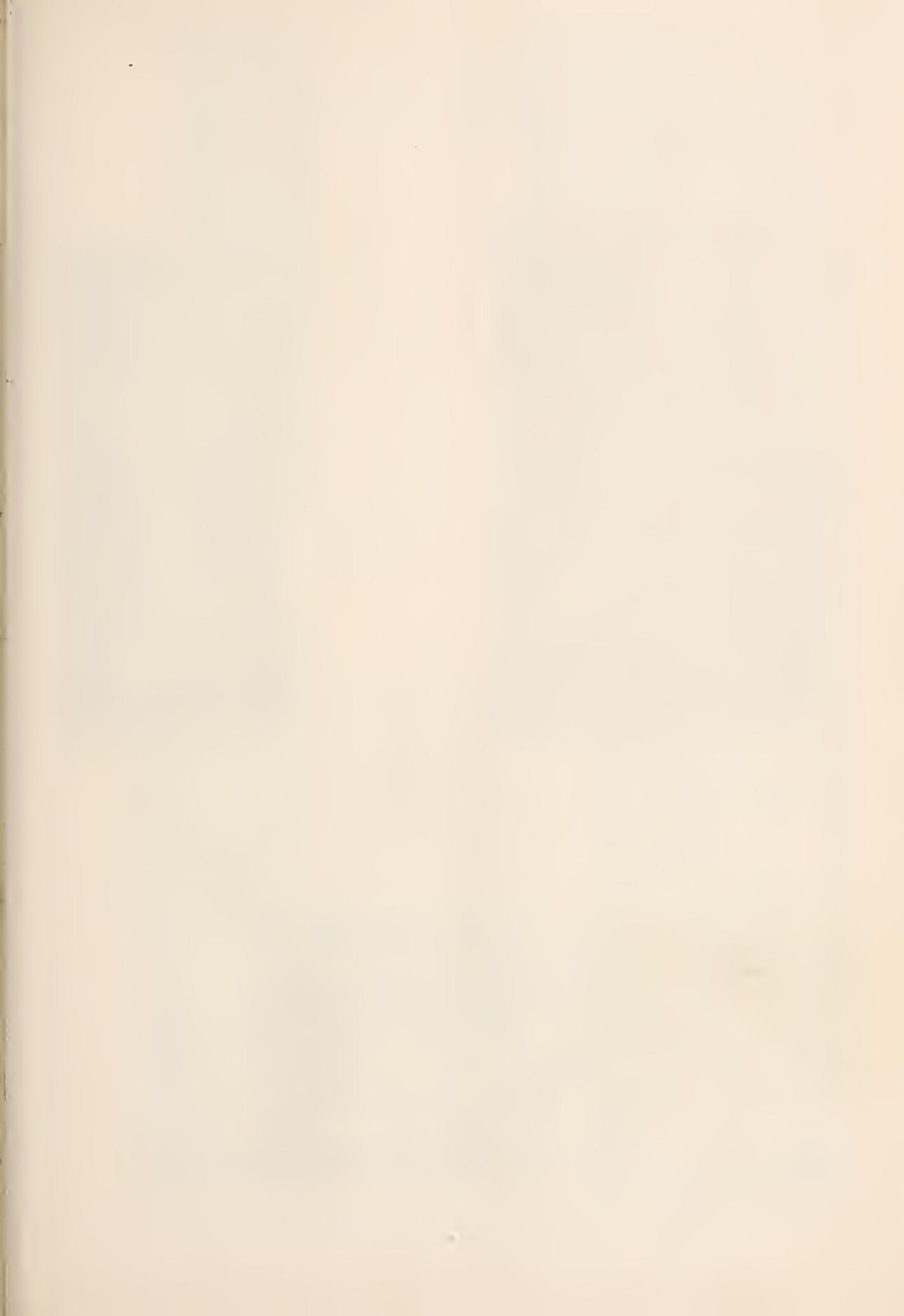
given, but it is best not to use the tub until the cord has fallen.

Absolute cleanliness throughout the whole period of infancy is of the most vital importance to the well-being of the child. The daily bath should be omitted only for the most serious reasons. The use of powder is a necessity, but is often overdone, the nurse depending upon it rather than upon care in drying the surface. Some powders are irritating and cause eruptions. Rice powder does nicely; starch is often improperly prepared; lycopodium is all that some skins will bear, and it may be advantageously added to most powders. If there is excoriation, two per cent. of salicylic acid or five per cent. of boric acid may be added. Salicylic acid is especially adapted to such use, and in some conditions, as for the cord, may be employed in the strength of twenty per cent. to eighty per cent. of starch. For ordinary purposes the compound talcum powder has been the most satisfactory preparation I have used.

The napkins should be changed as soon as soiled, even if it is every hour, and the child should not only be dried, but washed with water. Some nurses dry the napkins and use again without washing. Erythema is almost certain to follow such practice. In treating this disorder, it is best to question upon these points, and also as to the method of washing the napkins. If washed with strong soda or harsh soaps, without thorough rinsing, they will irritate the skin when wet and prolong the disorder, which is at best rebellious to treatment.

The parts should be very gently washed with water and perhaps a little borax, but no soap. If mild, a dusting powder containing salicylic acid or oxide of zinc may be used. If there is excoriation or much discharge, the powder may form into little masses and irritate. On the whole, I have obtained the best results from an oily preparation, which may not only be curative, but protects from discharges. The following, proposed by Fox, has been very satisfactory: ℞ Acidi salicylici, gr. x; bismuthi subnitrat̄is, ʒ ij; corn starch, ʒ jss.; ung. aq. rosæ, ad ʒ j. M. In some cases boric acid, or zinc oxide, in ointment with resorcin, seems to be more efficacious.

Before the child is dressed it should be inspected by the physician, and any birth mark or abnormality had better be reported to the father or some friend. Nurses are inclined to make capital upon such matters at the expense of the physician, using a discovery of some abnormality as proof of their superior knowledge of infants. The average male child, according to Dr. Smith's observation, weighs seven pounds eleven ounces; the average female, seven pounds four ounces. During the first three days there is usually a loss of weight, which has been regained before the end of the week. If the child does well, it should gain an ounce a day to three months, the original weight being doubled at six months and trebled at one year. The average length is nineteen inches, which is doubled at four years. The temperature at birth is 100°, which soon falls to 98.6°, and then returns to 99°. The pulse is about 130, which may be increased twenty or thirty beats by crying, or decreased ten or fifteen beats during sleep. Even in perfect health the pulse is often irregular and is practically



DR. STIMSON'S ARTICLE ON  
POTT'S FRACTURE AT THE ANKLE.



FIG. 1.—Outward displacement, recent case.



FIG. 2.—Outward displacement reduced.



FIG. 3.—Backward displacement, right foot; recent.



FIG. 4.—Persistent displacement; eight months old.



FIG. 5.—Same as Fig. 4.



FIG. 6.—Lateral plaster-of-Paris splint.



FIG. 7.—Posterior plaster-of-Paris splint.



FIG. 8.



FIG. 9.

of no value as a symptom. The respirations are about 44, and fall to 30 at one year. The eyes are almost invariably of a greenish or bluish-gray color, and no opinion can be formed at birth as to what their permanent color will be. The pupils are large and sensitive to light. The auditory canal, owing to swelling of the mucous membrane, is usually closed, and there may be a slight discharge which might mislead the unwary. The abdomen, owing to the frequency of digestive disorders in infants, is an important region. The peculiarities in the relations of the abdominal organs are due chiefly to the great size of the liver, which displaces the stomach and colon to the left, the cæcum being extremely variable in position. The sigmoid flexure is long, sometimes reaching well into the right iliac fossa, and is the cause in some instances of persistent constipation. The bladder is almost wholly an abdominal organ, and its detection above the pubes does not necessarily mean undue distention.

While the physician is rarely consulted regarding the clothing of the infant, it is a subject upon which he should have some knowledge. Tight bands and waists are fortunately being superseded by more rational methods of dressing, though but slowly. The unfortunate infant is bound about the chest and waist by layer after layer, while the arms, legs, and neck have but half the covering. Each layer has its own array of buttons and safety-pins always at the back. The baby protests, and a new reef is taken in his bandages, already too tight, and he is put back in the cradle to lie on the same buttons, safety-pins, and lumps he has been complaining of. The Gertrude suit, of which so much has been said in *Babyhood*, is a vast improvement over old methods. The original suit has been considerably modified and improved, and does away with the bands and waists and all constriction about the body.

The band for the baby as well as for the mother is a disputed point. I can see no real objection when properly applied, but several advantages in a light flannel band during the first few months. It should be four inches wide, without a hem, and long enough to go once and a half about the body. Pieces of tape fastened to one end make a better fastening than pins. The shirt should be cut high in the neck and have long sleeves. Flannel should be used, for it is a necessity in this climate. The Jaeger flannel is by all means the best. It is rare that it can not be worn next the skin. In hot weather flannel should still be used, the thinnest possible being employed. The napkins are usually too thick and bungling. Soft cotton cloth is the best material. They should be cut a yard long and half a yard wide and folded once so as to make two thicknesses, the napkin when ready for use being eighteen inches square. If thicker and larger they are uncomfortable and may distort or deform the child. Rubber napkins and shields are objectionable from their tendency to overheat the parts. They are only admissible for short periods or when traveling.

The stockings should be long enough to fasten to the napkin and should always be kept on the feet. The outer garments, one of which should be of flannel, should not be so long and heavy as to obstruct the limbs. All the clothes should be opened in front.

I need not here urge the importance of breast feeding, but would urge more careful attention to the numerous details in the care and management of the breasts, neglect of which deprives many children of the food to which they are justly due. The breasts should receive attention at least six weeks before the birth of the child. Cracking of the nipples is to a large degree a preventable misfortune. The most efficient preventive measure is the gentle drawing out and manipulation of the nipple night and morning for several weeks before the beginning of lactation. Certain medicinal applications may be made with advantage at the same time. The usual application of astringents frequently fails utterly. I have seen a primipara who had faithfully applied solutions of alum, borax, and alcohol for two months obliged to stop nursing entirely on the fifth day because of deep fissuring of the nipples. They were certainly tough—as tough as sole-leather; and, like sole-leather, when pinched, bent, and squeezed, they cracked. They were not pliable; but pliability is as necessary as toughness. It is to be gained by frequent manipulation and the use of an oil. The best oil in my experience is lanolin, with a little cold cream added (one part to three) to render it less waxy and more readily applicable. It should be gently and thoroughly applied after each application of the astringent to counteract its tendency to stiffen and harden.

Both the nipple and the mouth of the infant should be washed with plain cool water, to which a few drops of listerine may be added, before and after each nursing. Decomposing milk on the nipple excoriates and favors fissuring; in the mouth of the child it irritates and forms a culture medium for bacteria. Without this care germs and spores which have lodged on the nipple and in the mouth are carried into the stomach during nursing and may develop serious digestive disorders.

Fissures, when they occur, try the physician's resources to the utmost. Not to enumerate the scores of drugs that have been proposed, I would simply say that on the whole I have had the most satisfactory results from the use of dry tannic acid. The nipple is cleansed with boric-acid solution and dried and the tannin dusted well into the fissures. It should be repeated after each nursing. It forms a coating that does not readily come off, and relief is usually experienced at the next nursing. The nipple should be afforded all the rest possible, and a shield should be used if practicable.

Sometimes, in addition to the fissures, or even when no fissure can be detected, the whole nipple becomes eroded and extremely sensitive. For this condition balsam of Peru is very effectual, or a one-per-cent. ointment of resorcin. In other cases there is a hypersensitiveness far out of proportion to the apparent seriousness of the fissures or erosion. The mother falls into an extreme nervous condition, and looks ahead with apprehension to every nursing. I saw a marked case of this character last year. The mother was anxious to nurse her child, but would fall into such a condition of nervous excitement before every nursing that bottle-feeding seemed inevitable. An application of a four-per-cent. solution of cocaine on a piece of cotton for five minutes was finally tried, and relieved the pain. The inter-

vals of nursing were extended as far as possible, and the cocaine used each time. The nipples were washed before and after each nursing and balsam of Peru applied. The mother was reassured, the strength of the cocaine was reduced, and in a week she was nursing the child without serious discomfort, and continued to do so during the summer.

For various reasons, nursing should be discontinued from a breast in which pus has formed or is forming. In mastitis, or any condition accompanied by fever, the constitutional disturbance alone often renders nursing impossible.

Unless the mother is especially exhausted, the child may be put to the breast at the end of four or five hours. During the first two days six hours is a sufficiently short interval for nursing. The child will get all the breasts contain, and will obtain no more by more frequent attempts. I can not say that I never give anything but the breast during the first two or three days. The child gets very little from the breast during the second day, and the stomach must become empty. A baby will wail and cry and show every evidence of hunger, and will drop quietly to sleep upon receiving a little warm fluid. If it is restless and crying on the second day, you may be quite sure that the nurse will give it something before night—it may be milk, broth, gruel, syrup, or sugar. It is better for the physician to prescribe what shall be given.

I have seen no bad results from weak oatmeal water. You thus give water that has been boiled, with sufficient nourishment to satisfy the scruples of the mother and nurse. But let the nurse feed indiscriminately with the score of things that tradition demands, and you will find about the fourth day that the family has been awake with a crying child. The bowels are usually loose, the passages being of bad odor, and perhaps greenish. With a mild laxative and exclusive breast feeding, the symptoms usually disappear in a few days, but the baby is subject to attacks of colic for a much longer time, and may have formed the pleasant habit of lying awake and crying at night.

Sometimes, I believe quite frequently, the mother's milk is too rich in fat during the first two or three weeks, causing colic, indigestion, and irregular bowels. Order outdoor exercise for the mother, increase the amount of fluid she takes and decrease the meat, for proteids in the mother's diet increase the fat in the milk. Give the baby a teaspoonful or two of Vichy water before each nursing, and the indigestion will probably disappear.

The most important matter in this whole subject of breast-feeding is regularity. It is even more important than in bottle-feeding, for the breast milk changes decidedly according to the frequency of nursing. If the interval is too long, it becomes thin and watery; if too short, concentrated and rich and causes indigestion. The first week is not too early to begin the formation of regular habits. If the child is asleep, wake it when the time for nursing arrives. It will soon form the habit of waking at regular intervals, and will go to sleep as soon as the nursing is finished. Above all things, warn the mother against continuous and everlasting night nursing. It wears on the

mother, impairs the milk, and ruins the digestion of the child.

A discussion of the subject of artificial feeding would occupy far more space than this paper will permit. To state the matter briefly, I would feed a child of average weight half an ounce of food every four hours during the first two days, soon increasing to an ounce every two hours, and an ounce and a half at the end of the second week. With one feeding between eleven at night and seven in the morning the child receives ten feedings a day during the first three months. As to the composition of the food, let it be cow's milk by all means. Allow the milk to stand in a bottle or pitcher for two hours and pour off the upper half. For the first feedings take of this rich milk four parts, lime water one part, and water seven parts. After a few days the milk may be increased and the water decreased. In warm weather the milk should be sterilized.

Urine is usually passed during the first twelve hours, and thereafter about an ounce is passed ten or twelve times a day, ten ounces being the normal average amount for the new-born infant. It is at first cloudy from the admixture of epithelial cells and uric acid and of very low gravity (1.003 to 1.006). Later it becomes clearer and pale, but the gravity continues low during childhood. When the urine does not pass, the distended bladder may be readily felt, as it lies very high. Usually hot applications over the hypogastrium, a sprinkling of cold water, or a warm bath are sufficient to start the flow. The catheter is very rarely required, and should be used only as the last resort.

The bowels usually act within a few hours after birth, the passages during the first two days, and sometimes longer, being greenish-black in color and tarry in consistency. If there is no passage, a teaspoonful of sweet oil is often sufficient, to which a few drops of castor oil may be added. In certain cases constipation is obstinate and persistent, and is due to an excessively long sigmoid flexure. In such cases a daily enema may be required until the child is several months old. Constipation is occasionally present from the first, the passages being hard and dry; more frequently it is acquired.

The treatment is often discouraging. The attention must be directed first and chiefly to the milk which the child receives, whether it is cow's milk or breast milk, and any error in digestion should be corrected as far as possible. Give plenty of cool water. This, I believe, is very important, for the infant usually requires more fluid than it obtains in the milk. Instruct the nurse to gently massage the abdomen daily, not by simply rubbing the surface, but by grasping the abdominal wall with the flattened hand and causing it to move upon the bowels beneath. If these measures fail, try a small soap suppository at the same time every day, or in more extreme cases part of a small-sized glycerin suppository, or half a teaspoonful of pure glycerin by syringe. Drugs should be the last resort. Among these, cascara has, on the whole, served me best, but sometimes fails completely. Two drops of cascara cordial may be given twice a day as the initial dose, to be increased if

necessary. When the passages are white or pasty and the child does not thrive, a few grains of phosphate of soda, given three times a day, often yield most satisfactory results. It may be added to the milk if the child is bottle-fed. Whatever drug is given, an attempt should be made to reduce the dose very slowly, relying more on diet and other measures. Mild measures at first are often sufficient, but if the bowels are neglected during the first few weeks a habit of constipation may develop which will be very hard to break.

Two errors are common in the treatment of chronic constipation. The first is reliance on a single measure—a single article of diet, a single mechanical measure, or a single drug. No one of these is of itself sufficient if the case is obstinate. The diet must be corrected and the attack must be made from several points at once. The second error is the attempt to cure a continuous and persistent condition by intermittent and spasmodic treatment. No matter how good the treatment, it is sure to fail unless persistently applied.

Jaundice in the infant, as in the adult, is symptomatic of numerous conditions. In the vast majority of cases it appears on the second or third day without assignable cause, continues about a week, and is unaccompanied by symptoms. The sclerotic is not discolored, the urine does not stain, and the stools retain their normal color. In rare instances acute obstructive jaundice marked by the usual symptoms occurs during the first week. The cause of the disorder has not been satisfactorily explained. There may be truth in the theory of Quincke, which attributes it to non-closure of the ductus venosus, which permits portal blood containing bile pigment to pass at once into the general circulation. As the condition naturally disappears, it rarely requires treatment. The clothing should be investigated, but it is extremely doubtful if bands could be so tight as to cause mechanical congestion of the liver. If the bowels are not free, gray powder is, perhaps, the most appropriate cathartic.

Thrush is a disease of young infants and marasmic children. It is rarely seen in healthy children when proper cleanliness of the mouth and nipples has been maintained, for it does not develop on a perfectly healthy membrane. Digestive disorders, while common in connection with thrush, are not necessarily a part of that disease, but result more from the swallowing of acrid secretions than from actual extension of the thrush. It is best combated by an alkaline wash. Borax is a time-honored remedy, and a good one. I have seen better results by adding to the mixture an equal amount of bicarbonate of sodium. Honey or syrup should not be used as a vehicle, for their decomposition adds to the disease. A simple solution in water is best, to which a little glycerin and tincture of myrrh may be added. Gentle but thorough removal of the exudation should be practiced three times a day by means of a soft cloth saturated with the solution, and wrapped on the finger or a lead-pencil. Unless this is done with extreme gentleness, more harm than good will result. If the disease is localized, the spots may be touched to advantage with a two-per-cent. solution of sulphate of copper.

Colic is most common between the second and fourth months, but not infrequently appears during the first week, and may be severe and very troublesome, the attacks being periodical, with a tendency to recur at the same time each day. The causes and preventive treatment have already been considered. It seems sometimes almost impossible to prevent it, and treatment for its relief is demanded. The feet will usually be found cold, and should be made warm at once. This simple precaution is sometimes followed by relief of the pain. Heat should also be applied to the abdomen, the warm hand of the nurse sometimes being sufficient. A little plain warm water may be given, to which peppermint may advantageously be added. Three or four drops of rhubarb and soda mixture in a teaspoonful of warm water is extremely effective. Aniseed cordial (elixir anisi) is frequently used, and is quite efficient. It contains twenty-five per cent. of deodorized alcohol. Dalby's carminative, so largely used, it should be remembered, as commonly dispensed, is an opium mixture of half the strength of paregoric. Equal parts of lime water and cinnamon water, or equal parts of camphor water and compound tincture of cardamom, are effective mixtures. The mother should never be allowed to suppose that she can use paregoric for these attacks. The temptation to overuse it is altogether too great.

So little is said of snuffles in the text-books, except as a symptom of syphilis, that many a young practitioner has been worried by a simple and very common disorder. Cold in the head is common in infants, and is more serious than in older children. Frequently it amounts only to snuffling or rattling, and perhaps sneezing without much closure of the passages. It can not become very severe, however, without preventing nursing by obstructing the breathing, and this is the serious aspect of the disorder.

Syphilitic coryza begins with a watery, somewhat acrid discharge which soon becomes muco-purulent, is frequently streaked with blood, and forms excoriations and thick scabs upon the lip. It persists and becomes steadily worse, and is rarely present for any length of time without other syphilitic manifestations. Simple coryza rarely continues longer than a week or ten days; the discharge is not as acrid, but frequently becomes so thick as to wholly occlude the nasal passages, which are comparatively small in the infant.

Treatment, when the disease is mild, consists in applying warm camphorated oil over the bridge of the nose and introducing a little cold cream into the nostrils with a camel's-hair brush. In more severe cases the nostrils must be as thoroughly cleaned as possible with a brush or piece of cotton wrapped on a probe, or an attempt may be made to gently syringe the nostrils with Seiler's solution, after which the cold cream may be applied. Gentleness here, as in treating diseases of the mouth, is of the first importance.

Bronchitis at this early age is an extremely serious disease, for if marked it virtually means broncho-pneumonia. The term used by some of the older writers—*suffocative catarrh*—expresses very well the clinical aspect which the disease is inclined to assume. Treatment does not differ materially from that of the same disease in older children.

Bronchitis is important also from another point of view.

In a recent study of congenital heart disease, I found that a large percentage of the cases suffered from bronchitis during the first week. The fetal openings of the heart and vessels do not fully close until the seventh or eighth day, and it has been suggested that bronchitis, by causing pulmonary obstruction, may be a factor in causing their continued patency. Every precaution should certainly be taken to prevent the disease, and it should be removed with the greatest possible dispatch.

Cerebral hæmorrhage, due to venous congestion and rupture of the capillaries of the pia mater; the various forms of obstetrical paralysis; hæmorrhages from the various cavities; trismus neonatorum—are all serious conditions of great interest, but their consideration is prohibited from lack of space.

Numerous minor ailments or abnormal conditions occur which require attention. Cephalæmatoma is a collection of blood commonly subperiosteal. It forms a tense, somewhat elastic tumor, situated, in the great majority of cases, over the right parietal bone. Unless evidence of suppuration appears, it should be left entirely alone, for it rarely happens that the blood is not absorbed.

Swelling of the breasts is sometimes marked and causes considerable discomfort. They should be simply protected from pressure. Sometimes warm camphorated oil very gently applied seems to give relief. If suppuration occurs, which is rarely the case, they should be treated like any abscess.

If vomiting of blood occurs, the breasts should be examined, for a surprisingly large amount of blood may flow from a fissured nipple. Congenital teeth are not, as a rule, attached to the bone and soon loosen and fall. They should be at once removed. Vaccination, unless there is some definite reason for haste, had better be postponed until the child is at least six months old. It does not "take" well before that age, and it may be necessary to repeat the operation several times.

The baby may be wailing and puny, with low vitality and apparently little hold on life; the asphyxia may be deep; the convulsions long and severe; the indigestion obstinate, and yet the case may not be necessarily hopeless. In no condition is the truism that while there is life there is hope more true than in that of early infancy. Vigorous and healthy children not infrequently develop from the most unpromising infants. Many a strong man is to-day engaged in the active affairs of life whose first days promised nothing but speedy death. While an infant breathes it is never wise to wholly abandon hope or to relax one's efforts.

113 WEST NINETY-FIFTH STREET.

The Death of Mr. Henry A. Riley occurred in New York on the 9th inst., of heart disease, from which he had long been a sufferer. Though a lawyer, he was well known to the medical profession by his contributions upon medical jurisprudence to this and other journals. For many years he had been a contributor to current literature, and for two years, having been compelled to abandon his professional and business pursuits, he had devoted his time largely to writing upon medical law. In this direction his work was unique, for he developed a field before unoccupied, being quite different from that of medical jurisprudence as that term is usually understood.

## A CASE OF TWIN EXTRA-UTERINE PREGNANCY.

ABORTION *PER VIAS NATURALES* AT THE FOURTEENTH WEEK.\*

By A. L. ROBINSON, M. D.,  
SEATTLE, WASH.

Mrs. F. K., aged twenty-seven, multipara, came under my care about the middle of January, 1892, while suffering with *la grippe*. After the acute symptoms had passed, but while still weak, morning sickness came on. She informed me that her last menstrual period had commenced on November 4, 1891. The vomiting soon became almost constant, and was but slightly modified by any of the numerous remedies employed, which included rectal feeding. Extreme prostration, insomnia, and incipient nephritis made abortion advisable, and the patient, her husband, and other members of the household were so informed. While this procedure was being discussed, the patient told me that for several days small blood-clots had been passing, but that free hæmorrhage had not occurred. On the following day, February 6, 1892, Dr. Montgomery Russell, of this city, was called in consultation, and the previous treatment and proposed operation were approved by him. Ether was administered, and, anæsthesia being obtained, the cervix was exposed and a protruding muco-blood-clot removed. An intense violet color of the vagina was observed. After dilating the cervical canal a careful examination of the uterine cavity was made. It measured five inches and a quarter from external os to fundus, and its contents were a few small blood-clots only. These were removed. A roughness was noticed at or near the right Fallopian uterine ostium. Dr. Russell's examination confirmed the results of mine. We concluded that the product of conception had died *in utero*, undergone maceration and partial absorption, and the remainder passed with the discharges previously mentioned, which had probably been greater in amount than the patient supposed. The uterine cavity was then syringed out with two quarts of a warm bichloride-of-mercury solution (1 to 3,000), and faradaic electricity applied for fifteen minutes.

That evening it occurred to me that the condition was possibly extra-uterine pregnancy. At my next visit the patient was closely questioned, and it was ascertained that for several weeks dull pains had been emanating from the right iliac fossa and extending downward on the thigh. An extremely offensive discharge from the vagina, which she supposed was leucorrhœa, had continued during this period. At first it was thick and viscid, but recently had become watery and mixed with small blood-clots. Since the cessation of menstruation her subjective symptoms had differed greatly from those of her two former pregnancies, but in what manner she could not clearly state.

An attempt was then made to make a bimanual examination of the pelvic viscera, but fear of pain caused so much protestation that it was not persisted in, for she was so weak and nervous that convulsions were feared. The employment of an anæsthetic was considered unsafe at that time. External palpation gave no positive results, as pressure was not tolerated.

The family was informed of my conjectures, and the various forms of extra-uterine pregnancy with their possible terminations were explained.

The day following the operation the attacks of vomiting decreased in frequency. Nausea and occasional vomiting persisted, consequently but little nourishment could be taken at one time. Rectal feeding, gastric and nerve sedatives, tonics and stimulants were employed, but the general condition was not greatly improved. Pains emanating from the right iliac fossa con-

\* Read before the Seattle Medical Society and Library Association, March 16, 1892.

tinued; also a slight discharge of blood from the uterus. The cavity of the latter was several times explored, the blood-clots found therein removed, and warm bichloride injections made.

On the evening of February 17, 1892, eleven days after first examining the uterus, I was sent for in haste. Considerable pains had been experienced all that afternoon, commencing in the right iliac fossa, but later extending to the sacrum and assuming the characteristics of labor pains. Previous to my arrival she had been delivered of an embryo with considerable hæmorrhage. The patient was too much prostrated to permit cleansing the uterus at that time, the pulse being 120 and weak, temperature 100° F. Hæmorrhage was checked by ergotin hypodermically, and brandy and digitalis were ordered. During my visit the following morning a second embryo was passed without pain. Hæmorrhage was inconsiderable. The uterus was at once everted and a large blood-clot and shreds of membrane removed, as well as small pieces of placenta, which were scraped with difficulty from the location of the right Falloppian uterine ostium. Its cavity was then syringed out with a warm bichloride solution and ergot prescribed.

Examination of the embryos showed them to be of about fourteen weeks' development. They were more than five inches in length, and had evidently been considerably compressed and elongated. The heads were shapeless masses. Membranous nails were forming on fingers and toes. The sexes were not distinguishable.

Hæmorrhage continued daily, at times requiring electricity, astringent and styptic injections, and the administration of ergot, but these measures failed to satisfactorily control it. Examinations of the uterine cavity were several times made, and its only contents, blood-clots, removed.

The patient continued weak, with continual nausea and frequent vomiting. Temperature varied from normal to 99.5° F., and pulse from 95 to 105 and weak. Pain was constantly complained of, mainly on right side of the uterus. Morphine, phenacetin, salol, and gelsemium were frequently administered to modify it.

Laparotomy for the removal of the placenta and membranes was considered, but neither at that time nor at any other was the patient strong enough to justify such an operation.

On February 23d she had a slight chill followed by rise of temperature to 102.5° F. The following morning the temperature was 102° F., pulse 130, respiration 30. The abdomen was considerably distended and tympanitic, severe pain was complained of, and vomiting was more frequent.

Dr. Russell was again called in consultation, and he concurred in my diagnosis of general peritonitis. Turpentine stupes were applied to the abdomen and the "Alonzo Clark opium treatment" was agreed upon and commenced, the patient being closely watched until her tolerance for the drug was ascertained. Respiration increased to 38 that day. The duration of this treatment was ninety hours; one hundred and forty-one grains and a half of pulverized opium were administered, and three grains and three eighths of sulphate of morphine given hypodermically to lessen vomiting. The acute symptoms gradually subsided, and on the evening of February 28th vomiting had not occurred for six hours, abdominal pain and tympanites had disappeared, temperature was normal, pulse 105, respiration 14. Opium was given that night at increasing intervals and then discontinued. On the morning of February 29th I found the patient with temperature of 100° F., pulse 125, respiration 20. The uterine cavity was explored, an entire placenta removed, and it was then syringed out with a warm bichloride solution.\*

\* A large piece of placenta had been removed from the uterus four days previously.

An enema of warm water and soap brought away considerable hardened clay-colored feces. Fifteen grains of sulphate of quinine and cardiac stimulants were given. A tablespoonful of a saturated solution of sulphate of magnesium was ordered every four hours. During the afternoon the temperature fell to 99° F., but the pulse increased in rapidity and feebleness. I remained by the patient's bedside all that night. At 4 A. M., March 1st, the pulse was 150. At 5.20 A. M., shortly after waking from an hour's sleep, death resulted from asthenia.

For some years palpitation of the heart and uncasiness in the cardiac region had at times been complained of. Much prostration had been caused by *la grippe*, and the vomiting of pregnancy following this disease so closely prevented the retention of the tonics and stimulants ordered. But for debility caused by *la grippe* it is believed the patient would have recovered.

Minor details of treatment, etc., have been omitted. It was undoubtedly an interstitial pregnancy on the right side, the growth of the embryos enlarging the Falloppian uterine ostium and permitting their entrance into the uterus. The shape of the uterine cavity, as disclosed by the several examinations, negatives the probability that this was a case of pregnancy in one portion of a uterus bicornis.

A post-mortem examination was not obtained.

Cases of extra-uterine pregnancy with delivery *per vias naturales* are extremely rare. Dr. Charles McBurney reported one in the *New York Medical Journal*, March number, 1878, page 273, and Dr. Cornelius Williams another in the same journal, December number, 1878, page 595, but an examination of the literature at my disposal fails to disclose a case of *multiple* extra-uterine pregnancy with that termination; indeed, I find no cases of *multiple* extra-uterine pregnancy of any variety, though possibly some are of record.

2506 JACKSON STREET, March 8, 1892.

## RECOVERY AFTER TAKING A LARGE QUANTITY OF VERATRUM VIRIDE.

BY JAMES P. TUTTLE, M. D.

MR. A. was attacked on February 5th with severe epididymitis and orchitis. That night his brother came to me, saying that his fever was very high and that he was suffering a great deal of pain. I prescribed for him "tr. verat. virid. (Norwood's), f ʒ iv. Sig.: Two drops every half-hour until perspiration is well established." The patient read the directions "two teaspoonfuls" every half-hour, and took the first dose accordingly at 8.30 P. M. This he retained without any appreciable effect until 9.05 P. M., when he took the second dose of two teaspoonfuls. In about half an hour he "began to vomit and became very weak," as he described himself. On the following morning I was called to see him, and having heard his story of how he took the medicine, was more surprised to find him alive than that he was exceedingly weak and very pale. The heart was feeble but regular, and the respiration very nearly normal. A small quantity of whisky and infusion of digitalis were given, and the patient recovered without any unusual symptoms. The prescription was compounded by a reputable pharmacist, who assured me that he had dispensed the stronger tincture. The interest in the case centers in the remarkable fact of the patient's having retained so large a quantity of the drug for nearly an hour without any disastrous effects.

35 WEST FORTY-FIFTH STREET.

THE  
NEW YORK MEDICAL JOURNAL,

*A Weekly Review of Medicine.*

Published by  
D. APPLETON & Co.

Edited by  
FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, JUNE 18, 1892.

OPIUM-SMOKING.

ACCORDING to an editorial note in the *Journal of the American Medical Association*, the vice of opium-smoking, or "*opiokapnism*," as the writer calls it, has been increasing to a remarkable extent during the last decade. The statistics of the custom-house at San Francisco show that the sum of \$750,000 was collected last year as the duty on importations of smoking-opium at that port alone, with the tariff at twelve dollars a pound. In other words, 62,000 pounds of a drug which has no good uses and has a bad history in other countries came into a single port of entry in one year. In addition to the openly imported drug, a very large illicit trade is carried on over the Canadian border. It is said that a million pounds of the smoking-drug has come into the country in eleven years through the port of San Francisco alone.

The term "*opiokapnism*" is used by the writer in contradistinction to "*opiophagism*" (or opium-eating), a term which has been coined to cover the commoner forms of addiction to opium or its derivatives in which the drug is taken by the mouth or by subcutaneous injection.

"*Opiophagism*" may be taken to represent those cases of the morphine habit which are so common in all parts of this country, being very frequent among professional and other refined persons, and concerning which the medical profession has so much of unjust blame laid to its charge as being the occasion of the formation of the habit. "*Opiokapnism*," on the other hand, is an Oriental and un-American vice. Introduced by the Chinese laundrymen, opium-smoking has spread somewhat in the depraved purlieus of our Western and Northern cities. This is the imported vice, the causation of which has not as yet been laid to the charge of our profession. The therapeutic indications of the smoke of opium are not regarded in the Orient as of any moment whatsoever, and it is not at all probable that any good uses will ever be discovered for it. In the article above cited, it is stated that fifty qualified native physicians of the city of Bombay have signed a statement that among their Hindoo patients the habit of smoking opium is an evil without a redeeming feature, ruinous alike to mind, body, estate, and family.

MINOR PARAGRAPHS.

THE CONSERVATIVE TREATMENT OF TUBAL DISEASE.

AT the last meeting of the Academy of Medicine, on Thursday evening of week before last, a notable paper on The Conservative Treatment of Salpingitis was read by Dr. Paul F. Mundé. The paper was remarkable for the clearness with which it showed

the absence of justification for what the author denominated the "Birmingham epidemic," meaning the rage for salpingo-oophorectomy. As he justly remarked, it is one of the drawbacks of the Listerian system that it has to a great extent robbed certain mutilating and unnecessary surgical procedures of their danger to life, and consequently led to their indiscriminate and often utterly uncalled-for execution. We have no hesitation in saying that among the most flagrant of them is laparotomy for disease of the Fallopian tubes, and we think the profession ought to feel thankful that a gynæcologist of Dr. Mundé's eminence has taken the trouble to demonstrate the rarity with which it is required. Dr. Mundé used the word conservative in the sense of *preservative* of the essential generative organs in women, and it is interesting to note that their preservation is not incompatible with a curative laparotomy, as was strikingly brought out in the discussion by Dr. Polk, who related briefly the history of a case in which he had removed the uterine anexa on one side for disease, and at the same operation had cut away about half of the ampulla of the oviduct on the other side, and yet the patient had since conceived. Surely such a case ought to rise up against those who lightly declare in cases of tubal disease that the organs have already been rendered functionally worthless by disease, and therefore that their loss by a surgical operation is really no loss to the patient.

A WORTHY SANITARY FEAT QUIETLY ACCOMPLISHED.

It is alleged for General Rusk that he has greatly improved the treatment of cattle exported to Europe for food purposes. The mortality among them at sea, resulting from cruelty, want of water, etc., was formerly stated at sixteen per cent., while at the present time it is one per cent. The value of these exportations is not far from \$25,000,000 annually. If this statement is only partly true, General Rusk has accomplished a great sanitary reform, for he has been the means of indirectly purifying the flesh-food supply of thousands of European consumers.

WOUNDS WITH DYNAMITE.

THE action of dynamite seems to be almost as chaotic as that of lightning, to judge from an occurrence related in *La Science moderne*, an abstract of which is given in a recent number of *L'Union médicale*. A nickel-miner was fishing with dynamite cartridges, when one of them exploded as he was in the act of casting it and carried away one of his hands. During the twelve hours that it took to convey him to a hospital ship, under a tropical sun, gangrene set in, and he died shortly after reaching his refuge. His body was riddled with communicating subcutaneous channels, and at the post-mortem examination it was found that the nails of the lost hand, having been detached, had acted as projectiles, and were found near the spinal column in the thoracic region.

ITEMS, ETC.

**The Medical Society of the County of Queens.**—The annual meeting of this society was held on May 31st, at Mineola, Long Island. The following officers were elected: President, Dr. C. J. G. Finn; vice-president, Dr. John Mann; secretary, Dr. James S. Cooley; censors, Dr. Meynen, Dr. Heyen, Dr. Ludlam, Dr. Frye, and Dr. Zabriskie. It was voted to elect delegates to the State society and to re-establish the broken delegate relations that have been interrupted since 1884. Dr. Cooley and Dr. Lanchart were elected such delegates. Delegates were also appointed to the American Medical Association. Dr. O. B. Douglas, of New York, and Dr. G. G. Hopkins, of Brooklyn, read papers at the meeting.

**The Medico-chirurgical College of Philadelphia.**—The following appointments have been made: Dr. W. Frank Haehtlen, professor of obstetrics; Dr. W. Easterly Ashton, professor of gynecology; Dr. Charles M. Seltzer, professor of hygiene; Dr. H. H. Boom, adjunct professor of chemistry; and Dr. B. T. Shimwell, adjunct professor of operative surgery.

**Bellevue Hospital.**—Dr. Robert W. Taylor has been appointed on the attending staff, on the division of the College of Physicians and Surgeons, to have a continuous service in genito-urinary diseases.

**The Woman's Medical College of the New York Infirmary.**—Dr. William Oliver Moore has resigned from the chair of ophthalmology and otology.

**The New York Polyclinic.**—Dr. Robert Safford Newton has been appointed lecturer on diseases of the mind and nervous system, in the department of Professor L. C. Gray.

**The Death of Professor Meynert.**—The *Lancet* announces the death of Professor Theodor Meynert, of Vienna.

**Change of Address.**—Dr. P. A. E. Boetzkes, to No. 861 Lexington Avenue.

**A Large Bequest for Hospital Purposes.**—By the will of the late Mr. Robert A. Barnes, of St. Louis, the sum of nine hundred thousand dollars will become available for the building and endowment of a new hospital in that city. The management of the fund will rest with the Methodist Episcopal Church South, but the institution, when completed, will be unsectarian in the bestowal of its charities.

**The late Dr. Birdsall.**—The New York Neurological Society has passed the following:

Inasmuch as by the death of Dr. William R. Birdsall, the New York Neurological Society has lost an active member, whose eminent services in our department of medicine have secured for him our highest respect, and whose many attractions of character and personality have awakened our warmest attachment; therefore,

*Resolved*, That we record upon our minutes the expression of our great sorrow at his untimely death; of our appreciation of his eminent ability, untiring industry, and scientific accuracy and skill; and of our tender regard for the many admirable qualities which will endear his memory to us for many years.

*Resolved*, That these resolutions be published in the current medical journals, and that a copy be sent as an expression of our deep sympathy to the afflicted family of our deceased friend.

[Signed.]

M. ALLEN STARR, M. D.,  
CHARLES L. DANA, M. D.,  
GRENE M. HAMMOND, M. D.,  
*Committee of the Council.*

#### Society Meetings for the Coming Week:

**MONDAY, June 20th:** American Association of Genito-urinary Surgeons (first day—Richfield Springs, N. Y.); American Ophthalmological Society (first day—New London, Conn.); New Hampshire Medical Society (first day—Concord); New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

**TUESDAY, June 21st:** Colorado State Medical Society (first day—Denver); American Association of Genito-urinary Surgeons (second day); American Ophthalmological Society (second day); New Hampshire Medical Society (second day); Medical Societies of the Counties of Kings and Westchester (annual), N. Y.; Ogdensburg, N. Y., Medical Association; Baltimore Academy of Medicine.

**WEDNESDAY, June 22d:** Colorado State Medical Society (second day); American Association of Genito-urinary Surgeons (third day); New York Pathological Society; Medical Society of the County of Albany; Metropolitan Medical Society (private); Philadelphia County Medical Society.

**THURSDAY, June 23d:** New York Orthopædic Society.

**FRIDAY, June 24th:** New York Society of German Physicians; Philadelphia Clinical Society; Philadelphia Laryngological Society.

**SATURDAY, June 25th:** New York Medical and Surgical Society (private).

#### Answers to Correspondents:

No. 383.—Their formulæ are probably of no special value. Ninety-five-per-cent. alcohol has been used with good results.

## Proceedings of Societies.

### AMERICAN MEDICAL ASSOCIATION.

*Forty-third Annual Meeting, held in Detroit on Tuesday, Wednesday, Thursday, and Friday, June 7, 8, 9, and 10, 1892.*

The President, Dr. HENRY O. MAROY, of Boston, in the Chair.

(Concluded from page 664.)

**Recommendations of Proprietary Medicines.**—A resolution from the Medical Society of Pennsylvania was read by the secretary, which disapproved of the common custom among physicians of giving certificates of the value of patent and proprietary medicines. The *Journal of the American Medical Association* was condemned for encouraging such practice in its advertising columns.

Dr. THOMAS, of Pennsylvania, offered a resolution that the trustees of the *Journal* be directed to abide by the code of ethics by declining to make commendatory mention of secret preparations. This resolution was unanimously adopted.

**The Pan-American Medical Congress.**—The PRESIDENT introduced Dr. WILLIAM PEPPER, of Pennsylvania, the president of the Pan-American Medical Congress. Dr. Pepper referred to the preparations for the Congress which had been made, and expressed the belief that the managers would do all in their power to make the Congress successful and beneficial.

Dr. C. A. L. REED, of Ohio, offered a resolution thanking Senator Sherman, of Ohio, for his efforts in securing the passage of the bill incorporating the Congress through the United States Senate, and expressing the hope that the bill would speedily be passed by the House of Representatives. This resolution was unanimously adopted.

The PRESIDENT announced as the Committee for Consideration of the Status of the Members of the Association belonging to the Medical Society of the State of New York and for Conference with Members of that Organization: Dr. Davis, of Illinois; Dr. Rauch, of Illinois; Dr. Briggs, of Tennessee; Dr. Reynolds, of Kentucky; and Dr. King, of Missouri; and, as a Committee on the Revision of the Code of Ethics: Dr. Didama, of New York; Dr. Lee, of Pennsylvania; Dr. Connor, of Michigan; Dr. Holton, of Vermont; and Dr. Nelson, of Illinois.

The reports of the treasurer and librarian were then read by the secretary.

The report of the Committee on the Rush Monument Fund was read by the chairman, Dr. A. L. Gihon, of the navy. An urgent appeal was made for contributions. The treasurer had already received nearly \$3,000, of which \$2,000 was securely invested. It was now positively decided that a monument would be erected in Washington, but whether it should be a bust or a full-length figure would depend upon the amount of money obtained.

**The Standard of Medical Education.**—Dr. DUDLEY, of Kentucky, read a preamble and resolution indorsing the action of certain American colleges of medicine in raising the standard of medical education, and urged that the colleges throughout the entire country be requested to adopt similar requirements. The preamble and resolution were unanimously adopted.

Dr. MILLARD, of Minnesota, moved that a copy of them be transmitted to every medical college and medical journal in the United States.

**The Report of the Committee on the Celebration of the Centennial of the Discovery of Vaccination** was read by the secretary. It recommended a celebration in the city of Washington, if possible, on May 14, 1896, when the centennial anniversary of Jenner's conclusive experiment in inoculation would occur; also that a committee of five be appointed to arrange a plan for such a celebration.

Dr. REYNOLDS, of Kentucky, asked that the nominating committee be requested to give its report upon the instructions that had been given to it.

Dr. WATSON, of New Jersey, replied that the report was not ready.

Dr. REYNOLDS moved that the committee be requested to render its report at Friday's meeting.

Dr. TRUAX, of New York, did not understand that the nominating committee had been called upon for a report, and called for the reading of the motions which were supposed to apply to the case.

Dr. QUIMBY, of New Jersey, did not consider that the nominating committee had any duty to perform in the matter at issue.

Dr. DAVIS, of Illinois, took the same view of the matter.

Dr. TONER, of the District of Columbia, said the minutes had been falsified by the introduction of names which had not been mentioned in the motions as offered upon the floor. This statement was strongly objected to by Dr. Gihon, of the navy. The president then declared further debate out of order.

**Intellectual Progress in Medicine.**—This was the title of the Address in Medicine, by Dr. A. L. GIBON. The reader did not propose to offer anything original, but would merely give a digest of the year's progress, which was to be found in the medical journals of the year—the search-light of medical progress. He called attention to the improved character of medical editorship, which, of course, had been required with increasing intelligence and aspirations on the part of the profession. It was only the highest ability that could now expect to reach the proper distinction in medical editorship. Reform in the system of medical education was also a most noteworthy fact. The lengthening of the period of education to three, four, and even six years, in addition to the required preliminary examination, which had obtained at numerous medical colleges, especially in the North and East, should be a stimulus to the colleges in the South and West which had not already adopted similar progressive measures. The duty of a physician in the line of education was to identify himself with educational medical societies, not only the county societies, but those of the State and nation as well. Thus would a physician become broader than by simply attending to his medical duties and his relations to his patients. The physician should also not forget his civil duties, and should ever seek to emulate such men as Benjamin Rush, who was not only physician and teacher, but patriot, statesman, and scientist as well. The action of medical men in founding and sustaining in recent years such organizations as the Loyal Legion and the Grand Army of the Republic was an evidence of the possibilities in this direction. The revelations of chemistry and bacteriology in recent times had been most interesting and valuable. Especially was it a comforting fact that, if many deadly microbes were in the body, processes were also at work within the body by which those microbes were destroyed. The old idea of the entity of diseases had long since been exploded and we now looked to modern science to explain upon a rational basis the morbid conditions with which we were everywhere confronted. The recent work of Sternberg on bacteriology was alluded to with pride as

a product of American medicine, and extensive quotations from that author's recent publications were made. He (Sternberg) believed that we were on the eve of a new era in the treatment of infectious disease, that the important question now was the isolation of the toxins and toxalbumins of the body, and that the inference was justifiable that in the blood and tissue juices of animals and human beings who had suffered with infectious disease antitoxines would be found which, by inoculation in the healthy, would render them proof against such infectious diseases.

#### NEW YORK SURGICAL SOCIETY.

*Meeting of January 13, 1892.*

The President, Dr. ARPAD G. GERSTER, in the Chair.

**Injury of the Ulnar Nerve.**—Dr. McBURNEY showed a patient whose hand had been crushed eleven months before in a pane of glass. The ulnar nerve and artery and all the tendons on the anterior surface of the wrist were divided. Sensation on the ulnar side was completely lost. The artery was tied and the nerve and tendons were sutured. The result had not been satisfactory, on account of the adhesions of the tendons to the cicatrix. At a second operation the scar was freely dissected away from the tendons and nerve which were attached to it, all cicatricial tissue was removed, and the wound was sutured. The result was now eminently satisfactory; sensation was perfect and flexion practically normal.

**Nephrectomy.**—The PRESIDENT showed a woman, thirty-one years old, from whom he had removed one kidney while undoubted disease of the other was present. The tumor occupied the entire left side of the abdomen, and was very slightly movable. The patient's condition was wretched. The tumor contained pus, which was evacuated by the operation of nephrotomy, on March 3, 1890. Improvement took place, but, as elevations of the evening temperature still persisted and the discharge was profuse, it was decided to remove the kidney, which still formed a noticeable tumor. Nephrectomy was, therefore, done on January 23, 1891. A long oblique incision was employed between the last rib and the crest of the ilium. Extensive adhesions had to be torn, and the peritoneal cavity was freely opened. Several additional pus cavities were evacuated. The pedicle was secured by an elastic ligature, and the peritonæum by continuous suture was shut off. The wound was treated openly. The patient made an excellent recovery. The ligature came away on the thirteenth day. In four months the patient's weight had increased from ninety-nine to one hundred and thirty-five pounds, and she now enjoyed comparatively good health.

In another case he had done nephrectomy, with a satisfactory result, upon a patient whose other kidney at the time of operation was undoubtedly diseased.

Dr. LANGE remarked that he had operated in several cases where the second kidney was also diseased. The questions to be considered in such cases were: First, was the presence of the diseased kidney of such risk to the patient that its removal was desirable; and, secondly, was the kidney of use as a urino-secreting organ? In one of the speaker's cases the patient was still alive at the end of six years, and in another at the expiration of three years. Neither of them was cured, as the remaining kidney was not healthy, but both were living in comparative comfort.

The PRESIDENT said that an important point in the technique of such operations was the patient's posture. He used in such cases the posture suggested by Lange—*i. e.*, the patient lay on the side to be operated on, with the incision as low as possible, so that the pus might flow away from the peritoneal cavity.

**Cuneiform Osteotomy.**—The PRESIDENT showed two patients on whom he had done cuneiform osteotomy for cure of flat-foot. A semilunar incision was made on the inner side of the foot, an inch in front of and below the apex of the malleolus, and carried forward from two to two inches and a half. The wedge of bone was removed from the most prominent part of the foot without attention to the anatomical tissues, its base being on the inner margin of the sole and its apex on the outer side of the dorsum. He chiseled out the wedge piecemeal, rather than in one mass. The foot was then broken into shape, a plaster dressing was applied to the foot in its over-corrected posture, and the limb was kept elevated for a few hours. The first case was that of a waiter, aged twenty-two, who was operated upon on January 16, 1891. The result had been excellent. The second case was that of a man, aged sixty, and the result had been fairly satisfactory. Out of six cases of operation in this manner he had obtained a good result in five. No drainage-tubes were used, but the wound was left open at one angle. The bones removed were generally the head of the astragalus, the entire scaphoid, and part of the cuboid. He had found that in the simple Ogston operation not enough bone was removed.

### Book Notices.

*Diseases of the Nervous System.* By JEROME K. BAUDUY, M. D., LL. D., Professor of Diseases of the Mind and Nervous System and of Medical Jurisprudence, Missouri Medical College, St. Louis, etc. Second Edition. Philadelphia: J. B. Lippincott Co., 1892. Pp. 352. [Price, \$3.]

THE author states that the solicitations of his former pupils have induced him to prepare a second edition of a work that was published some sixteen years ago; and the same lack of proportion that then characterized the work is apparent in this rewritten edition. The title is misleading, for nervous diseases include much more than diseases of the brain and its membranes and those of the mind; and nowhere on the title-page is there an indication that this is a first volume in a series, as a sentence in the seventh paragraph of the preface suggests. Furthermore, if this was to be a comprehensive treatise, how could anatomical detail and physiological discussion be inadmissible, as the author states, notwithstanding the practical aim of the work? That he has not found this exclusion possible is shown in his first chapter, on the cerebral circulation. Besides the two cerebral pulsations mentioned on page 14 there is the third, the vascular wave, that is also a factor in affecting the intracranial pressure. One half of the nineteen pages in the first chapter is a quotation from Schroeder van der Kolk. And this is a feature of the volume, for we recall no book in which page after page of quotation is so often encountered as it is in this. And the quotation is not always correctly credited; for example, wherever M. Allen Starr's name is mentioned that of Frederick Peterson should be inserted, as he is the deservedly accredited author of the chapter on insanity in Dr. Starr's opusculum on nervous diseases.

Just as the author very properly objects to acute hydrocephalus as a nosological term, because it expresses one of the results of tubercular meningitis, so do we object to the exaggerated importance he attaches to cerebral hyperæmia and anæmia, which are merely general terms expressing the results of a variety of causes. And yet to these symptoms more space is devoted than to many more important conditions, such, for instance, as general paralysis.

In the chapter on meningitis, tumors and abscesses of the brain are not mentioned in connection with the diagnosis of that condition, and there is nothing in the volume regarding these not altogether rare diseases of the brain.

An entire lecture is devoted to the consideration of the comparatively rare condition of neo-membranes of the dura mater, while such diseases as chorea, hysteria, and paralysis agitans are not, or but barely, mentioned.

While, as a rule, the author's therapeutical recommendations are familiar, yet his prescriptions are examples of polypharmacy that one would not expect to see in a text-book of the day: one, for instance, calls for three varieties of pepsin.

In the effort to fortify his position by quoting he has too often obscured or eliminated the results of his own personal study and experience, thereby rendering the work unserviceable to the neurologist, while the unsystematic manner in which the subject is considered makes the volume one of the least useful to the medical student of any of the existing text-books on nervous diseases.

### BOOKS, ETC., RECEIVED.

*Traité de médecine.* Publié sous la direction de MM. Charcot, Professeur de clinique des maladies nerveuses à la Faculté de médecine de Paris; Bouchard, Professeur de pathologie générale à la Faculté de médecine de Paris, et Brissaud, Professeur agrégé à la Faculté de médecine de Paris. Par MM. Babinski, Ballet, Brault, Chantemesse, Charrin, Chauffard, Courtois-Suffit, Gilbert, Guinon, Legendre, Marfan, Marie, Mathieu, Netter, Oettinger, André Petit, Richardière, Roger, Ruault, Thibierge, Thoinot, Fernand Vidal. Tome III. Par MM. A. Ruault, A. Mathieu, Courtois-Suffit, A. Chauffard. Avec figures dans le texte. Paris: G. Masson, 1892. Pp. 987. [Prix, 20 francs.]

Proceedings of the New York Pathological Society for the Year 1891.

Medical Education and Legislation. By George J. Englemann, A. M., M. D., St. Louis, Mo. [Reprinted from the *Medical Fortnightly*.]

The Wills Eye Hospital, Philadelphia. Founded April 2, 1832. Reports for the Years ending December 31, 1890, and December 31, 1891.

Die Accumulatoren im Dienste der Medicin. Von Dr. W. Freudenthal, New York. [Separat-Abdruck aus der *Monatsschrift für Ohrenheilkunde*.]

Transactions of the Southern Surgical and Gynæcological Association. Volume IV. Fourth Session, held at Richmond, Va., November 10, 11, and 12, 1891.

Proceedings of the Philadelphia County Medical Society. Volume XII. Session of 1891. T. B. Schneideman, M. D., Editor.

The Purification of Water by Chemical Treatment. By Willis G. Tucker, M. D., Ph. D., Albany. [Reprinted from the *Albany Medical Annals*.]

D. Hayes Agnew, M. D., LL. D. Biographical Sketch by his Pupil, Friend, and Assistant, De Forest Willard, M. D. (Read by invitation before the Philadelphia County Medical Society, April 13, 1892.)

A View of Modern Surgery from the Standpoint of a General Practitioner. By James S. Green, M. D., of Elizabeth, N. J. President's Address, delivered before the New Jersey Medical Society, June, 1891.

The Use of Morphine and other Strong Sedatives in Gynæcological Practice. By Hunter Robb, M. D., Johns Hopkins Hospital, Baltimore. [Reprinted from the *Maryland Medical Journal*.]

The Bacteria in Wounds and Skin-stitches. By Hunter Robb, M. D., Baltimore. [Reprinted from the *Johns Hopkins Hospital Bulletin*.]

Les péricardites expérimentales et bactériques. Recherches du Dr. Alfredo Rubino. Résumé du Dr. G. Rummo.

Wichtige Gesundheitsregeln nicht bloss den Schülern sondern auch den Eltern und treuen Pflegern der Jugend in wohlmeinendster Absicht gewidmet. Von P. B. Sepp, kgl. Gymnasialprofessor. Zweite Auflage. Augsburg: Kransfelder'sche Buchhandlung, 1892.

Zwölf Vorlesungen über den Bau der nervösen Centralorgane. Für Aerzte und Studirende. Von Dr. Ludwig Edinger, Arzt in Frankfurt am Main. Dritte umgearbeitete Auflage. Mit 139 Abbildungen. Leipzig: F. C. W. Vogel, 1892. Pp. viii to 196.

## Miscellany.

**Medical Manhood and Methods of Professional Success.**—This was the title of a valedictory address delivered before the graduating class of the Marion-Sims College of Medicine, at St. Louis, on April 25th, by Dr. C. H. Hughes, professor of neurology, psychiatry, and electrotherapy.

To-night you conclude your curriculum and commence your life's career as physicians. But only your preparatory study ends to-night, not your pupilage. That must go on while you live. Thus far you have done well, and your *alma mater*, in recognition of your acquirements and appreciating your moral merits, has to-night bestowed upon you your well-earned laurels. For the past three years (and especially during the last eight months of your course) you have toiled faithfully, zealously, nobly; but if your study stops now, your energy fails, or your zeal ends here, the life before you will be an ignoble one, your work up to this hour will have been fruitless, and life a failure—not worth living.

I congratulate you on your auspicious entrance into the profession. You could not have decided upon a more opportune period in its history for efficient service to mankind or for satisfactory work to yourselves. This is the electric and dynamite age of the world—its time of greatest light and power. You enter the profession at an epoch of most remarkable advancement—an era of grand discovery and magnificent achievement for the glory and honor of medicine and the happiness of the race; a period when the microscope has achieved for medicine what the telescope has accomplished for astronomy, revealing in that grand cosmos of the infinitely minute beyond the reach of unaided human vision, myriads of hitherto unknown existences and laws of physiological and pathological motion; when chemistry has done her almost perfect work, and biology makes a pathway plain and clear through much of the *terra incognita* of the physiology of the recent past; and pathology, clinical medicine, and therapeutics have kept equal pace with the electric-light illumination that has so lately been thrown upon all physical science.

A new world of bacteriological and micrococcic life has been revealed to the pathologist, a new meaning has been given to the term microcosm by modern medical research. It means to the physician a great world of infinitely minute beings—microscopic pygmies in size and form, but giants in power to destroy, whose name is legion—the microcosm of the lens. When the history of this world beyond the ken of normal vision shall have been fully revealed, no fiction of Jules Verne will equal it in wondrous revelation. Many things, therefore, which the profession a generation or two before us saw but dimly and did imperfectly, we now see clearly and do with precision. The defective and incomplete methods of research and therapeutic resource of the fathers have given place to clearer vision in diagnosis and greater precision in practice. The endoscope, the test-tube, and the crucible of the chemist supplement this wondrous illumination of the way over which our ancestors groped in darkness. Antisepsis and the newer therapeutics have made dangerous pathways safe to the surgeon and averted the untoward endings of many formerly fatal diseases. They have made once painful surgical procedures painless and rendered many hitherto toxic processes harmless, while preventive medicine puts back the oncoming pestilence. Medicine, as it never stood before, now stands between the people and the pestilence, “and the plague is stayed.” The people dwell at home in security and flee no more from many of the scourges of the past, because our profession has found out methods to successfully combat them.

To you, gentlemen, belongs the proud honor of falling into line of battle with the Grand Army of Medicine while it is making this forward movement toward its grandest achievements. Foes fall before it that once appalled the profession and baffled its greatest chieftains. Other foes of human health and life are destined in your day (and perhaps yet in mine) to surrender to our blows for humanity's cause. The science and art of medicine all along the line are achieving wonderful victories for the welfare of mankind against the enemies of his health. In the glory

of this conquest of the closing century you are to be sharers—all of you if you will—and the names of some of you are destined, if you but will it so and work with a will to that end, to become renowned as those of great physicians and immortal human benefactors.

Lives of great men all remind us  
We may make our lives sublime,  
And departing, leave behind us  
Footprints on the sands of time.

I charge you then to

Be up and doing,  
With a heart for every fate.  
Still achieving, still pursuing,  
Learn to labor and to wait.

Yes, to labor and to wait. *Labor et patientia*. In this sign you shall conquer in the battle of life before you. In these and other lines of Longfellow's Psalm of Life we have the reminder of the example of the great before us for our emulation and advancement and of the influence of our own example in turn upon the lives of those who are to come after us in the profession; the fruition that follows faith, hope, courage—the stuff that all true men are made of—and fidelity to duty and conscience, without which no man can be a true physician.

They wove bright fables in the days of old,  
When Reason borrowed Fancy's painted wings,  
And Truth's clear river flowed o'er sands of gold  
And told in song its high and mystic things.

It is not so now. Though our ancestors in medicine saw many things as through a glass, darkly, and imagination sufficed and supplanted investigation, the modern physician is a student of fact and a diligent searcher after the unembellished truths of medical science, and these truths are “stranger than fiction.”

Hitzig's and Ferrier's cerebral localizations, Championnière's cranial topography, Macewen's and Horsley's surgical achievements, the autopsic verifications of others, and the spinal differentiations of Seguin and his colleagues, have given remarkable exactness to the topical diagnosis of brain and spinal-cord disease, so that neurology, with the aid of surgery, now locates and removes a blood-clot, spicula of bone or morbid growth, or empties a pus sac embarrassing, irritating, or paralyzing a speech, arm, leg, or other psycho-motor center in the brain; and the spinal cord may be penetrated in the same way for the relief of certain of its focal lesions, while deep-seated ganglia, like Gasser's, are cut out for the relief of intractable neuralgias.

Indeed, so great have been the recent advances in physio-anatomical knowledge of not long ago unknown localities and functions, and the perfection of surgical technique, that the timidity of some and the conservatism of others of the older surgeons in regard to operating within the cavities of the body has been replaced by an operative temerity that even now demands some repression in the light of clinical experience as to the sequences of certain surgical procedures. The annals of modern surgery in general give us records of unprecedented audacity with the knife. Scarcely any organ of the body escapes its saving or destructive touch. By a chemical process Senn searches for and sews up a severed bowel; Billroth exsects a stomach; German surgery extirpates a larynx and mechanical ingenuity replaces it with a pretty fair substitute. The lung has even been pared away under certain circumstances without causing the death of the patient, while hysterectomy, splenectomy, nephrectomy, oophorectomy, intestinal exsection, and the removal of the pelvic viscera generally are, some of them, common and others are not so frequent, but no longer impossible operations. So that the young graduate with surgical aspirations and eager for speedy fame has now rather to be cautioned as to when not to operate—cautioned to proceed with a conservative regard for his patients and to study and employ the milder means of relief before employing that last resort of the true physician, the total ablation of an important organ. In regard to all of these brilliant capital operations which some of you are or will be skilled and anxious to perform, I enjoin the golden rule, “Whatever you would that others should do unto you,” under similar circumstances, “do you even so to them.” No less, no more.

Virchow, Brown-Séquard, Charcot and Weir Mitchell, Hammond, Meynert, Nothnagel, Flechsig, Wernicke, Munk, Exner, and others, still diligently at work, have made, up to the present time, contributions to pathology, physiology, and neurological and clinical medicine generally, not before surpassed in the history of the profession's progress, while Pasteur, Formad, Tomassi-Crudelli, Laveran, Sternberg, Salisbury, Schmidt, and others have found the light in pathology and bacteriology for which our fathers hoped, but sought in vain.

Asiatic cholera and yellow fever are held at bay in their native lairs. The exact nature of that once deadly mystery, malaria, whose name confesses the ignorances of Watson and others of our not remote predecessors as to its real nature, is now known. Puerperal fever, eclampsia, and the autotoxic diseases generally are being unraveled. The pathological mysteries of phthisis, tetanus, diphtheria, etc., are solved. That *opprobrium medicorum* of the past—epilepsy—is now a manageable disease, and rheumatism has become almost as tractable as a common cold, if it were not for its unfortunate tendency to constantly recur. Skin and bone are now transplanted and made to grow on dermal soil once too barren for their sustenance, and arteries are ligated and intestines sutured with animal fiber. The abdominal and thoracic cavities are no longer forbidden ground to surgical interference. Laparotomy is triumphant. Penetrating wounds of these regions are no longer sealed and their unfortunate victims left to the tender mercies of fate and the *vis medicatrix naturee*.

You have been taught the nature and differentiation of nervous conditions, but it has not been long since to be nervous was to be simply indefinitely miserable to the physician, and grave neuropathic conditions which are now well known had no certain pathology and received no treatment.

Within comparatively a few years syringomyelia, acromegaly, exophthalmic goitre, poliomyelitis anterior, progressive muscular atrophy and its antipodal paralytic condition pseudo-hypertrophic muscular paralysis; posterior, lateral, anterior and postero-lateral spinal sclerosis, peripheral neuro-tabes, polyneuritis and the chronic toxic neuritides generally, athetosis, Landry's paralysis, bulbar paralysis, Friedreich's ataxia, paramyoclonus multiplex, morbus Thomsenii, paresis, paranoia, dipsomania, aphasia, Jacksonian epilepsy, polyneuritis, and too many other diseases of the nervous system—central and peripheral—to be here enumerated, have been diligently studied and accurately differentiated, evidencing astonishing activity in clinical and pathological investigation.

Cardiac, pulmonary, laryngeal, and cutaneous affections, surgical and gynecological diseases and those of the eye, ear, and every other organ, and many of the fevers are better defined and managed than they were even a few years ago, and scarcely any region or organ of the body is now exempt from surgical resource. Spencer Wells, Lawson Tait, and Marion Sims began their eminent careers and became famous for their work during the last third of this century.

Thus you see the past and the present have bequeathed to you a rich legacy of clinical and pathological knowledge, the accumulation of years of laborious research. What will you add to the scientific heritage? You certainly owe to your medical ancestry and to the world's posterity your best efforts to increase the store of fact you have so freely received.

The knowledge of the physiology of the almost omnipresent nervous and its attendant vascular system has so far advanced that we now appear to be fully familiar with the last factor in the phenomena of that wonderful discovery of the circulation whose initiative was made by Galen and Harvey—namely, that of the neural mechanisms of arteriole control through the vaso-motor and vaso-constrictor nerves. This added to the heart's propulsion, the *vis a tergo*, and the heart's exhaust, the *vis a fronte*, with what we know of the impressibility of the intracardiac ganglia of Ludwig, Remak, and Bidder, and of the regulating vagus and cardiac inhibitory nerve influence, gives to our knowledge of the circulation of the blood the appearance of the finality of a complete discovery.

New views of the function of the cerebellum in its relation to the cerebrum, at variance with the views of Flourens long accepted by the profession, have been advanced even pending your pupilage, notably those of Luciani, whose studies in the normal and pathological physi-

ology of this important organ I commend to your consideration. In fact, Luciani, as his accomplished reviewer, Seppilli, asserts, has destroyed Flourens's theory and assigned to the cerebellum trophic functions like those of the ganglia of the great sympathetic. The balancing power or equilibrating function of this organ seems, according to Luciani's exhaustive researches, to be secondary to cerebellar tonicity.

According to this eminent and most recent Italian investigator, three classes of phenomena characterize the healthy functioning of the cerebellum—viz., sthenic, tonic, and static neuro-muscular power—while damage to the cerebellum, sufficient to destroy its function, causes asthenic, atonic, and astatic neuro-muscular phenomena, and besides, his conclusions are in the direction of the functional unity of action of this organ, contrary to the views of Nothnagel. The theory of Flourens has been assailed in a different manner by Tolet, he giving to the cerebellum function of psychical sensibility.

How truly, then, can I cordially congratulate you, gentlemen, on the present auspicious beginning of your life work!

You have, by diligent industry and zealous endeavor, placed yourselves abreast of this wonderful progress the profession has been making, even some of it since you commenced your studies.

Omens of work already done give hopeful augury of a yet more victorious future. But you still have work before you, and much of it in contributing to unfold the yet unraveled mysteries of medicine. The present epidemic of influenza will claim your study, as it is engaging professional attention almost throughout the world, as a toxic neurosis, and the nature of the *grippe* toxine, as a poison of the nervous system, whether microbic or otherwise, is being closely investigated and will demand your attention. Even while I write, this subject is being elucidated by Babès, Pfeffer, and Canon, and some of you may make perfectly plain this and other unsolved problems to the final satisfaction of the scientific world. Why not? What man has done man may do. What graduates of other colleges have done the graduates of this school may do. Any of you may become great if you will, and be benefactors of your race and have your names enrolled high on the keystone of "Fame's triumphal arch." Mayhap some of you may be accounted by posterity as among the "few immortal names that were not born to die." At all events, it will not harm you if you strive for a place in history with the Türcks, Wallers, Hunters, Harveys, Ferriers, Jenners, Grosses, or Flints. Aim for the top even though you may not be able to climb beyond the middle rounds of the ladder of Fame.

The best calling in life is that which, after contributing sustenance to the worker, bestows the most good upon mankind. That calling is Medicine. It cares for the body of man and fits its tenant, the soul, for all the duties and demands of life. *Mens sana in corpore sano* is a maxim handed down to us from the ancient masters.

Without disparaging other professions or occupations, it can not be disputed that the practice and teaching of the medical art is the highest of benefactions. It is the greatest of charities as it is the noblest of human callings. The ministry of love was the life-work of the Divine Master, for though he began his mission as a carpenter and loved to dispute, as a boy, with the philosophers in the temple, he concluded his career as a physician of both body and soul, and went about healing the sick and doing good. He was the Great Physician.

The greatest and mightiest word that ever proceeded from the mouth of God or his apostles was "charity"—the fatherly love of God and the fraternal charity of man. St. Paul pronounced charity the highest of the virtues, and one of the sweetest-minded of the apostles was Luke, the good physician. The two professions that practice true charity more than all others are those of Medicine and Divinity, and in them the physician and the divine go hand in hand. There are no two of the callings of men so closely allied in their work. That true charity which considers in every aspect the welfare of our fellows, brings the doctor of divinity and the doctor of medicine close together. It was the appreciation of the true charity of our noble profession that caused Cicero to regard the physician as near the gods.\*

\* "Homines ad deos nulla re proprias accedunt quam salutem hominibus dando."

With the highest human sanction and the Divine example, I commend to you the practice of charity. It will do you good all the days of your life as well as those who may be the recipients of your ministrations.

It falleth like the gentle rain  
Upon the place beneath,  
And is twice blessed ;  
It blesseth him that gives  
And him that takes.

The study of the physician includes the moral as well as the physical well-being of man, for the purity of the soul has much to do with the health of the body. The purity of the heart and the dominance of the body by principles of rectitude has much to do with the health and consequent happiness of present and succeeding generations. The direct and hereditarily entailed diseases which are the offspring of sin, and *vice versa*, which have filled and are filling the land with misery and woe, both physician and divine are alike especially interested in preventing. The psychology of sin and the pathology of crime are studies alike for doctor and divine.

The man who is sick in his soul is seldom well in his body, and the soul's affairs do not prosper well when the body is disordered.

Like the divine, the physician may also aid in healing "the wounded in spirit and the broken-hearted," and in "binding up their wounds." He may "minister to a mind diseased," and "with sweet oblivion's antidote cleanse the stuffed bosom of that perilous stuff which weighs upon the heart." He does this effectually through the modern successful management of melancholia.

Besides the bedside treatment of disease, therefore, your calling is one of the noblest and most indispensable of the vocations of men. You sustain a most intimate relation to the people in their "hours of ease" and freedom from the presence of plainly perceptible disease. The populace is never free from the present or antecedent impress of disease upon their bodies and minds. Its active potency in preceding generations impresses itself upon the psychological character and physical power of nations as well as individuals. They rise or fall in physical prowess or moral greatness through the sanitary or unsanitary influences which promote or arrest the development or blast the life of the primordial cell, and individuals, singly or in aggregate, grow into giant grandeur or dwarf to pygmy insignificance—psychical or physical—as their physiological or pathological environment and organic antecedents permit and ordain.

This is a fact which medicine has established. This is what our profession has to teach all the people. It is the importance of medical research to the people's welfare that has led to the demand of the profession generally for higher medical education and of the American Medical Association for a National Health Department and a physician in the Cabinet, and some of you will live to see this much-needed advance accomplished. Some among you may even fill that important position. When this consummation of the people's highest welfare, "so devoutly to be wished," shall have been accomplished, then will the nation begin to realize what as yet it appreciates but faintly, that the perfection of the human species is possible only through the means supplied and ways pointed out by our profession—a fact long ago indicated by Descartes: "*S'il est possible de perfectionner l'espèce humaine, c'est dans la médecine qu'il faut en chercher les moyens.*"

The problems you will be called on to solve are those of the effects of alcohol and other drink and drug habits and vicious indulgences, and the many other devitalizing propensities and passions of our times, teratological defects, insanity, acquired and transmitted, the psychical and physical interrelation of mind and organism, the relationship of organism to mental endowments and imperfections, faulty methods of education, wrong manners of living, improper modes of travel, and some of the unsanitary social customs of the times on the generation now coming on the stage of life's action, and the entail of these neuropathic, psychical, and social vices, manners, customs, and habits upon posterity, as well as the more obvious demands of the diseased patients who will personally seek your ministrations, and of public and personal hygiene.

You are to be sanitarians in the broadest sense of the term ; educa-

tors of the people in the chief essentials of their temporal if not spiritual welfare.

The physical and psychical sanitation of the nation is in the hands of its physicians. They are the prophets whose precepts, wisely accepted and practiced by the people, will save the nation from that inevitable decadence which must attend in the future, as it has in the past, on failure to follow the true teachings of sanitary science of body and mind.

Your vocation has in it, as you see, an element of the highest patriotism.

A wise physician, skilled our wounds to heal,  
Is more than armies to the public weal.

Aim high, then, and nobly, and persevere. "Let all the ends thou aim'st at be thy God's and Truth's." Then if thou fallest, "thou shalt fall a blessed martyr." But you will not fail. And here let me recall the inspiring rejoinder of that great cardinal of France to the timid youth who ventured to suggest the possibility of a misadventure :

In that bright lexicon of youth,  
Where Fate holds forth the promise  
Of a glorious manhood,  
There's no such word as fail.

There should be no such word in your dictionary. Be brave, be true, and persevere. Train your courage by careful study of your capabilities and defects, your adaptabilities and powers. Though pluck is a plant whose seed is in the nature, it improves by cultivation. Cultivate your courage, train your powers. *Perseverentia omnia vincit, Labor omnia vincit*, are old and true working maxims for youth and age. In the conflict of life, as in physical conflict, "the battle is not to the strong alone, but to the brave, the vigilant, the active," and I am convinced, from a life of observation, that Providence assists the always courageously true and deserving, and helps to make them strong. This is my faith. Be true in every trial and falter not and you will not fail. You may often fall, but, like Antæus of old, you will rise again with renewed strength for the battle of life before you. Courage is an inspiration. Buckle on your armor and never say die. If you must fall, fall as the valiant falls, with face to the foe and defiance on your brow. Such failures are victories. They are triumphs which true courage always brings to the unvanquished soul. The bright ideals and high aspirations of this hour may not all be fully realized. Some of your fondest hopes may be cruelly crushed as you travel toward that unknown fate which awaits every mortal. The true soul is purified in fires of adversity and disciplined by its trials to deeds of greater valor. Some of you may have spent your last dollar and feel depressed and gloomy at the close of your work. To such I would say, Do not despair. Hope! Hope on! Hope ever!

With manly courage, ceaseless endeavor, and unflinching faith, push on and you shall yet see the silver lining to the clouds and the sun finally burst forth to brighten your pathway through life to a glorious future, all the more glorious for your trials. After every storm a rainbow of hope and promise skirts the sky of the brave. With faith in steady work and an exalted, honorable ambition as tributary to success, I enjoin you to apply yourself diligently, steadily, systematically, and persistently. A moderate amount of work, free from all enervating vices and interspersed with adequate recreation for recuperation and the maintenance of your physical vigor, will work a marvel of final success for each of you.

Work with your hands, work with your mind,  
Just as your nature has fitly designed ;  
Build ye a temple, hew out a stone,  
Do ye a work just to call it your own.  
Write out a thought to brighten the labor  
Of that one who reads—it may be your neighbor.  
Work as each day hastens away,  
Bearing along the grave and the gay ;  
Live out a life of excellent work.

Thus you shall weave for yourselves and mankind "garlands of work to brighten the earth."

And now, before concluding, I must remind you that your general,

as well as your special, professional education is not yet complete. It will be your duty in continuing your education to endeavor to give to your minds and bodies "all the force, all the beauty, all the perfection of which they are capable," to cultivate the good, the true, and the beautiful in yourselves and in your surroundings. This was Plato's idea of the best education. It has not been improved on since his day. It includes purity of body and mind, cleanness of heart and soul, virtue, temperance, truthfulness, and industry.

I have already advised you to aim high, to work hard, and to persevere. This is a proper ambition, but there should be even a higher purpose in life. That purpose is to so discharge one's duty as to deserve not only the approbation of mankind, but to secure the approval of God.

In your ambition to rapidly succeed, do not soil your souls with sordid avarice, "nor bend the pregnant hinges of the knee that thrift may follow fawning."

(Go forth among men . . . mailed  
In the armor of a pure intent.

Do not flatter [the world's]

Rank breath, nor bow  
To its idolatries the patient knee,  
Nor coin [your] cheeks to smiles, nor cry aloud  
In worship of an echo.

While you have a due regard for your personal interests, so practice your noble calling in the spirit of a generous love for your fellow-man that you may feel at the end of your lives that you have been true to the better elements of your nature. Conform to the dictates of your consciences in everything. Be unflinchingly true to your several convictions of duty. Listen always to that still small voice within, which, if ever faithfully obeyed, will prove your guiding star and compass to a successful and satisfactory career.

In your study of the human organism in health and disease—its growth, development, teratological and morbid entailments, and the effects of habit and environment upon it—you have seen enough to warn you, had you needed the warning of Holy Writ, that "as a man sows, that shall he also reap," in his moral as in his physical nature.

As there are "sermons in stones, books in the running brooks," and for our instruction, "good in everything," so the wise physician, from his peculiar studies, reads to himself an instructive sermon on rectitude of conduct and right moral and physical living. He knows well the physical and psychical recompenses of right and the retributions of wrong conduct, through the organism's immutable laws of well or ill being, and it will be your duty to follow the right paths and rightly lead the people. You know also of the automatisms of the mind which grow out of mental repetitions and form habits, that "as a man thinketh in his heart, so is he." That is, the thoughts he habitually cherishes make his character. This is the law of the interrelated and interdependent psychical and physical function of brain and mind; the law of mental habit.

This no preacher of the gospel of the Immaculate Immanuel could better prove to the people than the educated physician.

Finally, in the language of one of America's greatest statesmen—none other than the great Daniel Webster—let me remind you that "professional fame fades away and dies with all things earthly. Nothing of character is really permanent but virtue and personal worth; these remain. Whatever of excellence is wrought in the soul itself belongs to both worlds. Real goodness doth not attach itself merely to this life. It points to another world. Political or professional reputation can not last forever; but a conscience void of offense toward God and man is an inheritance for all eternity."

**The American Neurological Association** will hold its eighteenth annual meeting in New York, at the Academy of Medicine, on June 22d, 23d, and 24th. The preliminary programme includes the following titles:

The Pathology of Paralysis Agitans, by Dr. Charles L. Dana; Separate Provision for Epileptics, both Public and Private, by Dr. Henry R. Stedman; A Study of the Sensory and Sensory-motor Disturbances associated with Insanity, from a Biological and Physiological Stand-

point, by Dr. H. A. Tomlinson; Phthisis in its Relation to Insanity and other Neuroses, by Dr. Thomas J. Mays; The Successful Management of Inebriety, by Dr. C. H. Hughes; The Seat of Absinthe Epilepsy, by Dr. Isaac Ott; On the Extent of the Visual Area of the Cortex in Man, as deduced from the Study of Laura Bridgman's Brain, by Dr. H. H. Donaldson; The Criminal Brain, illustrated by the Brain of a Murderer, by Dr. H. H. Donaldson; Researches upon the Etiology of Idiopathic Epilepsy, by Dr. C. A. Herter; Report of Two Cases of Fracture of the Spine in which Operations were performed for the Relief of Sensory Symptoms, by Dr. Græme M. Hammond; Progressive Muscular Atrophy—Presentation of Specimens, with Remarks on the Functions of Certain Cell Groups in the Anterior Horn, by Dr. Græme M. Hammond; A Case of Brain Tumor, with Presentation of the Specimen, by Dr. Wharton Sinkler; Report of a Case of Infantile Cerebral Hemiplegia, with Autopsy (Microscopical Preparations by Dr. Warren Coleman), by Dr. E. D. Fisher; Report on One Hundred and Sixty Cases of Epilepsy, by Dr. S. G. Webber; Presentation of a Case of Huntington's Chorea, also one of Congenital Huntington's Chorea, the First on Record, by Dr. Landon Carter Gray; A Further Contribution to the Pathology of Arrested Cerebral Development, by Dr. B. Sachs; A Case of Cerebral Tumor illustrating the Difficulties of Diagnosis, by Dr. B. Sachs; Traumatic Nervous Affections, by Dr. Philip Coombs Knapp; A Note on the Use of Exalgine in Painful Nervous Affections, by Dr. W. C. Krauss; Two Cases of Severe Pressure Neuritis, by Dr. W. C. Krauss; Westphal and his Neurological Work, by Dr. W. R. Birdsall; The Association of Hysterical Trembling and Anorexia Nervosa, with the Report of a Case, by Dr. James H. Lloyd; Sleep Movements of Epilepsy, by Dr. J. W. Putnam; Diabetes in its Complementary Relations to Certain Forms of Mental Defects, by Dr. E. C. Spitzka; Imperative Movements associated with So-called Pseudo-hypertrophic Infantile Palsy, by Dr. E. C. Spitzka; A New Symptom indicating Combined Cerebellar and Spinal Inco-ordination, by Dr. E. C. Spitzka; The Basis of the Prognosis in the Traumatic Neuroses, by Dr. J. J. Putnam; Microscopic Specimens illustrating: 1. The Nerve Alterations in a Case of Beri-Beri. 2. The Nerve Alterations in a Case of Scleroderma. 3. The Alterations in Nerves excised for Neuralgia, by Dr. J. J. Putnam; Some Contributions to the Study of the Muscular Sense, by Dr. G. J. Preston; Fissural Studies, by Dr. Burt G. Wilder; Preliminary Report of the Committee on Neuronymy; Three Cases of a hitherto Unclassified Affection resembling, in its Grosser Aspects, Obesity, but associated with Special Nervous Symptoms—a Trophoneurosis possibly Related to Diseases of the Thyroid Gland, not Myxedema, by Dr. F. X. Dercum; Two Cases of Acromegaly, with Remarks on the Pathology of the Disease, by Dr. F. X. Dercum; Description of an Additional Chinese Brain, by Dr. F. X. Dercum; The Toxic Origin of Insanity, by Dr. T. H. Kellogg; Folie à deux, with Remarks on Similar Types of Insanity, by Dr. Charles K. Mills; and Three Cases of Folie communi-quée, by Dr. J. H. Lloyd.

**The American Climatological Association** will hold its ninth annual meeting at Richfield Springs, N. Y., on June 23d, 24th, and 25th, under the presidency of Dr. Willis E. Ford, of Utica, N. Y. The preliminary programme announces the following titles: An address of welcome by Dr. C. E. Ransome, of Richfield Springs; the address of the president, The Element of Change *per se* in the Climatic Treatment of Diseases; The Shurly-Gibbes Treatment of Tuberculosis, by Dr. E. Fletcher Ingals; Slow Breathing in Phthisis, by Dr. Carl Ruedi; The Treatment of Phthisis by the Pneumatic Cabinet, by Dr. C. E. Quimby; A Further Report on the Treatment of Phthisis in Colorado, by Dr. S. E. Solly; The Results of Tuberculin and its Modifications at the Adirondack Cottage Sanitarium, by Dr. E. L. Trudeau; Experience with Gnaiccol in the Treatment of Tuberculosis, by Dr. A. Jacobi; The Use of Tuberculin a Safe and Important Aid in Selected Cases, by Dr. C. Denison; The Hygiene of Bathing, by Dr. F. H. Bosworth; The Classification of Mineral Waters, by Dr. A. N. Bell; Heart Failure, by Dr. A. L. Loomis; Altitude in Affections of the Heart, by Dr. Frederick I. Knight; Cardiac Disease Consequent on Epidemic Influenza, by Dr. R. G. Curtin; The Effect of Change of Posture on Heart Murmurs, by Dr. V. Y. Bowditch; a discussion on The Influence of Bacteriological Investigation on Preventive Medicine; Underground Water Currents,

Causes and Results of Deflection, by Dr. Leroy J. Brooks; and The Causes of Death in Lobar Pneumonia, by Dr. G. R. Butler.

The American Laryngological Association will hold its fourteenth annual congress in Boston, in the hall of the Natural History Society, on June 20th, 21st, and 22d, under the presidency of Dr. S. W. Langmaid, of Boston. Besides the president's address, the programme gives the following titles:

The Present Status of the Treatment of Hay Fever, by Dr. C. E. Sajo; The Influence of Certain Diathetic Conditions upon the Prognosis in Operations upon the Throat, by Dr. D. Bryson Delavan; Some Pathological Conditions of the Upper Air Passages accompanying *La Grippe* Attacks, by Dr. S. Hartwell Chapman; Pharyngo-mycosis, by Dr. F. I. Knight; A Case of Carcinoma at the Base of the Tongue, by Dr. Jonathan Wright; A Case of Cancer of the Tonsil treated by Lactic Acid, by Dr. E. Fletcher Ingals; Report of Some Cases of Membranous Sore Throat, by Dr. Beverley Robinson; Intubation for Chronic Subeardal Stenosis of the Larynx in a Boy Twelve Years of Age, by Dr. C. H. Knight; Rare Forms of Laryngeal Growth, by Dr. Alexander W. MacCoy; A Case of Tumor of the Larynx, by Dr. H. L. Swain; Two Cases of Laryngectomy for Malignant Disease, by Dr. J. Solis-Cohen; The Value of Sprays in the Treatment of Catarrhal Affections of the Upper Air Passages, by Dr. Clarence C. Rice; Nasal Hydrorrhœa, by Dr. C. E. Bean; An Eligible Method of repairing a Broken Nose, by Dr. W. H. Daly; The Correction of Deformity resulting from Abscess of the Nasal Sæptum, by Dr. John O. Roe; The After-results of Nasal Cauterization, by Dr. T. A. DeBlois; Diseases Incidental to the Frontal Sinus, by Dr. D. N. Rankin; and A Case of Suppurating Ethmoiditis, by Dr. J. H. Bryan.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for June 10th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—											
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Menses.	Whooping-cough.		
New York, N. Y.	June 4.	1,515,801	868	101	..	4	..	1	..	2	26	23	38	..	2
Philadelphia, Pa.	May 21.	1,046,964	432	47	..	..	..	..	..	..	2	16	31	5	3
Philadelphia, Pa.	May 28.	1,046,964	404	58	..	..	..	..	..	..	5	18	26	5	1
Brooklyn, N. Y.	May 28.	806,343	340	53	..	..	..	..	..	..	2	5	13	4	..
St. Louis, Mo.	May 28.	451,770	146	..	..	..	1	..	..	..	1	2	2	..	..
Boston, Mass.	June 4.	448,471	209	27	..	..	..	..	..	..	3	4	6	1	1
Baltimore, Md.	June 4.	454,439	161	17	..	..	..	..	..	..	1	3	3	5	..
San Francisco, Cal.	May 28.	298,997	119	21	..	..	..	..	..	..	1	3	1	..	..
Cincinnati, Ohio.	June 3.	296,908	119	13	..	..	..	..	..	..	3	1	3	..	2
Cleveland, Ohio.	May 28.	261,353	102	11	..	..	..	..	..	..	4	..	8	2	..
Cleveland, Ohio.	June 4.	261,353	102	4	..	..	..	..	..	..	4	1	1	3	..
New Orleans, La.	May 14.	242,037	161	26	..	..	..	..	..	..	..	2	1	..	..
New Orleans, La.	May 21.	242,037	163	16	..	..	..	..	..	..	..	2	2	..	1
New Orleans, La.	May 28.	242,037	162	13	..	..	..	..	..	..	1	2	2	..	..
Pittsburgh, Pa.	May 28.	238,617	81	6	..	..	..	..	..	..	1	2	6	2	..
Detroit, Mich.	June 4.	205,870	101	9	..	..	..	..	..	..	1	5	5	..	..
Milwaukee, Wis.	May 28.	204,468	70	5	..	..	..	..	..	..	..	7	..	..	1
Minneapolis, Minn.	June 4.	164,738	54	..	..	..	..	..	..	..	..	2	..	..	..
Louisville, Ky.	June 4.	161,129	49	6	..	..	..	..	..	..	2	2	..	..	2
Rochester, N. Y.	June 4.	133,896	51	..	..	..	..	..	..	..	2	3	..	..	..
Providence, R. I.	June 4.	132,146	53	..	..	..	..	..	..	..	..	..	..	..	1
Denver, Col.	May 21.	106,713	28	4	..	..	..	..	..	..	4	1	..	..	..
Denver, Col.	May 28.	106,713	29	5	..	..	..	..	..	..	..	..	..	..	..
Toledo, Ohio.	June 3.	81,434	17	..	..	..	..	..	..	..	1	..	..	..	..
Richmond, Va.	May 28.	81,288	37	6	..	..	..	..	..	..	..	..	..	..	1
Nashville, Tenn.	June 4.	76,168	26	2	..	..	..	..	..	..	1	..	..	..	1
Portland, Me.	June 4.	36,425	12	1	..	..	..	..	..	..	..	..	..	..	..
Binghamton, N. Y.	June 4.	35,005	9	1	..	..	..	..	..	..	..	..	..	..	..
Mobile, Ala.	June 4.	31,076	21	1	..	..	..	..	..	..	..	..	..	..	..
Auburn, N. Y.	May 23.	25,858	7	..	..	..	..	..	..	..	..	..	..	..	..
Auburn, N. Y.	June 4.	25,858	10	3	..	..	..	..	..	..	..	..	..	..	..
Newton, Mass.	May 28.	24,379	7	..	..	..	..	..	..	..	..	..	..	..	..
Newton, Mass.	June 4.	24,379	8	1	..	..	..	..	..	..	1	..	..	..	1
San Diego, Cal.	May 28.	16,159	1	..	..	..	..	..	..	..	..	..	..	..	..
Pensacola, Fla.	May 28.	11,750	4	..	..	..	..	..	..	..	..	..	..	..	..

Chairmen of Committees on Anatomical and Biological Nomenclature; Correction.—In a circular entitled American Reports upon Anatomical Nomenclature issued last winter by Professor Wilder, as secretary of the committee of the Association of American Anatomists, in the third paragraph of the third page, the chairman of the committee of the Anatomische Gesellschaft should be Professor A. von Kölliker, and the chairman of the American division (appointed in 1891 by the American Association for the Advancement of Science) of the Interna-

tional Committee on Biological Nomenclature should be Professor G. L. Goodale. Professor Wilder desires to express his regret for the errors, due in the one case to his own misapprehension and in the other to a clerical mistake.

The late Dr. William R. Birdsall.—At a meeting of the medical board of the Manhattan Eye and Ear Hospital, held on June 10th, the following preamble and resolution were adopted:

Whereas, It has pleased Almighty God to remove from our number Dr. William R. Birdsall, one of the physicians to this hospital;

Resolved, That in bowing to his will we desire to express our esteem and love for Dr. Birdsall as our colleague and friend, and our sense of the great loss sustained by the hospital in the removal of one of our most faithful and efficient workers, who has made valuable contributions to the science of medicine; that the sincere sympathy of this board be extended to his family in their deep affliction; that the board in a body attend his funeral; and that these resolutions be spread on the minutes of the board and be published in the *Medical Record* and the *New York Medical Journal*.

[Signed.] D. B. ST. JOHN ROOSA, M. D., CHARLES H. KNIGHT, M. D.,  
President. Secretary.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

POTT'S FRACTURE AT THE ANKLE.\*

By LEWIS A. STIMSON, M. D.,

SURGEON TO THE NEW YORK AND CHAMBERS STREET HOSPITALS.

At the time when the courteous invitation of your secretary to read before you a paper "on some practical point connected with fractures or dislocations" reached me I had under treatment three cases showing unusual varieties of a common fracture. It is one in which I have long felt an especial interest as a hospital surgeon and a teacher, because of what I believe to be the frequency with which cardinal points in the treatment are overlooked and because of the occasional great disability that results. The idea which at once suggested itself—that the injury in question was an appropriate subject for the desired paper—was confirmed on reflection, and I therefore ask your attention to a consideration of some points connected with the diagnosis and treatment of Pott's fracture at the ankle.

Certain variations in the current use of the name and in the classification of injuries at the ankle make it desirable to define at the outset the injury we have in mind. By Pott's fracture at the ankle I mean that common injury produced usually by a forcible twist of the foot outward, and consisting (typically) of (1) a fracture of the fibula from one to three inches above the tip of the malleolus, (2) a fracture of the internal malleolus or a rupture of the internal lateral ligament, and (3) a diastasis of the lower tibio-fibular articulation with rupture of its ligaments, or possibly with avulsion of the adjoining portion of the tibia.

Of these lesions, the fracture of the fibula is, clinically, the most striking and the most easily recognized, and this fact has a constant and well-marked tendency to fix the attention upon this one of the three lesions to the exclusion, or at least to the subordination, of the others—a tendency that is full of danger for the patient for reasons that are apparent on a closer examination. The fracture appears usually to be oblique, often very markedly so (in a specimen of my own the line of fracture is more than two inches long), but the maximum of crepitus and abnormal mobility appears on manipulation to be well above the malleolus, a feature which is ordinarily sufficient at once to distinguish this form of fracture from another of much less importance which is apparently produced by *inversion* of the foot, and in which the line of fracture is situated at or near the base of the malleolus. A few cases have been recorded in which the fracture was in the middle third of the fibula or even still higher; and in some of my cases the fibula was unbroken, a point to which I shall return in a moment.

The lesion that stands second in clinical prominence is the fracture of the internal malleolus or the equivalent rupture of the internal lateral ligament. In this the varia-

tions in the position and extent of the injury are more striking than in the preceding one. The common form is rupture of the ligament, the less common one is fracture; and the fracture presents two typical forms. One of them is the equivalent of rupture of the anterior portion of the ligament, and has the same mode of production; in it only a small portion of the malleolus—an antero-inferior fragment—is broken off, the line of fracture being oblique upward and forward. In the other the whole malleolus is broken square off at its base, and the mode of production is quite different, as will be subsequently explained; in my experience it has always coincided with the extreme outward displacements of the foot.

The third lesion is the rupture of the ligaments of the lower tibio-fibular articulation. In a few recorded cases, instead of rupture of the anterior ligament, avulsion of the portion of the tibia to which it is attached has taken place; in only very few of the specimens which I have had an opportunity to examine, either post mortem or in the course of an operation or of an experiment upon the cadaver, have I found this fracture, and then it has been only an avulsion of a superficial scale of bone; I believe that even such superficial fracture is rare.

The effect of this rupture or avulsion of the ligament is to loosen the mortise within which the astragalus is held and thus to permit the displacement of this bone (and, of course, of the foot) outward. The displacement thus made possible is at once effected by the continued action of the vulnerant force; and if the weight of the individual is then brought upon the foot, the lack of coincidence between the point of support at the heel and the long axis of the leg leads instantly to further displacement in the same direction, and possibly to important additional injuries. Another result of this loosening of the mortise—one which is of much practical importance but which has received only scanty attention in systematic treatises—is the backward displacement of the astragalus along the lower surface of the tibia. This may be slight—an eighth, a quarter of an inch—or so great that the body of the astragalus lies wholly behind the tibia. It is effected in part by the contraction of the sural triceps and in part by gravity when the limb is supported in the usual horizontal position. I have never seen the extreme form in cases less than twenty-four hours old, and I associate it, not with corresponding severity in the causative violence, but with persistent, unopposed action of the sural muscles—in other words, with absence of treatment or with defective treatment.

If these two displacements, the outward and the backward, remain uncorrected, the resultant disability is great. The former removes the point of support so far to the outer side that an excessive strain is brought, in walking, upon the ligaments on the inner side of the ankle, and the patient is soon compelled to stop. The backward displacement, if slight, limits the range of flexion of the joint; if great, it abolishes it completely.

Except in the more marked cases, and unless specifically sought for, this diastasis of the tibio-fibular joint and the symptoms to which it gives rise can be easily overlooked,

\* Read by invitation before the Massachusetts State Medical Society, June 7, 1892.

and yet it is the essential lesion of the injury—one which vastly outweighs the fracture of the fibula in importance (as we have seen, the latter may even be absent), and one without which the lesions on the inner side of the ankle would probably be impossible. Without correction of this displacement and repair of these torn ligaments, a satisfactory recovery from the injury can not be had. This, then, is the feature which characterizes the injury and dominates the treatment. It is by the recognition of its presence that the diagnosis is made, and by the completeness of its repair that the efficiency of the treatment is measured.

This rupture of the tibio-fibular ligaments and the outward displacement of the foot were recognized by Dupuytren and have formed part of most systematic descriptions since his time, but the current notion of the change in the relations of the parts has always been, and apparently still is, that which is indicated in Percival Pott's original illustration, and it seems not unlikely that this illustration is responsible for it, for it has often been reproduced and is still doing duty. This notion is that the astragalus and the lower fragment of the fibula have been rotated ten or twenty degrees about an antero-posterior axis passing through the tibio-fibular joint, so that the upper end of the lower fragment is pressed inward against the tibia, the apex of the malleolus is directed obliquely outward, and the upper surface of the body of the astragalus is separated from the articular surface of the tibia by an angular space which is widest at the inner side. This conception of the change is erroneous: there is no angular change in the relations of the astragalus and tibia, but the former has simply slipped sideways along the latter; the upper end of the lower fragment of the fibula has not been displaced inward (indeed, a glance at the skeleton will show that there is no room for such a displacement), but the lower part of that fragment has been pushed outward by the displaced astragalus.

The *mode of production* is, clinically, sometimes quite clear, as when the foot is fixed and the body is thrown toward the same side, or, the foot being fixed, the lower part of the leg is pressed forcibly inward; in either case fibular flexion (eversion of the sole) is made at the ankle. This mode of production is relatively infrequent; to it belong the square fracture of the malleolus at its base and the extreme displacements of the foot outward that are sometimes noted. In some of them I have also found the lower fragment of the fibula smaller and more movable than usual. It can be copied upon the cadaver with great precision by fixing the os calcis in a vise and pressing the upper part of the leg outward.

Clinical proof of what I believe to be the other and much the more common mode of production is exceedingly difficult to obtain, notwithstanding the frequency of the fracture. Patients can seldom say more than that they slipped and twisted the foot; most of the few who can specify the direction of the twist say that it was outward; one of my patients insisted that his foot turned inward, but he added that when he rose after the fall and tried to walk he felt and heard something break at the ankle, so that the case can not serve as evidence that inward rotation can produce the lesions. Occasionally the mechanism seems clear, as in two

cases under my care this spring: in one of them, while the patient was kneeling on one knee, the foot resting on the hyperextended toes, he was pressed back by another man so that his buttocks rested on and forced the ankle inward, causing abduction of the front of the foot. In the other the patient was lying on his side on the floor, with his foot projecting beyond the edge of an elevator shaft; the descending car struck the inner side of his foot; the man hastily arose and withdrew his foot, so that it bore the pressure only for a moment; he received the second and third type lesions, as above enumerated—rupture of the internal lateral and tibio-fibular ligaments—but escaped without the first, fracture of the fibula.

Experimental proof that such abduction of the anterior portion of the foot as appears to have taken place in these two cases is competent to produce the fracture, is easily obtained on the cadaver by fixing the leg and forcing the toes outward while the ankle is held at a right angle. If the limb is previously prepared by dissection so that the sequence of events can be followed by the eye in detail, it will be seen that the first to yield is the anterior tibio-fibular ligament, then the anterior fibers of the internal lateral ligament, and, almost coincidentally, the fibula breaks by the twisting of its lower end, the line of fracture being very oblique in such a way as to make the upper fragment terminate in a posterior point near the level of the ankle joint. If the tibio-fibular ligament is first divided by the knife it is interesting to see how promptly abduction of the front of the foot makes the tibio-fibular joint gape. That the same sequence occurs clinically is shown by the cases in which the fibula remains unbroken, the action of the force having been arrested before the injury was complete. In one unique case I saw an interesting variation: dislocation of the external malleolus backward from the tibia while its relations to the astragalus and os calcis were preserved; it was caused by an outward twist of the foot while wrestling, and could be easily reduced and reproduced by pressing the front of the foot inward and outward respectively. Some hesitation must be felt in generalizing upon these facts and claiming that abduction of the front of the foot is the one cause of the common form of the fracture, for it is a forced movement to which we do not seem to be so much exposed in the common missteps and slippings as the great frequency of the fracture\* would suggest. Possibly, careful questioning of the more intelligent patients will yet remove the doubt, or perhaps some fortunate one of us may repeat the experience of Pott and, in himself suffering the injury, gain the knowledge that will associate his name also with that of the fracture.

The *diagnosis* can be made with great ease and certainty by the recognition of the points of fracture and of abnormal lateral mobility in the joint and by the deformity, which, even when slight, is so characteristic that the diagnosis can often be made with considerable assurance by the eye alone. I have spoken of the diastasis of the lower

\* This frequency is shown by the following statistics: During the six months ending June 1, 1892, the following fractures of the head, trunk, and lower extremity were brought into my service at the Chambers Street Hospital by ambulance; fractures of the upper ex-

tibio-fibular joint as the essential lesion, and it is upon this, therefore, that I think the positive diagnosis should rest. It is indicated by one subjective symptom—pain on pressure with the tip of the finger at the junction of the two bones in front close above the articular edge of the tibia; and demonstrated by one objective sign—abnormal lateral mobility—which can be shown by grasping the foot with one hand so that the posterior portion of the sole rests in the palm, with the thumb close below the external malleolus and the index finger below the internal malleolus, and moving it bodily inward and outward, while the other hand grasps the leg well above the ankle and steadies it (Figs. 1 and 2). Sometimes the click of the astragalus against the internal malleolus in this manipulation is as distinct as that of the patella against the femoral condyles when it has been raised by an effusion. The advantage of this manipulation is not found solely in the certainty it gives to the diagnosis; it also calls attention in no doubtful terms to the essential points in treatment, and it impresses him who makes it, more than any verbal injunctions could do, with the necessity of actively opposing the tendency to displacement—for he sees the foot slip outward the instant he removes the pressure of his thumb; he sees the necessity of *holding* it in place, not simply of *putting* it in place.

This immediate reproduction of the displacement appears to be due in part to the contraction of the peroneal muscles, and it may be well to add that, when these and the other muscles of the leg are kept contracted by pain or the fear of pain, this demonstration of abnormal mobility is thereby made distinctly more difficult. The difference appears at once on the administration of an anæsthetic.

I would also call attention to the usual absence at the bedside of what is a common symptom in the books—eversion of the sole. (See Fig. 1.) In my experience this is rarely present; only when the outward displacement is exceptionally great or the peroneal muscles tense.

tremity, being relatively infrequent in ambulation cases, are not here included.

Cranium:		
Vault.	Simple .....	2
	Compound.....	19
		— 21
Base.....		17
		— 38
Spine.....		3
Femur:		
Shaft.	Simple.....	13
	Compound.....	1
		— 14
Neck.....		4
		— 18
Patella.....		4
Tibia.	Simple.....	8
	Compound.....	2
		— 10
Fibula.....		17
Both bones.	Simple.....	27
	Compound.....	11
		— 38
Pott's fracture.....		55
Bones of foot.....		18
		— 201

In all but the slightest cases there is also a second constant displacement, which can be as readily demonstrated as the former, and which recurs as readily if measures to prevent the recurrence are not taken; it is a displacement of the foot backward, ordinarily for not more than a quarter of an inch. It is demonstrated by grasping the foot with both hands so that the fingers rest on the back of the heel and the thumbs on the front of the lower end of the tibia, and then, the sole being vertical, lifting the foot with the fingers while the leg is held back by the thumbs, and then allowing it to drop back again. This displacement is effected partly by gravity, partly by the contraction of the muscles of the calf. It is more easily recognized by the eye when the foot is in plantar flexion, for then a distinct notch can be seen in the dorsal outline immediately below the articular edge of the tibia (Fig. 3); but—the importance of the point justifies the reiteration—unless the surgeon's attention is specifically directed to the detection of this displacement and also of the outward one, they will both, as a rule and except in the most marked cases, pass unrecognized. This statement is justified by the frequency with which this failure to recognize has been observed; and a belief in this frequency and in that of defective treatment due to it is the main reason for bringing the matter before this society. Some of the photographs already shown—those of the old unreduced cases (Fig. 5)—prove how great a displacement can pass unrecognized; and in three cases that had been treated in large hospitals and subsequently came under my care for the relief of the disability, the body of the astragalus lay wholly behind the tibia. And yet in one of these cases the hospital record states that the patient was “discharged cured.” Of course, the failure to recognize such marked deformity at the end of treatment, after all swelling had subsided, must have been due to inattention; but the inattention is proof of a failure to appreciate the possibilities of the injury.\* It is, nevertheless, a fact that such extreme backward displacement can pass unrecognized in recent cases even by experienced observers who are aware of the possibility and have specifically sought for the displacement. They make the usual manipulation, which should effect its reduction if it is present, and, as the foot does not come forward, they infer that the displacement does not exist. And it must not simply be conceded that the displacement can be overlooked; we must appreciate that it may be difficult not to overlook it. The muscles are held tense, and the foot does not yield to the surgeon's effort to move it forward; he doubts his observation; he again scrutinizes the profile of the foot. An abiding faith in the significance of certain apparently slight deviations from the normal is necessary to save the surgeon from a grave error and the patient from a serious disability. Anæsthesia,

\* It is interesting to note, in some of these neglected cases in which the deformity is very great, that, while there appears to be a great outward displacement (Fig. 4), it is actually, almost solely, a backward displacement, and that the prominence of the internal malleolus is due to the fact that the displacement is along a line that makes an angle with the axis of the foot, so that the anterior portions of the foot, as they are successively brought back to the line of the internal malleolus, lie further and further to the outer side.

pushed to complete muscular relaxation, clarifies the situation; the foot comes at once forward and inward for a distance that is always startling, and which vividly suggests that charity in judgment is not only a grace which we may amiably extend to others, but is also one of which we may at any moment stand urgently in need ourselves.

To summarize it: Pott's fracture may be diagnosed by the recognition of three points of localized tenderness on pressure—one over the front of the lower tibio-fibular articulation, one at the seat of the fracture of the fibula two or three inches above the apex of the malleolus, the third at or just below and in front of the internal malleolus. These having been found, examination should be made by the methods indicated to detect outward and backward displacements and lateral mobility.

The indications for *treatment* (reduction and retention) have long been well understood; it is only necessary to emphasize the importance of meeting them thoroughly and permanently, and to point out the probability of being misled if one trusts to the eye alone to estimate the completeness of the reduction of the displacement. In the cases of extreme backward displacement, as has been already said, anaesthesia may be necessary to annul muscular opposition to reduction, and the same condition of the muscles occasionally makes its aid necessary in the slighter cases, either to effect reduction or to maintain it until the dressing shall have been applied. The indication, in the common run of cases, is simply to bring the external malleolus back to its place alongside the tibia, to hold it there until the torn ligaments and the broken bones have reunited, and thus to re-establish the mortise with the astragalus within it. This is accomplished by the aid of the ligaments that unite the malleolus to the astragalus and calcaneum; if the foot is brought back into place, the malleolus must go with it. But it must be remembered that in this re-establishment of the normal position of the foot it is upon its posterior portion alone that our efforts and our attention must be fixed; it is the astragalus that is to be brought into place, and the attitude of the front of the foot is not much more of an indication of the position of the astragalus than the attitude of the forearm is of the position of the head of the humerus. The posterior portion of the foot, the heel, must be pressed forward and inward, and must be held in place by pressure made against the outer side of the calcaneum and cuboid; the first effect of this pressure is to move the calcaneum and the rest of the tarsus inward along the lower surface and front of the astragalus—or, in other words, to invert the sole and adduct the front of the foot—and only after this movement has reached its limit and the ligaments have become tense does the pressure take the desired effect upon the astragalus and malleolus. Consequently, the rule should be to press the foot inward as far as it will go, adding inversion of the sole and adduction of the front of the foot, as shown in these photographs. There is no danger that the movement will be carried too far; the astragalus can not move a hair's breadth inward beyond its proper position; that is prevented by the internal malleolus or by the arrest of the fibula by the tibia, and, however distorted the position may seem, the distortion

is wholly in front of and below the ankle, and within the limits of a normal range of motion. Let me repeat: This inversion is not a superfluous addition to the treatment; it is the most convenient and trustworthy means of preventing the recurrence of outward displacement.

It is also necessary that the heel should be supported to prevent backward displacement.

These indications are satisfactorily met by molded splints of plaster of Paris, applied as shown in the photographs (Figs. 6 and 7). I prefer them to complete incasement because they permit inspection of the inner side of the ankle and immediate detection of recurrence of the displacement, and I prefer them to single or double lateral wooden splints because they are less liable to shift or to permit recurrence. They can be made of any loose-meshed material and plaster cream, or, very conveniently, of the common four-inch plaster roller. If made of the latter or of any other gauze, they should have twelve or fifteen thicknesses. The posterior splint should extend from the toes, along the sole, around the heel, and up the calf nearly to the knee; the lateral one should begin just in front of the external malleolus, pass over the dorsum of the foot to the inner side, under the sole, and upward along the outer side of the leg to the same height. They are molded and bound to the leg while wet with an ordinary roller bandage, which should be removed after the plaster has set, its place being taken by a few turns of a bandage just above the ankle and at the upper end of the splint. It is advantageous to have the splints wide enough to overlap along the side of the leg, and thus give greater security against shifting.

Such a splint may be put on immediately after the accident without fear of strangulation, if the supporting circular bandages are watched and loosened if there should be need. If put on while the limb is swollen, the subsequent shrinking can be met by tightening the circular bands; but it is advisable to apply a new one after a few days.

In the treatment of old fractures with much deformity the point of capital importance is, of course, the recognition of the direction and extent of the displacement, the appreciation of the fact that the astragalus and external malleolus are dislocated backward, and that the very noticeable projection of the internal malleolus is to be relieved by bringing the foot forward, not inward. I have always used two lateral, or antero-lateral, incisions. One begins at the front of the fibula, three inches above the ankle joint, is carried down along the bone, passing in front of the displaced malleolus, and then curved forward on the side of the foot; the seat of fracture is exposed, and the lower fragment again separated from the upper one. The second incision begins on the inner side of the tibia at about the same level as the first, passes down to the front of the malleolus, and thence forward to or beyond the tubercle of the scaphoid. Through it the internal malleolus can be detached with a chisel, and the end of the tibia protruded so that it is easy to liberate and mobilize the astragalus and to cut away any new growth of bone that may have formed on the back of the tibia. The foot is then easily restored to its place, the incisions closed with out drainage, and a bulky dressing applied and covered

with plaster of Paris. I change the dressing at the end of a week or ten days, and then apply a light plaster-of-Paris dressing. The patient is allowed to begin to bear his weight upon the foot in the fourth week. The photographs (Figs. 8 and 9) show the results as regards the restoration of form. The gain in function has also been very satisfactory.

Finally, if a few moments more may be allowed me, I should like to call attention to two complications of this injury which I have encountered in four cases and which have not heretofore been noticed. In two of these cases the internal malleolus was squarely broken off at its base and had undergone a rotation of 90° on its antero-posterior axis, so that its fractured surface lay parallel to and just beneath the skin. When the first patient came under my observation (in 1888), a few hours after the accident, the malleolus formed a prominent, freely movable mass; that it was the malleolus could not be doubted, but I was quite at a loss to explain its prominence and its mobility, or rather its unstable equilibrium, for it rolled about freely, but did not shift its position. I exposed it by an incision, discovered the condition, and easily turned the fragment back into place. When the second patient presented himself (1892), the diagnosis was easily made with the aid of what had been learned in the preceding case; it was treated in the same manner. Both patients recovered from the injury and the operation with full restoration of function, and both were shown to the New York Surgical Society. It seems probable that if such a displacement were allowed to remain uncorrected the solidity of the joint would be seriously impaired.

In the third and fourth cases the complication was also marked by exceptional prominence and mobility of the fractured malleolus, and the cause was found, on exposure of the parts by incision, to be the interposition between the fragments of a long strip of periosteum that had been torn from the inner surface of the tibia in one, and of a smaller strip of periosteum and a portion of the anterior annular ligament in the other. In both cases recovery followed without incident and with full restoration of function.

34 EAST THIRTY-THIRD STREET.

CONTRIBUTIONS FROM THE SURGICAL SERVICE OF  
ST. MARY'S HOSPITAL FOR CHILDREN.

By CHARLES T. POORE, M. D.

H.

## TUBERCULAR GLANDS OF THE NECK.

ENLARGED glands of the neck in children may be grouped in two classes: (1) the tubercular; (2) the simply hypertrophied gland. The vast majority, in my experience, belong to the first class, while those belonging to the second have been but occasionally met with. They are due to some irritation about the head; they never suppurate, and subside as soon as their exciting cause has been removed. They are most frequently secondary to pediculi or eczema capitis.

On the other hand, a tubercular gland or glands have been found whose origin seemed to be due to the same

cause, so that the existence of disease of the scalp in connection with enlarged glands can not be considered as a proof that the disease of the gland is not of a tubercular nature.

The tendency of a tubercular gland is toward caseation, calcareous degeneration, or abscess; they seldom undergo resolution. The deposit, if small, may become encapsulated, and, in rare cases, give no further trouble, but, as a rule, an abscess slowly forms, opens, and continues to discharge until all diseased tissue has been eliminated, leaving unsightly scars and blemishes, so often seen.

From the experience derived from these cases, the inference has been drawn that one or many tubercular glands of the neck are not a symptom of general tuberculosis, except in rare instances; thus, in sixty-one cases, in only three children have these glands been known to be accompanied by tubercle in other parts of the body, and in these the enlargement of the glands of the neck followed, not preceded, tubercular deposits elsewhere. Most of the cases operated upon have been seen or heard from at various times since the patients left the hospital, and, with but two exceptions, not a single one is known to have died from tuberculosis. From the above it would seem that tubercular adenitis is a local, not a general, affection, and that the danger from general infection is not great. This deduction, it must be understood, is personal from a hospital experience.

Clinically, tubercular glands of the neck have been met with under two conditions: (1) The large, isolated gland or glands; and (2) a number of small or moderately enlarged glands blended together by inflammatory products.

Of the first class, the number of glands involved has varied; in some cases only one, in others two or more glands have been diseased—if there has been more than one on a side. They are separated by more or less normal tissue, unless there has been a periglandular abscess with its secondary inflammatory changes; but they have never been found matted together, as in the second class. The contents of these glands have always been of a tubercular nature, the amount found depending upon the size the gland has attained. The larger the tumor, the more has the glandular been replaced by tubercular tissue, so that in many examples the contents of the capsule were formed entirely of caseous and semi-liquid material. These glands vary much in size; some are but little enlarged, while others attain considerable size. The largest removed measured three inches in their largest diameter. In older glands the more fluid portions of these contents may be absorbed and calcareous material found.

The course pursued by these glands varies. In a few cases, after attaining a large size, there has been no further increase, but a gradual diminution in size, their more liquid contents being absorbed and replaced by calcareous matter, the capsule shriveling up, and no further trouble is ever experienced. This course is not always followed, however, even in glands whose contents have undergone absorption. Often, in opening an abscess of the neck, nothing is found to account for its presence but calcareous material which has escaped from an old atrophied gland and has set up a tubercular abscess.

In those glands whose contents do not follow the course

mentioned above, after a time the capsule gives way at some point and allows the escape of infected material into the surrounding tissue and a tubercular abscess is slowly formed, which often attain considerable size, perforating the skin; finally a sinus remains with undermined and unhealthy skin; this sinus may discharge for years, leaving behind it deformities and unsightly cicatrices.

The second class consists of small or moderately enlarged glands, often consisting of a chain of glands blended together in a mass by inflammatory products. These masses form large swellings in the neck. On examination, these tumefactions are found to consist of a chain of glands of different sizes and in various degrees of tubercular degeneration. They have not been met with as frequently as the isolated gland. They are often deeply seated behind the deep fascia of the neck, and they are difficult to deal with.

It may be laid down as an almost universal rule that a chronic abscess in the neck of a child, if not connected with bone disease, has its origin in a tubercular gland. Sometimes these abscesses are rapid in their formation, are accompanied by marked constitutional symptoms, the tissues of the neck are brawny, and much pain is complained of. This, however, is not the rule. Tubercular abscesses generally are slow in their formation and unaccompanied by any marked symptom but swelling.

These abscesses may form behind the deep fascia of the neck as a firm, well-defined swelling, and one in which no fluctuation can be detected. One side of the neck looks fuller than the other. The true nature of this may not be known until the deep fascia has been perforated and the abscess cavity entered. In other cases a large superficial abscess may be opened and no diseased gland found. If, however, careful search be made with a director on the floor of such an abscess, a small opening will be found in the fascia leading to a tubercular gland. The history of such a condition is as follows: An abscess has formed connected with a tubercular gland behind the deep fascia. After attaining considerable size a small opening is formed in the fascia, and the contents of the post-facial abscess slowly empties itself through this channel into the subcutaneous tissue of the neck; finally, all the fluid contents of the deep collection of pus finds its way into the superficial abscess, the tubercular gland and abscess being connected by a sinus.

The importance of searching for such an opening is evident, for no cure can be accomplished until the contents of the deep-seated, diseased gland have been removed.

*Treatment.*—The medical management of tubercular glands is far from satisfactory. The general routine treatment with tincture of iodine is worse than useless. The indications are for *soothing*, not *stimulating*, applications. It is safe to say that painting with tincture of iodine tends to increase the tumefaction rather than diminish it. Poulitices should have no place in the management of these cases; they make the skin sodden, and increase rather than retard suppuration. If an abscess has opened, they are worse than useless. Moist heat encourages bacterial growth, lowers the vitality of the skin, and favors undermining.

Rest to the neck, tonic treatment, change of air, if possible, the removal of any nose, throat, or ear trouble, and maintaining the scalp in a healthy condition, are the means best calculated to be rewarded by success in cases in which much tumefaction has not taken place. Tubercular deposits in the gland differ in no respect from that in other portions of the body. They follow precisely the same course, and should be viewed from the same standpoint.

It is perfectly useless to attempt to treat a tubercular gland that has attained any size by medication with the expectation of its cure. It will always remain a diseased gland, and, in the vast majority of cases, will eventually suppurate.

The best treatment for a tubercular gland is its enucleation. If removed before its contents have infected the surrounding tissue, it prevents the formation of an abscess; and if suppuration has taken place, an operation shortens its amount and duration by months, or even years, obviates unsightly scars, and prevents the infection of other glands. For these reasons the surgical management of this affection is to be advocated.

As to the question when an operation should be done, it is always better to anticipate the formation of a periglandular abscess, and, in order to do this, all chronically enlarged glands of a tubercular nature, if of any size, should be removed, as by so doing time will be saved, and the scar resulting from the incision will only be linear and in time will be scarcely noticeable.

In regard to abscesses about the neck, the rule should be that they be opened, their cavity thoroughly curetted, together with any diseased glands, as soon as possible, and, above all, in no case should a poultice be applied.

The method of operating that in my hands has been proved satisfactory is as follows:

*In Cases Unaccompanied by an Abscess.*—After disinfecting the skin, an incision is made over the enlarged gland, if there is only one, or over the most prominent, if more than one is involved, down to its capsule, the incision being, as a rule, not more than an inch or an inch and a half long. Into this cut the gland is made to protrude as much as possible by grasping it behind. If it is non-adherent, it can be separated from its loose connection by means of a director, or, what is better, an artery needle used very much as strabismus hooks are used in enucleating an eye, working around the gland with the hook and a pair of blunt, curved scissors until the hilus is reached. If it has been thoroughly freed from all its other attachments, the gland can now be forced entirely out of the wound, its only attachment being at the point where the vessels enter. A catgut ligature is then applied around these and the gland cut away. Unless some vessel has been divided in the soft parts, there will be little, if any, hæmorrhage. If there are other diseased glands near the one removed, they can usually be reached through the incision already made. If, however, this can not be done, the incision can be enlarged or a new one made. It is often astonishing how much can be done through one opening.

If a gland is adherent, its removal is tedious and not safe; for such, the better plan is to open the capsule and

thoroughly remove its contents with a Volkmann's spoon, leaving the capsule behind. If the capsule has been opened during the operation, or its contents have perforated it before the date of operation, infecting the surrounding tissue, the same plan can be adopted, only the spoon must be used freely over the whole extent of the abscess cavity; all diseased tissue *must be removed*.

In those cases where a number of small or moderately enlarged glands are matted together, and when from their situation there is danger of injury to important vessels or nerves, it has always seemed better to remove such as can be safely and easily done, thoroughly curetting the cavity of any abscess that may exist, dividing the capsule and removing the contents of as many diseased glands as possible without making large incisions and tedious dissections. In some of these cases the glands are so situated that their thorough removal is easily accomplished without any danger to other structures, while in others a formidable operation will be required to remove them. A good result has followed in all cases where this plan has been adopted, although a second and sometimes a third operation of curetting has been called for.

In old cases where abscesses have been allowed to pursue their natural course and sinuses exist, there is often found much tubercular tissue within their cavity. In such cases a thorough curetting will effectually remove all infected tissue and a rapid closing of the cavity will result. Where the diseased gland is deeply seated and where there exists a superficial abscess connected with the gland by a small sinus through the fascia, the diseased gland can be easily removed by passing a small or moderately sized Volkmann's spoon through the sinus and curetting the gland. Unless this is done, the opening in the skin will not close until all infected tissue has been eliminated. After clearing out these cavities and glands as thoroughly as possible with a Volkmann's spoon, a moderate-sized sponge, dampened with mercury solution, is caught in a locked forceps and forced into the cavity and then turned around several times. This will remove and bring away any diseased tissue that may have been left by the spoon.

If the skin is thin, undermined, and unhealthy in appearance about a sinus, it is freely removed.

After the clearing process has been finished, the wound is well washed with mercuric solution (1 to 1,000), then dried with a sponge and iodoform dusted in, and the parts brought together as thoroughly as possible with deep and superficial suture so as to leave as few "dead spaces" as possible. It will sometimes be found, however, that the parts can not be sutured so as to close entirely the deeper portions of the wound. In such cases the wound has been stuffed with iodoform gauze.

In regard to the skin wound, one of two methods has been adopted—either to close it with a subcutaneous catgut suture, or, if the abscess has been subcutaneous or the gland large and its removal has left a considerable subcutaneous cavity, the needle, armed with the suture, is passed from without inward some distance from the edge of the incision through the whole thickness of the skin into the cavity; then, on the opposite side of the cavi-

ty, from within outward to a corresponding point upon the other side, then back again, and repeated until a sufficient number of continuous sutures have been passed, the last ending on the side first perforated. The two ends are then tied tightly together, bringing the inner walls of the cavity in apposition and causing a prominent ridge on the neck. The advantage of this is that it helps to obliterate the cavity, and, when the catgut is absorbed, the skin assumes its normal position. It has been found to be no small gain.

In regard to drainage, for some time rubber drainage-tubes were used, but of late they have been abandoned. Their points of entrance were always slow in closing, and seemed to increase the amount of cicatricial tissue. In their place horse-hair has been substituted, a bunch being held in place by the skin suture, its ends protruding from either extremity of the wound; it affords ample drainage. It is easily removed, and does not leave the cavity always seen when rubber tubing has been used.

It is not to be supposed that in all cases of operation upon tubercular glands of the neck the wound closes up at once. In many, owing either to imperfect eradication of the diseased tissue, error in after-treatment, or new points of disease showing themselves, suppuration follows. Sometimes after the wound has closed it will break down again and discharge, or a sinus will persist, the edges of the wound assuming an unhealthy appearance. In such cases the wound must be reopened. It will then be found that the old cavity has refilled with tubercular matter and pus, a neglected gland having reinfected the parts; or, if no gland be found, it is due to diseased tissue that had not been removed; but, whatever its cause, unless the cavity is again cleaned out, no permanent benefit will be derived from the operation, and a sinus may continue to discharge for months.

In other cases, although the old point of disease may never give any trouble, new glands may become enlarged and call for another operation. Thus in one child I have operated ten times for the last four years. She has had no return, and is a perfectly healthy-looking girl.

The ultimate result after the surgical treatment of tubercular glands is that, if the gland is removed before a periglandular abscess has formed, the resulting scar will be linear and scarcely visible. If, however, an abscess has formed and the skin is much undermined and unhealthy, the amount of cicatricial tissue will be in direct proportion to the amount of diseased skin. In other cases, even in the presence of an abscess, a linear scar may be formed.

The following are the statistics of all cases operated upon:

Number of cases, 58. Of these, 25 occurred in males and 33 in females.

Abscesses are mentioned in 20 cases; none existed in 28; not mentioned in 23. Age: Eleven patients were two years old; 11 were three years old; 3 were four years old; 5 were five years old; 2 were six years old; 6 were seven years old; 6 were eight years old; 1 was nine years old; 6 were ten years old; 4 were eleven years old; 1 was twelve years old; 1 was thirteen years old; 1 was fourteen years old.

The shortest time that the patient was under treatment was nine days; the longest, three years.

The duration of treatment was as follows: Fourteen patients were in the hospital less than three weeks; twenty were discharged at the end of a month, twelve at the end of two months, five at the end of three months, two at the end of four months, two at the end of five months, one at the end of six months, and one at the end of seven months; and two were under treatment for three years.

In the two patients who were under treatment for three years, in one ten operations and in the other eight were performed; some of them were for simple curetting, while on other occasions recently infected glands were removed.

In two cases only has there been any troublesome hæmorrhage, and this was in connection with masses of glands; during an attempt to enucleate them a vein of considerable size was torn, and for a short time there was quite a sharp hæmorrhage until the vessel was secured by a ligature. Care must be taken not to drag much on these matted-together glands.

After an operation the neck is well packed with bichloride gauze, secured by a firmly applied bandage. The horse-hair drainage is removed at the first dressing.

With glandular abscesses of the neck, simply opening the abscess and allowing the pus to escape is temporizing treatment; the cavity should always be curetted.

## MUSCULO-SPIRAL PARALYSIS COMPLICATING FRACTURE OF THE HUMERUS.\*

By FRANCIS W. MURRAY, M. D.,  
VISITING SURGEON TO ST. LUKE'S HOSPITAL.

THE UNCOMMON occurrence of the above complication, and also the desire to relate an interesting and successful case, are my reasons for bringing this subject to your attention. From the fact that fracture of the humerus occurs most frequently at the shaft, and from the intimate relation of the nerve to the bone in the musculo-spiral groove, it seems rather remarkable that the nerve so often escapes injury.

Bischoff,† in examinations on the cadaver, finds that the "dangerous place" (when the nerve lies on the bone) "begins about eleven centimetres above the external epicondyle of the humerus, and ends about six centimetres and a half above and behind." Thus the nerve is exposed to insult for only a proportionately short distance, and at this point it is also very firm and capable of resistance, all of which circumstances may explain its immunity from injury in cases of simple fracture of the shaft. In 562 cases of simple fracture of the humerus treated during the past twelve years at the Chambers Street Hospital, in New York, but three cases of musculo-spiral paralysis are to be found. Billroth, during a period of sixteen years in his clinic at Vienna, saw only three cases. From these individual experiences one naturally concludes that lesions of this par-

ticular nerve with fracture are rare, but it is only by collecting together all the material that a correct estimate of its frequency can be formed. Bruns,\* however, was the first to accomplish the collection and classification of the material, which had been accumulating for years, and his results are most interesting. He shows that while injury and compression of nerves in connection with fracture is of uncommon occurrence, still the complication is decidedly more frequent than has generally been supposed. He has collected the large number of 189 cases of nerve injuries with fractures, and all but 21 cases are simple fractures. Of the 189 cases, over two thirds (135 cases) were connected with nerves of the upper extremity, and of these 135 cases, 77 concerned the musculo-spiral nerve alone, and 2 cases involved the ulnar and median in addition. He found that the humerus was the bone most frequently complicated with nerve lesions, and the musculo-spiral the nerve most often concerned. Thus, in 101 cases of fracture of this bone attended with paralysis, there were 73 examples involving the musculo-spiral nerve. As to the seat of fracture, the lower and middle thirds were the most dangerous for this nerve, as shown by 4 times in the upper, 25 times in the middle, and 19 times in the lower third. Certainly these results show that the complication in question is not a rare one. Primary paralysis was more than twice as frequent (62 cases) as the secondary variety (25 cases), and of the former class the great majority (44 cases) were caused by contusion of the nerve, while in the secondary variety almost all cases were due to compression by callus and cicatricial tissue. Bruns's collection of cases ends with the year 1885, and in examining the literature since that year I have found the histories of only five cases. It is likely that I have failed to find some histories, but this is the result of a fairly faithful search with the assistance of the *Index Medicus*. The cases are briefly as follows:

Middeldorpf.† Man, aged thirty-two; caught in a thrashing machine, injuring his shoulder; paralysis set in immediately; seen seven weeks after accident. Complete musculo-spiral paralysis; also paresis of fibers of part of ulnar nerve and paralysis of deltoid muscle. Operation nine weeks after injury revealed fracture of surgical neck close to head of bone, lower fragment dislocated inward and backward and pressing on musculo-spiral nerve; fragment replaced; primary union of wound. Slight improvement began in a month, and paralysis cured at end of seven months.

Puzey.‡ Man, aged fifty; fracture in lower half of humerus; paralysis first noticed when splints were removed; excessive amount of callus. Operation three months after injury; nerve exposed over thickened bone; was pale, hard, and smaller than normal. It was dissected out of a groove for three or four inches, until free above and below. Some tingling at end of a week; improvement slow, but was cured at end of nine months.

Stimson.§ Young man; fracture of humerus about its

\* Read before the New York Surgical Society, February 24, 1892.

† *Centbl. f. Chir.*, 1877, S. 161.

\* P. Bruns. *Deutsche Chirurgie*, Lief. 27, II. Hälfte.

† *Munch. med. Wochenschrift*, 1888, No. 14.

‡ *British Med. Jour.*, 1889, ii, 309.

§ *N. Y. Med. Jour.*, 1890, 557.

middle; treated usual way; did well, and was discharged with fracture cured. Afterward he returned with musculo-spiral paralysis; nerve exposed and found imbedded in callus, occupying a canal an inch long; above and below, it was free. Nerve liberated; wound healed kindly. Five weeks after operation slight movement of fingers, and at time of presentation before this society the restoration was complete.

Nicolson\* reports two cases. The first, a boy, aged ten; simple fracture at lower third of humerus; treated in right-angled splint; swelling of hand set in soon; six weeks after injury sloughing of ring and little fingers; paralysis discovered when splints were removed. Seen by Dr. Nicolson eighteen months after injury; wrist-drop well marked; flexor tendons contracted, and under ether inability to extend them; whole hand blue and cold; hyperæsthesia of palm of hand. Tenotomy to straighten wrist; electricity; some improvement. The second case was a girl, aged seven, fracture lower half of humerus; seen some months after injury; appearances same as in last case, excepting sloughing and hyperæsthesia of palm. Case had been treated by plaster splint, and there had been a superficial sloughing at center of forearm. In reporting these cases Dr. Nicolson mentioned a case occurring in the practice of Dr. Howell, of the same city. In a letter from Dr. Nicolson he states that his two cases disappeared and the ultimate results are unknown, and that Dr. Howell's case was one of immediate paralysis following fracture, and recovered without operation. He adds a third case lately seen in the practice of another physician, where the paralysis was complete, and attended with atrophy of extensors and supinators. The patient had lost the usefulness of the hand and forearm, as well as a large part of the hand by sloughing. Plaster splint was used in this case.

To these cases already briefly mentioned I should like to add the history of one lately under my care:

R. S., seven years of age, on March 25, 1891, was run over by a wagon and sustained a simple fracture of the humerus about the middle third. An ambulance surgeon reduced the fracture, applied a right-angled splint, and removed the boy to a hospital. That night the boy developed measles, and on the following day was removed to another institution. Here he remained about six weeks for treatment of the measles, and the fracture apparently received but little attention. On returning home, the splint was removed and the arm was found to be crooked, also loss of power in forearm and hand. On June 10th the boy came under my care at St. Luke's Hospital. Examination revealed well-marked deformity at the middle of right arm, a bowing outward and backward; and at this point was felt a prominence, evidently the upper extremity of lower fragment. Very little evidence of callus, no pain or crepitus, and a suspicion of false point of motion. Measuring both arms from acromion to olecranon shows a shortening of an inch and a quarter of right arm. Power of extension of forearm remains, but supination of forearm, extension of wrist, and radial flexion lost, "wrist-drop" marked, also impaired extension and abduction of thumb. Fingers flexed, but, on passive extension of proximal phalanges, extension of terminal phalanges is normal. Some atrophy of supinators and extensors, but they respond to

faradism; sensory disturbances slight. On June 13th incision two inches long on outer side of arm carried down to site of fracture, as nerve was not seen; the incision was carried downward and nerve exposed in its course between brachialis anticus and supinator longus muscles. On following the nerve up from this point, it was found firmly adherent to and tightly stretched over the edge of the lower fragment, which was dislocated upward and outward. At the point of compression the nerve was smaller, completely flattened out, and of a dark-red color, which extended a short distance above and below. Incision through periosteum, chisel inserted, and the edge of fragment removed; the nerve released and held to one side. On examination of fracture, the lower fragment was seen dislocated as mentioned, rotated strongly inward, and united to the upper fragment at an angle of 150°. I then refractured the arm by cutting through the callus with a chisel and straightening the member with my hands. Ends of fragments smoothed off with rongeur forceps and approximated with a strand of silkworm gut passing through holes drilled through the bone. Periosteum united by catgut, wound disinfected and united by a few deep and superficial catgut sutures. Sterilized dressing, plaster splint from wrist to axilla with few spica turns; forearm flexed on arm. Beyond slight suppuration in one or two superficial sutures, the wound healed kindly; splints removed in six weeks. Four weeks after operation there was some power of extension of fingers, and from that time his history is of steady improvement. Eight weeks after operation there was good use of arm, but not complete restoration. Late in September he returned to hospital with a small, fluctuating swelling over site of wound; incision let out a small amount of pus in which was found the silkworm gut. Wound soon healed, and he left with perfect and complete restoration of the right arm. On questioning the boy closely, I find that he was able to extend the hand and fingers immediately after the accident, and that the movements were not abolished until some time after his admission to the institution where he was treated for the measles. Four or five weeks elapsed before the fracture was examined, so it is fair to presume that the dislocation took place some time after the original application of splints. The case, therefore, is of some significance, as it is an example of compression of the nerve through secondary dislocation of a fragment, of which only few cases are on record. The refracture of the bone I think was proper under the circumstances, and without it the operation would have been incomplete. To have merely cut away the projecting end of the lower fragment would have relieved the pressure on the nerve, but the boy would have had a crooked and shortened arm, and, as he is right-handed, its usefulness would have been impaired. There are other points of interest in the case, but I will not detain you by referring to them. Through the kindness of Dr. L. A. Stimson I am able to add three other unrecorded cases, the cases mentioned above as occurring at the Chambers Street Hospital. They are briefly as follows:

CASE I. *April 29, 1885.*—G. T., aged forty-four years, simple fracture middle third of humerus. Shoulder cap and outside coaptation splints applied, but replaced in two days with plaster splint from wrist to axilla; spica at shoulder.

*July 17th.*—Paralysis noticed; wrist-drop marked; loss of sensation in fingers not absolute. Ordered electricity. Very slight improvement.

CASE II. *March 5, 1888.*—A. G., aged fifty years, simple oblique fracture middle third of humerus. Shoulder cap, apposition splints, elbow splint. Three days later, plaster splint wrist to shoulder.

*April 20th.*—Paralysis noticed. Faradism ordered. Result, improvement in extension at wrist and of fingers.

\* *Gaillard's Med. Jour.*, 1890, i, 20-24.

CASE III. *August 30, 1890.*—R. K., aged forty-four years, simple fracture middle third of humerus. Plaster splint from wrist to shoulder and spica.

*October 9th.*—Paralysis discovered, and, three days later, Dr. Stimson exposed nerve for three or four inches. It showed no signs of injury, and was not imbedded in callus or cicatrix. Union of fracture absolutely without deformity.

*November 13th.*—Wound healed, but no use in hand as yet. Result, last seen in September, 1891. Electricity and massage had been kept up in the mean time. The patient could raise wrist to level and was slowly improving. As to the ultimate results in the first two cases nothing is known, as they disappeared after the fractures were united.

The last case is unique in that the conditions revealed by exposure of nerve were not sufficient to account for the well-marked paralysis. The addition of the eleven cases collected in this paper to the number collected by Bruns makes ninety cases in all—certainly not a small number. Of this number, thirty-eight (forty-two per cent.) were treated by operation, and in almost all the nerve function was restored. While in thirty-four cases neurolysis was performed, in only three cases was the nerve sutured, showing the rarity of complete division of the nerve. Of the cases treated by neurolysis, the great majority (twenty-two cases) were examples of compression due to callus or cicatricial tissue; only seven were due to compression by a dislocated fragment. It is interesting to know that a large percentage were treated by operation, and that the results were mostly successful. Where paralysis is due to compression by callus, cicatricial tissue, or dislocated fragments, already consolidated, in my opinion the earlier the nerve is liberated the sooner will the patient be cured. Some authors advocate, however, waiting for months to see whether Nature will not effect a cure. Where the paralysis is due to the contusion of the nerve, and if no improvement appears in four to five months after the injury, I think exposure of the nerve is indicated. In such cases the nerve substance may be destroyed and replaced by fibrous tissue, which can be removed and nerve suture applied, or compression by a small fragment of callus or a fine band of cicatricial tissue may be found. A point worthy of mention in the performance of neurolysis is to expose the nerve, not at the point of compression, but rather at some distance above or below, and then follow it up to the desired spot. By so doing, one lessens the risk of injuring or cutting the nerve in our attempt to find it when enveloped in a mass of callus or cicatricial tissue. Finally, in the examination of every case of fracture of the humerus, it is wiser to look for any injury of the musculo-spiral nerve before applying the splints; otherwise the injury may be overlooked and not discovered until the appliances are removed, and it will then be impossible to say whether the paralysis was due to the injury or not. From a medico-legal standpoint it is also important in these days, when unscrupulous lawyers and ungrateful patients abound.

In conclusion, I would state that this paper has been prepared to show that musculo-spiral paralysis is not so infrequent in connection with simple fracture of the humerus, and also to place on record the case which came under my care.

## A CONTRIBUTION TO THE STUDY OF CEREBRAL TUMORS.

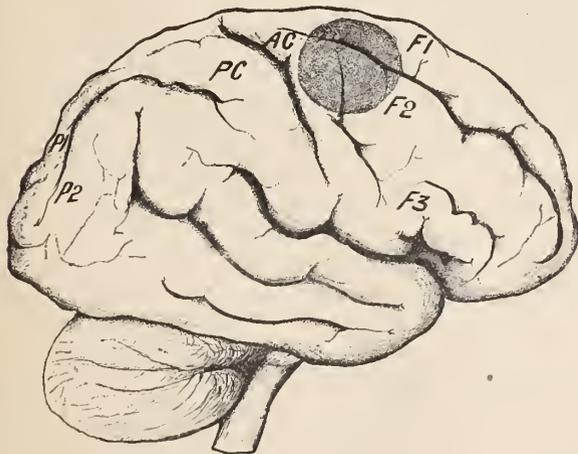
By P. C. BARKER, M. D.,  
MORRISTOWN, N. J.

A. W. B., a banker, aged sixty; always had good health, with the exception of two attacks of typhoid fever—one in early manhood, and the second while in the army in 1863. No specific history. In May, 1891, while asleep on a reclining chair one Sunday afternoon, he was observed to be breathing with difficulty—eyes opened and raised, arms and legs being drawn up and extended again. The seizure lasted but a few minutes, and he soon regained consciousness, assuring those around him that he felt perfectly well. It was not observed whether he was flushed or pale; nor were any other observations made than those mentioned. In July he fell while walking on the street. A physician chanced to be just behind him, saw him reel, and seized hold of him, but not soon enough to prevent a heavy fall to the pavement. It was not noticed which way he turned as he began to reel. He had an epileptoid convulsion, with the usual manifestations; was carried home and placed in bed. Some hours afterward, while lying quietly in bed, he had another convulsion—longer and more severe than that of the morning. I was summoned by telegraph, started at once for central New York, where he lived, and arrived there early the following morning. With the exception of some rather severe bruises about the face received by falling on the street the day before, he seemed to be as well as usual. In searching after any facts that might throw light upon the probable cause of these seizures, only the following were gleaned: In January, 1890, the patient lost his footing on an icy pavement and fell, striking on the back of his head. The pain was so severe that he was unable to get up for some time; and a persistent headache followed for several days. This accident was recalled by his daughter, and referred to after the investigation had continued for some time. The patient had entirely forgotten it, as he had had no symptoms remaining, beyond the few days mentioned, that suggested any connection with the fall. It also transpired that he had been unable to read evenings, as his habit formerly was, and that some member of the family had read to him for "a long time." He had consulted an oculist, and his trouble had been ascribed to the severe use his eyes had been subjected to during banking hours.

There were no more epileptoid attacks, and the patient attended to his usual duties until September without having special symptoms of any kind except an occasional feeling of weakness in his legs (as he said) and some unsteadiness in walking. At my request, his eyes were again examined, and, with the exception of slight astigmatism, pronounced normal. There was no optic neuritis. Late in September there was an attack of diarrhoea that lasted several days, together with anorexia, increased weakness, and unsteadiness. The urine became reduced in quantity one half, while the specific gravity fell from 1.023 to 1.006, where it remained for some days, and then gradually ran up to 1.016. Repeated tests failed to show the presence of albumin. The pulse was slow, temperature sub-normal every morning, and some days it remained all day a little below normal. The bowels were constipated, and he was troubled at times with dysuria and rectal tenesmus. Upon awaking in the morning, he was quite likely to have a little headache, which soon passed off.

These symptoms, as reported to me from day to day by the attending physician and the family, were very perplexing; and so, on October 23d, I visited him again. I got there before daylight and found the patient asleep. I soon noticed that the left

arm was never at rest for any length of time. The forearm would be extended upon the bed, and soon flexed again at intervals of a minute, more or less. Now and then he would rub his forehead and the top of his head with the right hand. After about an hour he awakened. The same restless motion of the left arm continued, but less often, and he occasionally passed his right hand over the head, as when asleep. Upon being asked why he rubbed his head, he replied that it felt bad when he first awakened after prolonged sleep: but it was hardly a pain. (Later on he did have some pain over the frontal region and vertex; but it was never severe.) He was not aware that he moved the left arm, and could give no reason for it. The tendon reflexes were practically normal. Sensation diminished in both arm and leg. Dynamometer showed a loss of one half in left hand. Left leg evidently weaker than the right. Percussion over the scalp was complained of when I finally came to the right parietal bone and over the anterior central region of the brain. Previous to this visit it had not been observed by the patient or any one else that his occasional shambling gait was unilateral; nor whether one hand rather than the other or both failed him in attempts at buttoning his collar; or other details in dressing. With these new facts it was at once manifest to me that the patient was suffering from a tumor (probably superficial) of the right anterior central region of the brain. The accompanying diagram was made at the time to indicate the probable location of the tumor, and was shown to the attending physician and to the family of the patient. Soon after this visit the symptoms became more pronounced. The arm and leg became more paretic, sensation more disturbed. At times both arm and leg would be almost devoid of sensation; at other times hyperaesthesia was complained of. At times, too, he would have mild transient delirium; or his face would be flushed, his nose cold and pinched, his pulse feeble, his respiration labored. One moment he would feel chilly and the next too warm. These varying symptoms were usually of short duration; and he would now and then have an entire day or entire night of continuous comfort. Then followed a more rapid progress, the leg and arm becoming entirely paralyzed, pulse and respiration greatly increased in frequency, increasing hebetude, coma, and death—six months after the first convulsion.



*Post-mortem.*—Body somewhat emaciated, rigor mortis well marked. Superficial sinuses congested. Dura mater rather opaque, but otherwise of normal appearance. Brain and membranes removed intact. Upon section of the dura mater, a tumor two inches and a half in diameter was found in the exact spot indicated in the diagram. The dura mater was firmly adherent to the center of the growth, involving an area of a little

less than an inch. There was a nucleus of corresponding size that was readily lifted out from the rest of the neoplasm, which presented an entirely different appearance from the latter in color and general appearance, being whiter and of closer, firmer texture. Next to this nucleus, upon all sides and beneath it to a depth also of nearly two inches and a half, was, first, a highly vascular area, with many small extravasated blood clots, while beyond this was an area of yellowish, semi-softened tissue that gradually changed into healthy-looking white matter. Upon the vertex of both hemispheres the arachnoid was opalescent, and there was also an effusion beneath it. Only a hasty examination of the deeper structures was made, as none of the observed symptoms remained unexplained, and nothing else abnormal was noticed. Professor Prudden examined the nucleus mentioned and reported that it was a spindle-celled sarcoma.

It is extremely probable that the fall was responsible for this growth. I was unable to determine whether the original growth started from the dura or from the gray matter beneath it. The bond of union between the dura and the nucleus was certainly very firm, but it was separated with the handle of the scalpel, although with some difficulty.

The period that elapsed between the fall and the first epileptoid seizure—about sixteen months—not only sufficed for the growth of the nucleus, but for the second stage as well, the period characterized by the epileptoid convulsions and due to the multiple hæmorrhages. During the first period no impairment of health—no symptoms of any kind save possibly one—were experienced by the patient. His inability to use his eyes as he had been accustomed to use them may have been due to the growth, by involvement of communicating fibers between this region and the inferior anterior frontal region. The third stage, that of softening, was prolific in symptoms and disturbances.

#### REPORT OF A PECULIAR CASE OF CHRONIC ASCENDING POLIOMYELITIS ANTERIOR.\*

By CHARLES E. LOCKWOOD, M. D.,

NEW YORK,  
ATTENDING PHYSICIAN, DISEASES OF THE NERVES,  
OUTDOOR POOR DEPARTMENT, BELLEVUE HOSPITAL.

Mrs. A., white, aged forty-six, born in Ireland.

*Family History.*—Father died of old age; mother died of cancer of the breast, aged sixty-six years; three sisters and one brother living and well; one sister died of consumption, aged twenty-two years.

*Personal History.*—Never seriously ill; has suffered somewhat at times from malaria. In the spring of 1889 she had a sharp, shooting, burning pain in the right foot, but did not consult a physician in regard to it. She spent the summer of 1889 in Saratoga, and thinks the place where she lived was damp. No history of gout, rheumatism, or syphilis. On September 1, 1889, she stumbled over a chain, bruising her right shin slightly, and a few days afterward noticed that she was unable to walk as well as formerly. The trouble persisting, she consulted me, February 6, 1890, complaining of a peculiar heaviness and weakness of the right leg and foot in walking, and of a diminution of the temperature in these parts. On examination, I discovered marked weakness of the flexors of the foot and the ex-

\* Read before the Medical Society of the State of New York at its eighty-sixth annual meeting.

tensors of the toes. The right leg and foot felt colder to the touch than the left; atrophy of the anterior tibial muscles was not marked. There was no pain; no sensory, rectal, or bladder disturbances. Tendon reflex at the right knee was present. There was diminished electro-muscular excitability to the induced current, and the normal formula was practically unchanged so far as galvanism was concerned. Here, then, was a case characterized by a marked loss of power in the group of muscles supplied by the anterior tibial nerve, coming on insidiously and gradually, with no premonitory symptom, except the shooting, burning pain in the right foot, noticed during the preceding spring. No appreciable atrophy; no sensory, bladder, or rectal disturbance. Tendon reflex at the knee intact; reaction to the faradaic current diminished, and to the galvanic unaltered. The temperature of the affected limb lower subjectively and objectively, and this condition connected in its apparent commencement with a local injury in the mind of the patient, who otherwise appeared to be in a good state of health. Was the affection central or peripheral? I was unable to decide, and asked Dr. Allan McLane Hamilton to see the case. He expressed the opinion that the trouble was not central, and advised the application of the actual cautery over the peroneal nerve near the outer tendon of the biceps muscle, the hypodermic injection of the paralyzed muscles with one sixtieth of a grain of strychnine daily, massage, and the daily application of the faradaic current. In the way of medication, fifteen grains of salicylate of sodium three times a day, and two teaspoonfuls of Fellows's hypophosphites with meals. Prognosis was that the patient would eventually recover, but convalescence would be tedious. Such was the treatment pursued without improvement until March 31, 1890, when, while going into church, the patient's right leg gave way, and she fell, bruising her face severely.

On April 1, 1890, my patient was seen by Dr. M. Allen Starr, who found paralysis of the anterior tibial group of muscles of the right leg, atrophy, and the reaction of degeneration; loss of faradaic reaction and change in the galvanic reaction, with the knee-jerk still preserved.

*Diagnosis* was degeneration of the nerve, with impaired sensation and motion; said it would take a year to recover, and recommended the use of the continued and interrupted galvanic currents—one pole over the sciatic nerve and the other over the anterior tibial muscles two or three times a week—massage, and the wearing of a shoe with a piece of iron in the sole connected with an upright piece fastened to the leg by a leather band to prevent foot-drop. About the middle of April the patient complained of a sharp, shooting pain in the left foot, the same in character as that felt in the right foot a year before, and further treatment was prevented by her departure to the country for the summer. On her return in October, 1890, examination by Dr. M. Allen Starr and myself showed complete paralysis of the entire right leg, with reaction of degeneration, loss of power and electrical contractility of the anterior tibial muscles of the left leg, and atrophy and loss of power of the thenar and hypothenar muscles of the right hand, with fibrillary twitchings and diminished faradaic excitability. A diagnosis was now made of chronic ascending poliomyelitis anterior, lesion having given effects first in the peroneal muscles of the right leg.

The treatment decided upon was ten drops of Thompson's solution of phosphorus after meals for two weeks, and then one sixtieth of a grain of strychnine and one fortieth of a grain of arsenious acid, three times a day for two weeks; and their use afterward alternately for two weeks. The application of the faradaic current to the affected muscles half an hour daily, massage, and dry cups to the spine weekly.

The above treatment was followed for about a month, when

patient showing no improvement, but gradually growing worse, her friends were anxious to have another opinion on the case, and Dr. G. M. Hammond saw her and concurred in the diagnosis of chronic anterior poliomyelitis. He was able at that

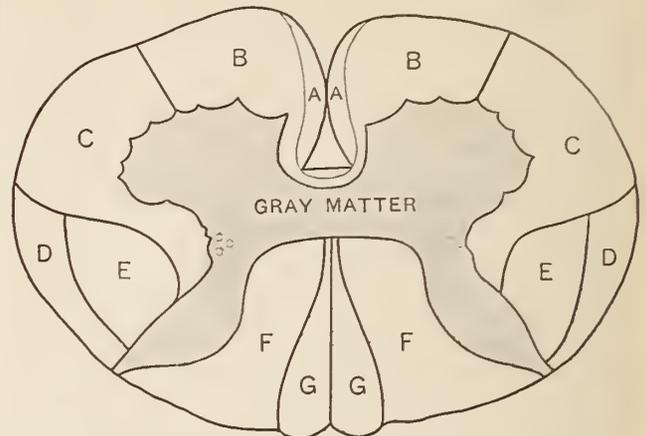


Diagram of section of the cord through the lower part of the cervical enlargement (Ranney). A, uncrossed pyramidal tract or column of Türk; B, anterior columns; C, lateral columns; D, direct tract from lateral column to cerebellum; E, crossed pyramidal tracts of lateral column; F, columns of Burdach or posterior root-zone of Charcot; G, column of Goll; site of lesion, B, C, E, and portions of gray matter.

time, over one year from the commencement of the disease, to obtain slight tendon reflex on the right knee, better and fair on the left knee; found sensation good; atrophy of muscles on inner sides of lower parts of thighs; atrophy of legs not marked; gastrocnemii contracted. Dr. Hammond gave a favorable prognosis; he thought the patient could be cured, but it would take a long time. He advised the use of the fluid extract of ergot, one teaspoonful three times a day after meals, to prevent congestion of the cord, and iodide of potassium, commencing with ten grains well diluted, three times a day after eating, and increasing the dose daily by one grain until the dose of sixty grains three times a day was reached, to prevent the formation of connective tissue, and the use of the galvanic current on the affected muscles daily.

The patient at this time was placed under the care of Dr. Hammond, and he very kindly informs me that "she subsequently died at the Post-graduate Hospital, about two years after the commencement of the disease, from the extension of the degeneration upward until the medulla was reached and the cardiac and respiratory centers were implicated. About a week before she died she began to complain of shortness of breath; there was also a slight degree of cardiac irregularity. These symptoms were intermittent. At the end of the week she suddenly had an attack of cardiac and respiratory paralysis; she was treated by hypodermic injections of strophanthus, digitalis, and whisky, and rallied. In about two hours she had another attack; remedies were unavailing, and she died."

A post-mortem examination was made by Dr. G. M. Hammond, and sections of the spinal cord from the dorsal and upper lumbar regions were made for microscopical examination by Dr. Edward K. Dunham, of the Carnegie Laboratory, who describes the conditions found as follows: "In sections of the spinal cord which you submitted to me for microscopic examination the posterior columns of the white matter appear normal.

"In the crossed pyramidal tracts on both sides the number of nerve fibers is decreased and the amount of interstitial tissue increased—descending degeneration. The number of nerve fibers in the rest of the antero-lateral columns of the white substance also appears to be diminished with an increase of inter-

stitial tissue, but the amount of the change is not as great as in the crossed pyramidal tracts.

"In the gray matter the walls of the blood-vessels are considerably thickened, and I have thought that some of the nerve cells in the anterior cornua were atrophied, but there are so few normally present in this portion of the cord (dorsal and upper lumbar) that I have not been able to satisfy myself upon this point. The examination of other portions of the cord would be of interest as showing whether the changes in the antero-lateral columns of the white matter were a part of a disseminated sclerosis, and also the cause of the descending degeneration in the crossed pyramidal tracts."

March 1, 1892.—Dr. G. M. Hammond, having made sections and microscopic examinations of other portions of the spinal cord, has kindly furnished the following description of conditions found: "Sections of the lower medulla show the hypoglossal nucleus to be normal. The motor cells of the pneumogastric nucleus are atrophied, also the spinal accessory cells. Respiratory bundle, just beneath the pneumogastric center, shows slight evidence of sclerosis. Anterior pyramids show slight sclerosis; all else seems normal. The cervical cord shows same lesions as those found in the dorsal and upper lumbar portions heretofore described."

The points of special interest in this case seem to me to be:

1. The rarity of this form of the disease, Erb having stated, in 1876, that only two reports of post-mortems were then on record.

2. That the apparent commencement of the disease seemed to be associated with a local injury, thus suggesting a peripheral cause for the paralysis.

3. The difficulty experienced in making an early diagnosis, owing to the fact that *those muscles only* of the right leg were primarily affected which were supplied by the anterior tibial nerve, thus seeming to point to a peripheral lesion.

4. The slow progress of the disease upward, its effects for six months being confined to the anterior tibial group of muscles, and its entire progress occupying two years.

5. The advisability of taking into consideration the possibility of the existence of chronic anterior poliomyelitis in a slowly progressing motor paralysis of a group of muscles supplied by a single nerve with no sensory disturbances.

6. The impossibility of distinguishing between a central and a peripheral cause, while the effects of the disease were manifested in the peroneal muscles only, by means of the electrical reactions, as the reaction of degeneration might be present in both instances.

7. The possibility that the trouble may have been primarily peripheral and secondarily central.

8. The persistence of the cathode closure contraction to the last, as observed by Dr. Hammond.

9. The identity of this case with those described by Charcot, Marie, and Tooth as the peroneal type of progressive muscular atrophies, concerning which Dr. Putzel, in Wood's *Reference Hand-book of the Medical Sciences*, says: "Hardly anything is known concerning the pathological anatomy of the peroneal type of progressive muscular atrophies. Charcot and Marie suggest that it is the result of peripheral neuritis, and in three cases interstitial neuritis was found on autopsy. It must be admitted, how-

ever, that our knowledge of this affection is too imperfect to warrant us for the present in drawing any conclusions with regard to its pathology and pathological anatomy," and under the heading of Pathology he remarks: "The nature of the lesion in the peroneal type of muscular atrophy must be left for future investigations; we may say, however, that the strong hereditary element and the clinical history seem to indicate a peripheral rather than a central origin."

## AN ANCIENT SPA.

BY FREDERICK PETERSON, M. D.

THE Baths of Helwán, in Egypt, perhaps merit the distinction of being the oldest health resort of the world, and while their situation in so remote a country as Egypt may not make a reference to them so valuable to American physicians as it otherwise might be, still it may have a historical interest to many of your readers, and a few may find some practical use in the following notes of a recent visit, for the travel of American invalids in this direction is becoming greater year by year.

While I have spoken of the Helwán springs as the most ancient spa of the world, their early history is somewhat obscure. It seems reasonably certain, however, that during the eighteenth dynasty, or something over thirty-five hundred years ago, King Amenhotep sent persons afflicted with leprosy and other incurable diseases to these springs for treatment. There are perfectly authentic records of their being a health resort twelve hundred years ago, but from that time until a very recent period they had a very precarious existence, as the various layers of bricks, granite, marble, pottery, and the like found as ruins of ancient villages would seem to indicate. Somewhere about 1871 the Egyptian Government inaugurated a new era for these springs by reconstructing the baths, building a hotel, planting trees and the like, so that now a pleasant, well-built town, with palm groves and villas, and a good railway from Cairo, stands where not long ago was but a waste of yellow sand.

Helwán is said by some to derive its name from the Arabic word *helwa*, meaning sweet; but this would hardly be suggested by the waters, which are particularly generous of their exhalations of sulphureted hydrogen. The modern spa lies fifteen miles south of Cairo in the desert, about three miles from the Nile, and with about two miles of sand intervening between it and the river. Back of it lie the barren, fantastic, and precipitous cliffs of Mokattam. It may be classed with the desert health resorts, and as such is the most accessible of all, while it partakes of that remarkable dryness and purity of air common to such situations. Its elevation is some 112 feet above the level of the Nile. Thus far about a dozen springs have been rediscovered. They are all thermal, varying in temperature from 77° to 86° F., but they differ in their chemical constitution, for some are sulphurous and others chalybeate and saline. The analyses made of most of them are as follows:

*Three Sulphur Springs.*—Temperature, 86° F.; sp. gr., 1.0025.

ANALYSIS OF ONE LITRE.

Gases.

Free sulphureted hydrogen..	47 c. c.,	·0731	gramme.
“ carbonic acid.....	61 “	·1200	“
“ nitrogen.....	10 “	·0126	“
		<hr/>	
	118 “	·2057	“

Solids.

Sodium chloride.....	3·2000	grammes.
Magnesium chloride.....	1·8105	“
Calcium bicarbonate.....	·8050	gramme.
“ sulphate.....	·2100	“
“ chloride.....	·1880	“
Silica.....	·0150	“
Organic matter.....	·0015	“
	<hr/>	
	6·2300	grammes.

Two Iron Springs.—Temperature, 77° F.; sp. gr., 1·0445.

Gas.

Free carbonic acid.....	26 c. c.,	·0511	gramme.
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Solids.

Sodium chloride.....	37·2671	grammes.
Magnesium chloride.....	10·6020	“
Calcium bicarbonate.....	5·9422	“
Magnesium sulphate.....	2·3507	“
Calcium chloride.....	1·5250	“
“ sulphate.....	1·0820	“
Alumina “.....	·5861	gramme.
Sodium bicarbonate.....	·2255	“
Ferrum “.....	·0555	“
Organic matter.....	·0300	“
Silica.....	·0180	“
	<hr/>	
	59·6841	grammes.

One Saline Spring.—Temperature, 77° F.; sp. gr., 1·0152.

Gas.

Free carbonic acid.....	6 c. c.,	·01179	gramme.
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Solids.

Sodium chloride.....	4·0171	grammes.
Magnesium chloride.....	3·1158	“
Calcium bicarbonate.....	1·2569	“
Magnesium sulphate.....	1·0798	“
Sodium “.....	·4468	gramme.
Alumina “.....	·4257	“
Calcium chloride.....	·1610	“
Organic matter.....	·0330	“
Calcium sulphate.....	·0210	“
Silica.....	·0100	“
	<hr/>	
	10·5671	grammes.

The chalybeate water is chiefly used for its aperient, and the saline for its purgative effects. Both are odorless and colorless. The hot sulphur springs are those which enjoy the greatest repute and are most valuable. As soon as one enters the town their odor becomes apparent. The sulphur in the air turns silver ornaments black. The water of the springs is at first quite clear, but upon exposure to the

air becomes covered with a film of sulphur and lime salts, and a greenish cryptogam, called barégine (from the Baréges waters of the Pyrenees), develops in it.

The bath-houses are commodious and luxurious, kept in good order, and are indeed up to the usual standard of similar institutions in the better-known health resorts. The water is artificially heated to higher temperatures when required. A European physician is in charge of the establishment, and European physicians are numerous in Cairo, near at hand. The two hotels and furnished and unfurnished villas to let afford excellent accommodations for invalids.

The diseases for which these baths are indicated are pre-eminently rheumatism and certain skin disorders, and, in conjunction with the natural advantages of such springs the world over, the incomparable winter climate of Egypt is to be considered. There is almost never rain or cloud or fog, and the mean annual humidity is certainly less than that of Cairo, which is 58·4 (Greenwich 87, Algiers and New York 70). The isothermal line runs between Florida and Canton and Algiers and Santa Cruz.

Dr. Sandwith, of Cairo, summarized the monthly bulletins of the Khedivial Observatory for five years, finding the average annual rainfall to be 1·22 inches.

While we in America make comparatively little use of foreign thermal springs, still, many of our patients go to Aix-les-Bains, the springs of which are about the same in character as those of Helwán, and Aix, as well as our own Hot Springs, is in a much colder latitude than these Egyptian waters—a matter of a great deal of importance, even if the distance be great.

It is needless to say, too, that the mind has more to occupy it here than in most health resorts, for, in addition to the pleasures common to all such places—such as social diversions, riding, driving, and reading—there lie in plain view across the river the Pyramids and the mounds of ancient Memphis. The modern Egyptians are interesting in their manners and customs. The great quarries of Toura and Maaserah, from which the stones of the Pyramids were taken, are near at hand. The desert is spread all around, and, even if one be not a geologist with an eye to the innumerable fossils of the nummulitic hills, or a naturalist zealous for novel additions to his collections, or an amateur astronomer eager to gaze upon a wide and brilliant expanse of starry heaven, the desert, like the sea, possesses a fascination of its own which it is difficult to define, or impress upon another with empty words.

HELWÁN, EGYPT, January 20, 1892.

**Spontaneous Cure of a Severe Abdominal Wound.**—Dr. Schildt mentions in *Duodecim*, a Finnish medical journal, a case, showing that, occasionally at least, a large wound into a serous cavity which looks hopeless enough may heal without treatment. He was called some years ago to a poor man supported by charity, who, in consequence of inflammation of the groin, had a large gaping wound of the abdominal wall, through which some six inches of the small intestine protruded, all covered with blood, added to which there was a discharge of fœtid matter. The man was sent to the hospital, where, however, he could not be admitted, as all the beds were full. He was therefore taken home again, and received no treatment whatever. Nevertheless, Dr. Schildt a short time ago happened to see him alive and well, the wound having healed spontaneously.—*Lancet*.

## TYPHILITIC ULCER.

PERFORATION; OPERATION; RECOVERY.\*

By FRANK HARTLEY, M. D.

WHEN one considers that in 324 cases of the so-called perityphlitis collected from various authors, 282 times the appendix was found to be the seat of the disease, the importance of the appendix as a starting-point for disease and the frequency of its involvement can not be disputed.

Other conditions exist in the right iliac fossa, however, which, though not so frequent, demand quite as much interest both in a diagnostic and curative sense.

My interest in these conditions has been largely due to two autopsies upon cases operated upon for appendicitis.

In one case the symptoms—such as the exact spot for the pain, the tympanites, intumescence, resistance, temperature, and respiration, without a distinct history of previous troubles—pointed to appendicitis. The autopsy revealed an ulcer of the sigmoid flexure, progressive peritonitis occupying the lower half of the abdomen, with a single localized interintestinal abscess below and upon the inner side of the cæcum.

The appendix was normal, about four inches in length, and lay upon the inner side of the cæcum and ascending colon.

In the second case, in which there existed a suppurative salpingitis, with circumscribed suppurative peritonitis and with adhesion of the vermiform process to the abscess, the lateral laparotomy was performed for a suppurative appendicitis. The imperfect history given by the patient and the failure to make a vaginal examination apparently misled the operator.

Such cases as the above must impress us all with the importance of a careful physical examination and distinct anamnesis. While appendicitis, suppurative or gangrenous, is often the cause of a localized or diffuse peritonitis, ulceration in the cæcum in the neighborhood of the appendix may give rise to a condition quite similar in its local manifestation. Such a case was reported by Dr. W. Ela, of Cambridge, Mass., in December, 1889, in which recovery followed the operation.

The patient I show to-night is one on whom I operated for typhlo-enteric ulceration with success.

The history is as follows:

J. B., aged forty-seven, Switzerland, painter, was admitted to the Roosevelt Hospital August 2, 1891. Family history is good.

*Personal History.*—Until twenty-two years of age he was perfectly healthy. At the age of twenty-two he had an attack of gonorrhœa. At twenty-six he had rheumatism. At thirty years of age a second attack of gonorrhœa. From thirty to thirty-six he had two attacks of gonorrhœa, with one of which he acquired chaneroids upon the glans penis, with inguinal adenitis. From the twenty-second to the forty-second year of age he had about five diarrhœal movements daily. During the summer these movements became less, and increased in number during the winter. Since the forty-second year of age he has had but one movement daily. This had been always of a watery character.

The present trouble existed for two weeks. At the begin-

ning of this trouble he suffered from general abdominal pain which he could not localize in any particular region of the abdomen, and which supervened upon a hearty meal. It finally involved the whole abdomen until, after taking a dose of castor oil, on the second day, the pain over the abdomen was relieved. This pain disappeared completely during the next twenty-four hours, except for a distinctly localized spot in the right iliac fossa. He has never vomited and has had daily movements.

*Examination.*—Patient is a weak, ill-nourished man; pulse, 120; temperature, 102°. His face shows a marked sepsis. Respiration: thoracic, superficial, and about thirty per minute. Lungs and heart normal. Urine, 1·020, no casts, few pus cells, albumin a trace, otherwise normal. There is a swelling in the right iliac fossa; it can be indistinctly defined. There is slight general tympanites present. The situation of the greatest resistance and tumefaction is just below a line drawn from the umbilicus to the anterior superior spine of the ilium. The abdomen at this point is tender, and the point of greatest tenderness is a finger's breadth below the aforesaid line, and at the outer border of the rectus muscle. Rectal examination reveals nothing, and the examination of abdominal viscera is also negative.

*Diagnosis.*—Ulcer of the intestine with abscess, so far encapsulated, probably typhlo-enteric.

*Operation.*—Antisepsis; ether; incision; as for the appendix (lateral laparotomy), on approaching the peritonæum the tissues were found very œdematous. The peritonæum was incised and the tumor was entered. It contained pus in large quantity. The odor was feculent. The walls of the abscess cavity within the peritoneal cavity were very thick, composed of successive layers of fibrin and lined throughout with granulation tissue. The wall of this cavity was formed by the lymph covering the caput coli, small intestines, and the peritonæum over the iliac fossa. The vermiform appendix was found uninvolved and forming a part of the wall of this cavity. On the caput coli to the inner side of the base of the vermiform appendix was found a perforation large enough to admit the forefinger. Its edges were ragged, irregular, and seemed somewhat indurated. The vermiform appendix was ligated and taken away. An examination of it revealed its normal condition. The perforation in the cæcum, through which fœces escaped, was excised. The edges were inverted and sutured with fine silk (Czerny-Lembert). Disinfection of the cavity. Iodoform gauze tampon. Abdominal wall sutured in the upper two thirds of its extent. Lower third was left open.

Temperature, 99°; pulse, 100, on third day.

Dressed on the fifth day, and packing of iodoform removed. Gauze replaced.

The patient continued to improve and was discharged five weeks later, completely cured.

*Sources of Syphilitic Infection.*—“Dr. Rassler, in his essay for the M. D. of the University of Kiel, makes a valuable contribution to the literature of syphilitic disease. The *Archiv für Dermatologie und Syphilis* states that Dr. Rassler undertook the labor of analyzing six hundred and thirty cases of syphilis treated in the medical clinic with the object of ascertaining the number arising from extra-genital infection. He found thirty-four such cases, comprising twenty-three of the lips, one of the tongue, two of the mucous membrane of the mouth, and three of the mamma. In three instances the primary sore occurred on the genital organs without connection having taken place, and in the remaining two it was impossible to indicate the locality. The result of these investigations shows that five per cent. of all cases of syphilis are due to extra-genital infection. According to other authorities, the proportion varies between one and ten per cent., except in certain parts of Russia, where the proportion is said to reach as high as eighty or ninety per cent.”—*Lancet*.

\* Read before the New York Surgical Society, February 10, 1892.

## MULTIPLE FRACTURE OF THE STERNUM,

FOLLOWED BY NECROSIS AND ABSCESS.

REMOVAL OF THE FRAGMENT, WITH RECOVERY.

By JOHN R. HINKSON, M. D.,

BLISSVILLE, LONG ISLAND CITY, N. Y.

Miss D., aged fourteen, was seen by the writer on September 7, 1891. She was then suffering great pain, had a hectic flush, and a temperature of 101.5° F.; she also had a pulsating tumor, about the size of a goose's egg, situated in front of the sternum on a level with the third, fourth, and fifth ribs, in which fluctuation could be plainly detected, the skin covering the tumor being normal in appearance. The left breast was considerably swollen and excessively tender.

It was at first thought that the case was one of empyema which had ruptured beneath the skin; but, on examination of the posterior aspect of the chest, there were no abnormal physical signs discovered, nor was there any bruit to be heard in the tumor, and the pulsation was not expansile.

The diagnosis of an abscess was made, and was confirmed by an exploratory puncture with a hypodermic needle.

The following is the history of the case given by the girl's mother: Some time in the latter part of March, 1891, a boy, aged fourteen, struck her a violent blow in the chest; she was able to walk to her home, which was but a very short distance away, but was subsequently troubled with frequent attacks of syncope and constant "pain in her heart." A physician was called in, and he attributed her symptoms to the advent of menstruation, she never having menstruated up to this time. Menstruation occurred, but brought no relief, and another physician was consulted, who stated at first that the patient was suffering from remittent fever, but when the tumor in front of the sternum became more prominent, he said it was an aneurysm, and that recovery was hopeless.

The latter physician was in attendance on the patient for eight days before she was seen by the writer.

On September 8, 1891, the patient having been anesthetized, an incision was first made in the tumor over the sternum, allowing a large quantity of pus to escape; a uterine dressing forceps was next introduced as a director, when the abscess cavity was found to extend as far to the left as the posterior axillary line, and as low down as the sixth rib, being limited above by the clavicle; it was also superficial to the pectoral muscles.

An incision two inches long was made about the junction of the third rib with the posterior axillary line, parallel with the long thoracic artery, and the cavity was washed out with a 1-to-10,000 solution of mercuric chloride. A pocket was also found extending from the middle of the second piece of the sternum upward and to the right for a distance of three inches; into this a finger was inserted and an incision an inch long was made at its upper extremity.

On further examination, the sternum was found to be fractured transversely at the level of the fourth rib, and it was determined to wire the fragments. With this intention the first incision was enlarged and a plain retractor inserted between the pericardium and the upper fragment, in which two holes were drilled and wires passed through. The lower fragment was about to be treated in like manner, but, on raising it with the retractor, it was found to be quite movable; the incision was prolonged downward, and a second transverse fracture was discovered at the junction of the sternum with the rib below.

As there was no attachment of periosteum to the intervening piece of bone, it was removed, the abscess cavity was again washed out with a solution of mercuric chloride (1 to 5,000)

and a large drainage-tube passed from the opening on the right side through the abscess cavity to the opening on the left side. The incision in front of the sternum, which was four inches long, was closed with sutures of wire, leaving an opening an inch and a half in extent opposite the place where the loose fragment was removed. Into this opening iodoform gauze was packed in order that healing should take place by granulation from the bottom. The severe oozing which occurred at this situation was checked by the application of pure carbolic acid.

The patient did not bear the operation at all well, and great difficulty was experienced in resuscitating her from the ether narcosis. At the close of the operation the radial pulse was found to be extinct and the facial barely perceptible; the respirations had also become very infrequent. Hypodermic injections of whisky and atropine were administered, but without effect. Nitroglycerin, one one-hundredth of a grain, hypodermically, was then tried, and in less than five minutes the pulse was felt at the wrist, the patient becoming conscious a few minutes later.

The dressing was composed of iodoform and corrosive sublimate gauze, over which was placed a thick layer of absorbent cotton.

*September 11th.*—The dressing, which had become quite moist and had an offensive odor, was changed. The sutures in the upper portion of the wound were found to have cut through, and were therefore removed. The abscess cavity was irrigated with a solution of mercuric chloride (1 to 5,000) and the patient dressed as on the former occasion. Pulse and temperature approximately normal, the patient having complained of little pain since the operation.

*15th.*—The sutures in the lower part of the wound, which was now completely healed, were removed. The drainage-tube was also removed and the abscess cavity irrigated with a solution of mercuric chloride (1 to 5,000). Dressing as before.

After this date the dressing was changed twice a week. The wounds healed very slowly, the incision on the left side of the chest not having cicatrized till one month, and that on the right side not till two months after the operation. The wound in the median line was not found to be completely healed till January 3, 1892.

The patient is now in excellent physical condition, and experiences no pain or inconvenience whatever on account of the absence of the portion of the sternum removed.

**The Prevention of Rabies.**—"Were it not that experience has fully proved, both in England and on the Continent, the efficiency of the muzzle as a preventive of the spread of hydrophobia, we might excuse the delusion that the disease lately so prevalent in this country has died a natural death. The facts mentioned in the *Lancet* of April 5, 1890, however, show too close a connection between the prophylactic method and its effect to admit of any real doubt upon the subject. The past year has been a period of probation. The immunity conferred by the muzzling order has not, perhaps, unnaturally been taken as justifying its discontinuance in favor of the less irksome system of collar registration, and so far, there is every reason to believe, with fairly satisfactory results. In this way such cases of rabies, at least, as arise among stray dogs, and they comprise the greater number, should, if the regulations are stringently enforced, be held in check. Of the efficiency of the muzzling system and the justice of its application two years ago, we can not entertain a doubt. In its absence registration is and must remain for some time to come quite indispensable. It is difficult indeed to see how, without some such preventive arrangement, security against the disease can be relied upon. We trust, moreover, that on the least sign of a recrudescence of the disease, in the interest of our faithful friends, the dogs, as well as of the human race, muzzling may again be strictly enforced."—*Lancet*.

THE AXIS OF ASTIGMATIC GLASSES.\*

By JOHN HERBERT CLAIBORNE, M. D.,  
NEW YORK.

In presenting this paper I have little hope of adding new facts to your knowledge, but I do hope to make its purpose and its contents clear. The initial proposition which I wish to make is that astigmatism does not occur at hap-hazard, that there is a regularity in its occurrence in a given eye, and that there is a certain definite relationship between the axes of the astigmatism in the two eyes when both happen to be astigmatic. In order that I may plunge into the midst of my subject, permit me, without more ado, to take up the consideration of the axis of astigmatic glasses in the various forms of astigmatism *seriatim*. In using the expression axis of astigmatism, I use it synonymously with the axis of the cylindrical glass that corrects the error.

1. *Simple Hyperopic Astigmatism in a Single Eye.*—In the majority of cases the axis of this form of astigmatism is vertical—that is,  $90^\circ$ . If a deviation from this position takes place, it must be in the direction of the horizontal axis on either of the two sides of the vertical axis, and the first position assumed by such a deviation is the axis  $75^\circ$  or the axis  $105^\circ$ , which is a deviation of  $15^\circ$  from the vertical position. The next axis of preference is either  $135^\circ$  on the one side or  $45^\circ$  on the other side of the vertical. It is certainly comparatively rare that the axis of simple hyperopic astigmatism is horizontal, nevertheless it does occur. Now, the point which I wish to emphasize is that these five positions—viz.,  $90^\circ$ ,  $105^\circ$ ,  $135^\circ$ ,  $75^\circ$ ,  $45^\circ$ —are the positions of preference for hyperopic astigmatism. It may not be altogether wise at this date to state it as my opinion that any of the axes lying between these points are not selected by hyperopic astigmatism, but I feel compelled to do so from a sense of profound conviction. I believe that when any other axes than those mentioned are found, the axes have been the exceptions that prove the rule or have been incorrectly diagnosed. The following are the possible individual positions of the axes in simple hyperopic astigmatism in a single eye:

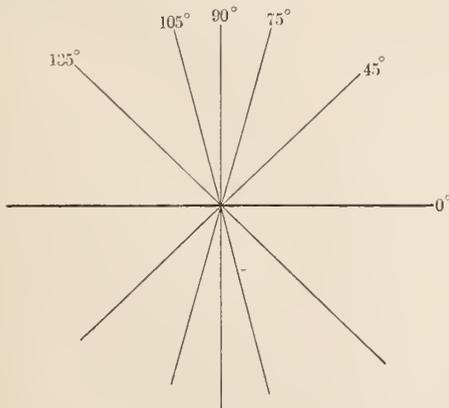


Fig. 1.

The realm proper of hyperopic astigmatism may then be said to extend  $45^\circ$  on either side of the vertical. In

\* Read before the Section in Ophthalmology of the New York Academy of Medicine, February 15, 1892.

other words, it may be said to include  $90^\circ$ , or one quarter of the circle; and of the axes included within this realm, the five axes— $90^\circ$ ,  $105^\circ$ ,  $135^\circ$ ,  $75^\circ$ ,  $45^\circ$ —are the axes of preference. The axis 0 occurs as stated by exception.

II. *Simple Myopic Astigmatism in a Single Eye.*—The axis of simple myopic astigmatism is in the large majority of cases horizontal. If, now, the eye select a deviation from this axis, it selects the axis that is  $15^\circ$  from the horizontal on the one side or the other; in other words, the axis  $165^\circ$  or the axis  $15^\circ$  is chosen. I have not had a case in which the axis of simple myopic astigmatism has not been one of these three positions, unless it were vertical. I have found this latter erratic axis quite frequently in myopic astigmatism; it is more frequent to find this than it is to find the axis of hyperopic astigmatism in the horizontal position. The following are the possible individual positions of the axes in simple myopic astigmatism in a single eye:

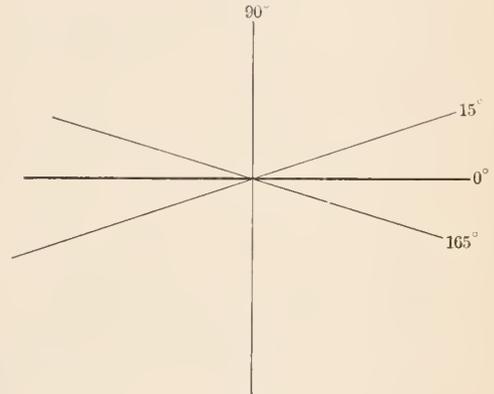


Fig. 2.

Its realm proper may then be said to include  $30^\circ$ , or one third of a quarter of the circle, and the axes included within this realm— $180^\circ$ ,  $15^\circ$ ,  $165^\circ$ —are the axes of preference. The axis  $90^\circ$  occurs as stated by exception.

III. *Compound Hyperopic Astigmatism in a Single Eye.*—Statements which have been made with regard to the axis in simple hyperopic astigmatism I hold to obtain in compound hyperopic astigmatism, for compound hyperopic astigmatism is simple hyperopic astigmatism coupled with spherical hyperopia.

IV. *Compound Myopic Astigmatism in a Single Eye.*—The axes of compound myopic astigmatism are the axes of simple myopic astigmatism.

V. *The Axes of Mixed Astigmatism in a Single Eye.*—It may be broadly said in the beginning that the above rules in regard to hyperopic astigmatism and myopic astigmatism hold when these two conditions occur in the same eye. The axis of the hyperopic astigmatism is restricted, as a rule, to the realm marked out for this error and to the axes of preference in this realm—viz.,  $90^\circ$ ,  $75^\circ$ ,  $45^\circ$ ,  $105^\circ$ ,  $135^\circ$ . The axis of the myopic astigmatism is restricted to its realm proper and to the axes of preference contained therein, as long as that is permitted by the axis of the hyperopic astigmatism. For example, if the hyperopic axis be vertical, the myopic axis will be horizontal. If the hyperopic axis be  $105^\circ$ , the myopic axis will be  $15^\circ$ , or at a right angle. If the hyperopic axis conversely be  $75^\circ$ , the

myopic axis will be  $165^\circ$ . If, however, the hyperopic axis be cast as far from the vertical as  $45^\circ$  or  $135^\circ$ , the myopic axis will be forced from its realm proper and will be compelled to invade the realm of the hyperopic axis. For example, if the hyperopic axis be found to lie at  $45^\circ$ , the myopic axis will be found to lie at a right angle—viz.,  $135^\circ$ , or *vice versa*. It occurs sometimes, though rarely, that mixed astigmatism is found in an eye with each axis in a position the reverse of the most usual one; for example, with the hyperopic axis horizontal and the myopic axis vertical. I have seen this in one eye, but never in both.

The following are the possible individual positions of the axes in mixed astigmatism in a single eye:

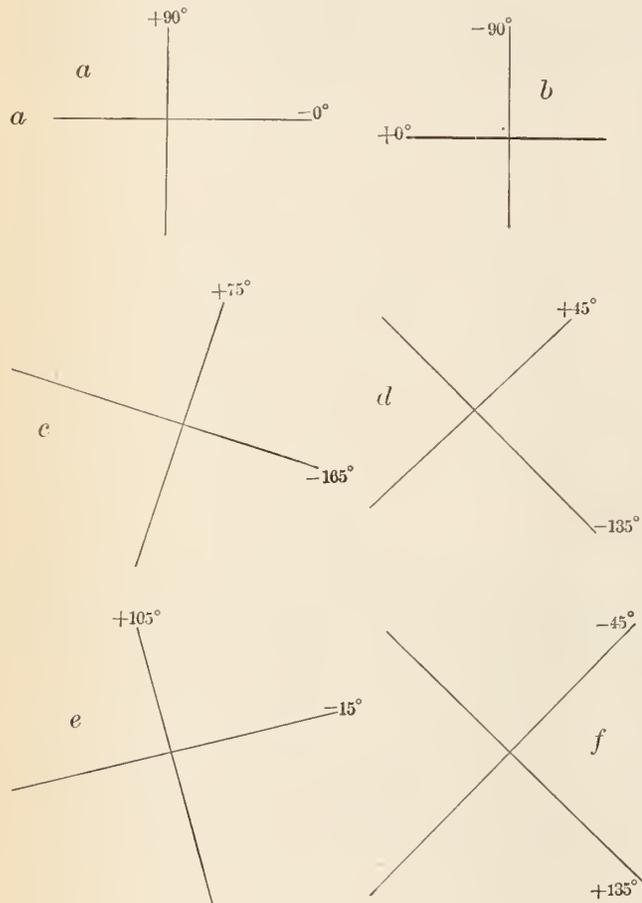


FIG. 3.

(To be concluded.)

**Infant Mortality in France.**—"At a recent meeting of the Society for the Protection of Children in France Dr. Rochard (chairman) stated that France loses every year 250,000 infants, and that out of this number there are at least 100,000 whose lives could be saved with intelligent care. These lives were the more precious in the present period, for France could no longer afford to lose them. When he stated, in 1884, that the population of France would stop increasing toward the beginning of the twentieth century, he was pooh-poohed. His prophecy has been justified sooner than he wished. The number of deaths in 1890 outnumbered the births by 38,446. It was not easy, said Dr. Rochard, to add to the births, but it was possible to diminish the death-rate among infants. The 100,000 babes that ought to be saved every year would repopulate France. He then distributed medals and prizes awarded by the society to doctors and nurses who had given their services to the society."—*British Medical Journal*.

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THE "RAILROAD KIDNEY."

DR. CYRUS EDSON has a thoughtful paper on the hygienic relations of railway travel in the May issue of the *Dietetic Gazette*. The paper is a long one, and takes up a variety of railway situations interesting to medical men, who, as a rule, are poor travelers; it is altogether worthy of being reproduced for sale as a sanitary tract. One point—the renal consequences of an excess of railroading—interests us just now. The great evil of such excess, from the medical point of view, is not that caused by jolting, jarring, and straining the nervous apparatus, but it is dirt. The dirty condition of the cheaper trains is a manifest abomination to all tidy persons. On the better trains efforts are made to keep the travelers as free from the grimy nuisance as possible, but the dirt will force its way in. If any person who has been traveling a few hours will examine the skin of his hands, he will find it quite soiled, especially if the weather has been hot enough to cause perspiration. If, then, he will examine still more closely, he will see the fine grime in the orifices of the perspiratory ducts, in a position to sink into and close up the pores whenever the flow of perspiration ceases. How deep these little plugs or corks work their way into the integument may be inferred from the repeated washings that are necessary to thoroughly clean one's exposed surfaces after a railroad trip. This stoppage of cutaneous action throws back upon the kidneys a heavy load of impeded excretory work, and this, repeated often enough, will result in the "railroad kidney," in much the same way that serious renal disease is caused by an extensive burn on the surface of the body. The morbid consequences are alike, or parallel, chiefly for the reason that in both cases thousands, if not millions, of cutaneous outlets are completely blocked up, and renal compensation is demanded by the system.

The chief sufferers, of course, from the fouling of the skin with grime are members of that class in the community which is included under the term "railroad men"; and the cases of engineers, conductors, and brakemen are the most numerous and striking. The occasional traveler in ordinary health has not much to fear from this condition after any trip lasting a few days, but where a person is already the subject of renal disability, it is quite possible that a week or more of constant railway travel would appreciably aggravate the existing trouble. For this reason, if for no other, the commercial traveler, or "drummer," is not an infrequent sufferer from renal overwork. And it is an important item in the hygiene of this extra-hazardous vocation that habitual traveling should be given up or greatly reduced if the kidneys become impaired. This "drummer" class is largely made up of young men of good physique,

keen intelligence, and a great partiality for the external application of water. It is not to be sanguinely expected, therefore, that cases of railroad kidney will be observed frequently in the commercial traveling class. At the same time, its members may, as occasion offers, be made to understand the value of and reasons for a systematic cutaneous hygiene to persons in their way of living.

### MINOR PARAGRAPHS.

#### THE OBJECTIONS TO THE INSERTION OF DRAINAGE-TUBES INTO WOUNDS.

IN the *Maryland Medical Journal* for November 14, 1891, Professor William H. Welch summed up the objections to the insertion of drainage-tubes into wounds as follows: First, they tend to remove bacteria, which may get into a wound, from the bactericidal influence of the tissues and animal juices. Second, bacteria may travel by continuous growth or in other ways down the sides of a drainage-tube and so penetrate into a wound which they otherwise would not enter. He has repeatedly been able to demonstrate this mode of entrance of the white staphylococcus found so commonly in the epidermis. The danger of leaving any part of a drainage-tube exposed to the air is too evident to require mention. Third, the changing of dressing necessitated by the presence of drainage-tubes increases in proportion to its frequency the chances of accidental infection. Fourth, the drainage tube keeps asunder tissues which might otherwise immediately unite. Fifth, its presence as a foreign body is an irritant and increases exudation. Sixth, the withdrawal of tubes left any considerable time in wounds breaks up forming granulations and thus both prolongs the process of repair and opens the way for infection. Granulation tissue is an obstacle to the invasion of pathogenic bacteria from the surface, as has been proved by experiment. Seventh, after removal of the tube there is left a tract prone to suppurate and often slow in healing. To these Dr. Halsted adds an eighth: Tissues which have been exposed to the drainage tube are suffering from an insult which more or less impairs their vitality and hence their ability to destroy or inhibit micro-organisms.

#### THE ETIOLOGY OF SUPPURATIVE HEPATITIS.

SURGEON-CAPTAIN PATRICK HEHIR, of Hyderabad, has recently published a brochure on *The Pathological and Etiological Relations of Tropical Suppurative Hepatitis*, and concludes from his experience in India that hepatic abscess is most commonly a sequel of dysentery, arising from a secondary infective process affecting the liver through the portal circulation. Cases may arise from the action of septic organisms—such as the streptococci, staphylococci, or micrococci; or from the irritation of the products (ptomaines) of such septic organisms conveyed to the liver from the ulcerated bowels and acting primarily on the liver, which plays the part of a filter upon the blood conveyed to it by the portal vein, or from the irritation of the *Amaba coli*, or the *Cercomonas intestinalis*, or both together. Some cases may be due to malarial poisoning, the blocking up of the radicles of the portal vein by the hæmatozoa of Laveran, these organisms acting as irritants and lighting up the suppurative process. In another class of cases the abscess may be the result of acute sthenic parenchymatous inflammation resulting from climatic causes, overcrowding, alcoholic excesses, excessive heat, or chill, acting upon a liver already in a partial state of disorganization. The author makes a third class of idiopathic cases in which no assignable cause can be traced. While a known or

unknown cause may produce hepatic abscess, a statement made earlier in the paper, that micrococci are *invariably* found in pus removed by aspiration, seems to us to indicate a certain definite agent producing suppuration in a *locus minoris resistentiæ*.

#### EMIN PASHA.

THE death of Emin Pasha is announced again. This time the report seems to be credited at Berlin. The alleged cause of his death was small-pox. The real name of Emin Pasha is Edward Schnitzler, and he is in some sense the most eminent physician of his generation. He studied medicine at Breslau and Berlin, and was graduated at the latter city's university in 1864, at which time he was twenty-four years old. A strong predilection for botany and other branches of natural history, a longing for travel, and an aptitude for languages led him to go down to Constantinople in pursuit of practice, study, and adventure. His services were in almost constant requisition in semi-official positions in Turkey, Armenia, Arabia, and Syria for ten years. In 1876 he went down into Egypt, and entered the medical service of the Khedive as Dr. Emin Effendi. From that time forward his advance was rapid and picturesque, his name became a household word in three continents, and the country doctor ended by occupying the throne of a barbaric principality and introducing a semi-civilized government into the Soudan.

#### THE LATE DR. D. HAYES AGNEW.

AT the request of Mrs. Agnew, Dr. J. Howe Adams, of Philadelphia, is preparing a biography of her late distinguished husband; in consequence, he is looking for data on this subject, and is desirous of obtaining from all of Dr. Agnew's former friends, colleagues, associates, students, and acquaintances all such authentic data as relate in any way to his career or character. Dr. Agnew's acquaintance was so vast, says Dr. Adams, and his life was so actively spent among his friends, while his own modesty was so marked, that undoubtedly a great many incidents, anecdotes, characteristic stories, etc., are unknown to his family. All material, however insignificant or small, will be welcomed by Dr. Adams, and credit will be given for all such data as are used.

#### THE NEW YORK PHYSICIANS' MUTUAL AID ASSOCIATION.

ON several occasions we have commended this association and the results of its work have gone on increasing in importance until now the amount paid on each death is \$1,000, being the full sum allowed by the by-laws. The present number of members is 1,106.

#### ITEMS, ETC.

**The American Chemical Society** will hold its fifth general meeting in Rochester, N. Y., on August 16th. The chairman of the committee of arrangements, Mr. A. A. Breneman, of No. 97 Water Street, New York, requests that members send him early notice of papers to be presented.

**The University of Pennsylvania.**—Under the will of the late Professor D. Hayes Agnew, the University is to possess the copyright of his surgical text-book, also many specimens and tuition-drawings, and the sum of fifty thousand dollars will go to the hospital on the death of his widow. The Maternity and Kensington Hospitals also will then be the recipients of \$1,000 each, and the College of Physicians will receive a like bequest.

**Changes of Address.**—Dr. W. Evelyn Porter, to No. 50 West Thirty-third Street; Dr. John Ridlon, from New York to No. 34 Washington Street, Chicago.

The American Gynæcological Society will hold its seventeenth annual meeting in Brooklyn on the 20th, 21st, and 22d of September.

The Honorary Degree of LL. D. has been conferred on Dr. Reynold W. Wilcox, of New York, by Maryville College, of Maryville, Tenn.

The Death of Dr. T. G. Richardson, of New Orleans, occurred in the last week in May. He was for more than thirty years a professor of surgery and other branches in Tulane University Medical School. About three years ago he retired from active college work, but remained an earnest and liberal supporter of medical educational interests in New Orleans and elsewhere. He was for twenty years dean of the Tulane Medical Faculty. He was an editor or co-editor of two or more medical journals that are now extinct. He was regarded by his older pupils as a model teacher of anatomy.

The Death of Dr. Henry F. Formad, of Philadelphia, took place on the 8th inst. He was a Russian by birth and was in his forty-sixth year. An exile for political reasons while yet a youth, he studied very diligently at Berlin and at Heidelberg.

**Army Intelligence.**—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from June 5 to June 18, 1892:*

DAVIS, WILLIAM B., Captain and Assistant Surgeon, is relieved from duty at Fort Clark, Texas, to take effect upon the return of Major Skinner to that post, and will report in person to the commanding officer, Fort Sam Houston, Texas, for duty.

MOSELEY, EDWARD B., Major and Surgeon, is relieved from duty at Fort Sam Houston, Texas, to take effect upon the arrival at that post of Captain Davis, and will report in person to the attending surgeon, Washington, D. C., for duty in his office.

DUNLOP, SAMUEL R., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Supply, Indian Territory, and will report in person to the commanding officer, Camp Pena Colorado, Texas, for duty at that station, relieving SKINNER, JOHN O., Major and Surgeon. Major Skinner, upon being relieved by First Lieutenant Dunlop, will rejoin his proper station, Fort Clark, Texas.

The following assignments to duty of Assistant Surgeons, recently appointed, are ordered:

McCULLOCH, CHAMPE C., JR., First Lieutenant, will proceed from Charlottesville, Va., to Fort Sam Houston, Texas, and report in person to the commanding officer of that post for duty.

REYNOLDS, FREDERICK P., First Lieutenant, will proceed from Elmira, N. Y., to Fort Monroe, Va., and report in person to the commanding officer of that post for duty.

WARE, ISAAC P., First Lieutenant, will proceed from North Anson, Me., to Fort Douglas, Utah Territory, and report in person to the commanding officer of that post for duty.

WOODSON, ROBERT S., First Lieutenant, now at Fort McPherson, Georgia, will report in person to the commanding officer of that post for duty.

BREWER, MADISON M., First Lieutenant, is relieved from temporary duty in the Surgeon-General's Office, Washington, D. C., and will proceed to David's Island, N. Y., and report in person to the commanding officer of that post for duty.

DESHON, GEORGE D., First Lieutenant, now at Columbus Barracks, Ohio, will report in person to the commanding officer of that post for duty.

IEGER, ANTHONY, Colonel and Surgeon, is granted leave of absence for four months, to take effect after June 30, 1892.

GORGAS, WILLIAM C., Captain and Assistant Surgeon. The leave of absence granted is extended one month.

HARRIS, HENRY S. T., Captain and Assistant Surgeon. The leave of absence granted for seven days is extended twenty-three days.

IRELAND, MERRITTE W., First Lieutenant and Assistant Surgeon, is relieved from temporary duty at Fort Yates, N. D., and will rejoin his proper station, Fort Riley, Kansas.

FISHER, HENRY C., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Riley, Kansas, and will report in person to the commanding officer, Fort Yates, N. D., for duty at that station.

#### Appointment.

To be Chief of the Record and Pension Office of the War Department, with the rank of Colonel, in accordance with the act of May 9, 1892:

AINSWORTH, FRED C., Major and Surgeon, May 27, 1892, to fill an original vacancy.

#### Commission vacated by New Appointment.

AINSWORTH, FRED C., Colonel and Chief of the Record and Pension Office. His commission as Surgeon, with the rank of Major, June 1, 1892.

**Naval Intelligence.**—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending June 18, 1892:*

STITT, E. R., Assistant Surgeon. Detached from the Naval Hospital, Philadelphia, and ordered to examination for promotion, and then to Bureau of Medicine and Surgery.

BAILEY, T. B., Assistant Surgeon. Detached from the Receiving-ship Minnesota, and ordered to examination for promotion, and then to Hospital, Philadelphia, Pa.

BYRNES, J. C., Passed Assistant Surgeon. Ordered to special duty at Norfolk and Portsmouth, Va.

WILSON, H. D., Assistant Surgeon. Ordered to the Receiving-ship Minnesota.

WILSON, G. B., Passed Assistant Surgeon. Ordered to temporary duty at the Naval Hospital, Chelsea, Mass.

ARNOLD, W. F., Passed Assistant Surgeon. Detached from U. S. Training-ship Richmond, and placed on waiting orders.

BARNUM, M. W., Assistant Surgeon. Detached from Naval Hospital, Washington, D. C., and ordered to the U. S. Training-ship Richmond.

PERCY, H. T., Passed Assistant Surgeon. Ordered to the Naval Hospital, Washington, D. C.

PICKRELL, GEORGE M. C., Passed Assistant Surgeon. Detached from the Naval Hospital, Norfolk, Virginia, and ordered to the U. S. Steamer Newark.

#### Society Meetings for the Coming Week:

MONDAY, June 27th: Medical Society of the County of New York; Boston Society for Medical Improvement; Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, June 28th: Medical Society of New Jersey (first day—Atlantic City); Buffalo Obstetrical Society.

WEDNESDAY, June 29th: Medical Society of New Jersey (second day); Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield).

## Letters to the Editor.

### BANDAGE-CUTTING.

DECATUR, ILL., May 7, 1892.

To the Editor of the New York Medical Journal:

SIR: In the *Journal* of March 26th is a short article by Dr. Southgate Leigh, describing a number of new and improved instruments. The last thing described is a bandage-cutter, and I infer that he, like the majority of practitioners, finds the ready-rolled bandages of the shops too expensive. I think I have hit on a scheme for bandage-cutting that will be of great practical utility to the surgeon who desires to roll his own bandages. I purchase a bolt (or less quantity) of muslin and take it to a printing-office where they have a paper-cutter, and in five minutes the entire bolt can be cut into bandages of different widths, and afterward rolled in lengths to suit. This gives a nice even bandage, and is in every way superior to those torn or cut with scissors.

M. H. FARMER, M. D.

## Proceedings of Societies.

### AMERICAN MEDICAL ASSOCIATION.

*Forty-third Annual Meeting, held in Detroit on Tuesday, Wednesday, Thursday, and Friday, June 7, 8, 9, and 10, 1892.*

The President, Dr. HENRY O. MAROX, of Boston, in the Chair.

(Concluded from page 694.)

**Proposed Amendments to the Constitution.**—An amendment was proposed by Dr. C. A. L. REED, of Ohio, providing that the association admit to membership physicians from the Dominion of Canada, Newfoundland, and Labrador. The matter was to be referred to a committee of the association, which should confer with proper committees from the countries mentioned.

The PRESIDENT appointed as the committee for the association Dr. C. A. L. Reed, Dr. N. S. Davis, Dr. H. O. Walker, Dr. C. A. Lindsley, and Dr. C. G. Conn. The constitution required that such an amendment should lie over for a year before adoption.

An amendment to the constitution was also offered that no physician should be admitted to membership in the association who had not been four years in practice. Action on this was also deferred for a year.

A recommendation was received from the Section in Physiology and Dietetics that the Haddock Pure Food Bill, now before Congress, be endorsed, but, as the exact terms of the bill were not known to the meeting, the recommendation was tabled.

The Committee on Incorporation recommended that incorporation be deferred for the present, as the association might thereby be more or less involved in litigation.

Dr. QUMBY, of New Jersey, offered as an amendment to the constitution that Thursday of each annual meeting be devoted exclusively to section work. This was tabled.

A committee was appointed by the president to audit the report of the treasurer of the Rush Monument Fund.

The committee on the matter of railroad surgeons reported that two complaints were before it. One was that railroad surgeons were supposed to care for injured passengers and employees without due regard to their ethical relations to other professional brethren; the other, that they took inadequate compensation for their work, and so tended to lower the standard and dignity of the profession. The committee denounced the custom of underbidding in order to get practice, and discussed at length the contract system as applicable to surgeons. It was thought that this system was too extensive and involved too large a portion of the medical profession who were under contract, wholly or in part, to be crushed by adverse resolutions or criticism. The contract system, on the whole, was not to be encouraged. The report was adopted.

**Officers for the Ensuing Year.**—The Committee on Nominations reported as follows: For president, Dr. Hunter McGuire, of Virginia; for vice-president, Dr. H. O. Walker, of Michigan; for treasurer, Dr. R. J. Dunglison, of Pennsylvania; and for secretary, Dr. W. B. Atkinson, of Pennsylvania. It recommended that the next meeting be held at Milwaukee, and also that the code of ethics of the association be made broader.

**The Address on State Medicine** was delivered by Dr. J. BERLIAN LINDSLEY, of Tennessee. His attention had first been called to the importance of his subject by reading, while a

medical student, in 1843, a book entitled *An Inquiry into the Sanitary Condition of the Laboring Population of Great Britain*, and this had influenced the thoughts, studies, and pursuits of his life as few other books had done. The influence of the book in Great Britain had been enormous. Since the time that it was written the great feature of British history had been the constant, steady elevation of the masses, and the leading topic under that head had been the public health. In 1853 the city of New Orleans was ravaged by yellow fever, which called forth the report by Dr. E. H. Barton upon the sanitary condition of New Orleans, and also a voluminous report by the New Orleans Board of Health. If the teachings of these volumes had been sufficiently followed, the conditions, commercial as well as physical, of that city would have greatly improved. Another notable report in the literature of state medicine was that which was issued in 1865, entitled *Report of the Council of Hygiene and Public Health of the Citizens' Association of New York upon the Sanitary Condition of the City*. Sanitary reform in Massachusetts was much influenced by Shattuck's report in 1850 on the sanitary condition of Massachusetts. The first State board of health was established in that State.

Sanitary reform, then, was inaugurated not so much by the medical profession as by the general public, looking at first to its protection from disastrous epidemics, and next to relief from preventable diseases and improvement in daily health.

Medical men were naturally called to assist in a reform of this character, and they soon assumed a leading part. But their influence should not be predominant, for it was law and not medicine that was chiefly concerned. Medical science could dictate the kind of laws that should be made for the promotion of the public health, but it was powerless to enforce those laws. A powerful auxiliary to sanitary science was found in the articles upon public and private hygiene which were constantly appearing in the periodical literature. The advances which had been made in chemistry, physics, and biology had been notably useful in that direction. Though the governments of most civilized nations realized the vital importance of sanitary science, and fostered or controlled institutions for its furtherance, the American Government was most backward in this particular. Here, then, was a fine opportunity for completion by the general Government of the work which had been so admirably developed by local and State boards of health. This was especially indicated, in view of the great extent of our country, with its varieties of climate and disease. The untimely end of the National Board of Health, which was established in 1879 and expired after a few years of existence, was much to be regretted, notwithstanding the fact that its decline was concurrent with a noteworthy expansion of the Marine-Hospital Service, which in some respects represented the Government in the field of preventive medicine. The evolution of governmental supervision of the public health would not be complete until a Department of Public Health was established, suitable dignity being conferred upon its presiding officer. This would necessarily include the vast interests of the Marine-Hospital Service; a great bureau of vital statistics, which would supersede the Census Office and be in operation continually; a bureau for the minute topographical survey of the entire country, with the mapping of its results on an extensive scale; and possibly other departments which were now under the control of other branches of the Government.

The Museum of Hygiene, now under the control of the Navy Department, and the Library of the Surgeon-General's Office were illustrious examples of what the Government could do in the way of State medicine, for, if a separate bureau for this subject were established, these two institutions would necessarily be incorporated in it.

Until recent years the American Medical Association had been too indifferent to the part that should be played by the Government in caring for the public health, but, happily, that had been changed; the addresses in state medicine from year to year had been stimulating to the work, and the same was true of the addresses from the presidential chair. It was recommended that a committee of the association be appointed to co-operate with other national organizations in which state medicine was a matter of investigation, including the American Public Health Association, the American Association for the Advancement of Science, and the Congress of Physicians and Surgeons.

The PRESIDENT suggested that before the adjournment some expression of appreciation of the courtesies and hospitalities which the association had received should be made. Dr. N. S. Davis, of Illinois, and Dr. H. D. Didama, of New York State, responded to this suggestion in complimentary remarks, and resolutions expressing gratitude and appreciation were also offered by a committee appointed for the purpose, and adopted.

The president for the ensuing year, Dr. Hunter McGuire, was then introduced, and the meeting was adjourned.

#### NEW YORK SURGICAL SOCIETY.

*Meeting of February 10, 1892.*

The President, Dr. ARPAD G. GERSTER, in the Chair.

#### Compression Myelitis in Connection with Pott's Disease.

—Dr. V. P. GIBNEY read a paper on this subject and referred to a previous paper read in 1879, in which he had reported the histories of fifty-eight cases. Those cases he had carefully followed up, and, so far as he had been able to ascertain, they had shown a mortality of 10.5 per cent. from the disease. With many of them the paralysis or paraplegia had lasted from four to ten years, and then recovery had taken place.

The author's present table included a series of thirty-two cases in which the paralysis had continued from two months to two years and ten months, the average being eight months. He described the method by which these cases were usually treated, which consisted in the free administration of iodide of potassium and Fleming's method of extension. Several typical cases from his table were narrated. Frequently as much as one hundred grains of iodide of potassium, in solution, were given to children not more than eight years of age. The progress of patients who were cared for at home was frequently interfered with by the carelessness of parents in attending to their dressings and their failure to bring them sufficiently often to the physician for inspection. The supporting apparatus which was applied in these cases should be immovable and should be worn for a long time. Relapses frequently occurred in consequence of changes made in the apparatus. By some surgeons a hopeless view was taken of such cases. It must be admitted that the prognosis was difficult. The hopeless cases were those in which the disease involved the ganglion cells of the spinal cord, distortions and deformities of the limbs resulting.

Dr. ROBERT ABBE thought that operations in cases of the disease under discussion were simple and apt to be successful. There was no great risk to the patient in the operation, which he believed was called for only in very bad cases. He had operated in two cases successfully.

Dr. J. D. BRYANT had seen no occasion for operation in the cases which had come under his notice. The patients he had seen had recovered without operation, and he thought that interference by operation sometimes made matters worse.

Dr. GEORGE R. FOWLER's experience with operative proced-

ures had been unsatisfactory. He had operated in two cases, both of which had resulted fatally.

Dr. CHARLES MCBURNEY had not operated for this disease. He was in favor of conservative methods of treatment during the early stages, while those cases which were far advanced or had come to a standstill might be suitable for operation. The indications for operation were similar to those that obtained in cases of fracture of the spine, in which, partial repair having taken place, and so some support having been supplied, operations were better borne and more successful. One should generally try the effect of supporting apparatus first.

The PRESIDENT had operated successfully in two very bad cases in which the symptoms of compression had increased in urgency very rapidly. In both of them the compression symptoms had been due to a subdural effusion of pus, and when this was removed the paralysis disappeared rapidly.

Dr. GIBNEY had found that the opinions of neurologists in regard to the propriety of operating differed decidedly. It was difficult to determine this point by electrical tests.

**Thiersch's Method of Skin-grafting.**—Dr. MCBURNEY presented two cases in which ulcers of the leg had been treated by Thiersch's method of skin-grafting. In the first case there had been a large ulcer of the heel and of the inner aspect of the ankle, which had followed a severe injury and had existed for thirty-two years. The tissues of the ulcer had been excised and four grafts from the thigh applied. All of these had united and the result had been complete healing. In the second case there had been large ulcers upon the anterior aspect of both legs. In this case also complete healing had been obtained at once. In performing the operation the wound was frequently irrigated with a salt solution, rubber tissue, moistened with the same solution, was applied, and over this were placed compresses, also moistened, the salt solution being renewed upon the compresses at proper intervals. Both syphilitic and tuberculous ulcers had been operated upon by this method with good results.

#### A Neglected Method of modifying General Anæsthesia.

—Dr. MCBURNEY read a paper thus entitled. The question had frequently occurred to him whether we did not anæsthetize too extensively in operative procedures. While it was desirable to anæsthetize only the nerve centers, by the methods which were in common use, the brain, the nerve centers, the blood, and all the tissues were saturated with the anæsthetic, and all the agencies of elimination were taxed to the utmost in trying to dispose of it. It therefore seemed to him desirable to exclude as large a portion of the circulating fluid as possible from the action of the anæsthetic, and this was done by confining blood in the limbs by bands securely fastened around them. This method was not a new one, but had been used in previous years by Corning, Sweatnam and Aiken, of Toronto, and A. C. Post. Corning had advised compression of the limbs with sufficient firmness to exclude all communication of the circulating fluid in them from the trunk and head. The author had practiced this method in ten cases, including a variety of operations. An ordinary ether cone had been used, with from an ounce to three ounces of ether. There was usually no struggling, quiet anæsthesia resulted in from two to five minutes, and there was no congestion of the face. There was very little vomiting or discharge of mucus or saliva. When the operation was completed the limbs were raised, the bandages were removed, and consciousness quickly returned. There might be dangers in the method, but they were not as yet apparent. It was thought that the method might obviate shock to a certain extent, also disturbance of the kidneys and bronchitis. The method was then practically demonstrated upon a man, about twenty years of age, in apparently good physical condition. There was very little struggling. Three ounces of ether were used and com-

plete anaesthesia was induced in from eight to nine minutes. The bandages were then removed and consciousness returned in two minutes. The subject answered questions intelligently, and was able to get off the table and put on his clothes.

Dr. ABBE had observed that the patient's breathing had been somewhat shallow during the anaesthesia, and diaphragmatic in character. He was surprised at the rapidity with which consciousness returned, and also that the face did not become either pallid or blue, but of a natural red.

Dr. BRYANT was much pleased with the demonstration, and believed the method worthy of further investigation.

Dr. J. D. RUSHMORE could not accept the statement that pure blood was thrown into the circulation as the bandages were removed. Having been confined in the tissues, it was quite impure, but it was quickly oxygenated as it passed into the lungs and was certainly not saturated with the anaesthetic. He did not think it desirable to anaesthetize a patient with great rapidity.

Dr. McBURNEY thought it important that the constriction should be sufficient, not only to prevent the return of venous blood, but also to shut off the supply from the arteries. Of course the method should not be used upon persons with diseased arteries, and if the compressing bands were too narrow injury might be done to the nerves. The brain and trunk were to a certain extent anaemic during anaesthesia by this method, and this might have a bearing upon the operation to be performed. The shallow breathing might be due to the possible anaemia of the lungs. There was a possibility that haemorrhage might occur in the wound after the circulation was restored; hence it was well to defer putting in the final stitches until safety from this accident was assured. If morphine was injected hypodermically between the bandages and the heart the quantity should be much smaller than if it was allowed to permeate the entire circulation.

#### *Meeting of February 24, 1892.*

The President, Dr. ARPAD G. GERSTER, in the Chair.

**Deformity of the Lower Extremity following Excision of the Hip Joint.**—Dr. V. P. GIBNEY presented a patient in whom disease of the right ankle joint had commenced in his fourteenth month. The affected bone was excised by Dr. Lange. Three months later hip trouble had commenced and the head of the femur had been excised at the German Hospital. Sinuses had resulted that had been scraped several times since, and at present there was one over the great trochanter. The foot was now in the position of equino-varus. The thigh could be flexed to 90°, but there was limited motion of the limb with atrophy. The femur, tibia, and fibula were of two thirds of the length of those bones on the unaffected side.

The speaker presented a second case, that of a patient aged eight years and a half, in whom the head of the femur had been excised by a surgeon in one of the general hospitals, and at present extension could be made to about 155°. There was limited adduction, also decided shortening. The question in such cases was whether it was better to open the old wound, scrape out the diseased bone, and divide the femur, or to continue temporizing; and in the first case presented was it better to correct the ankle deformity or amputate the foot?

Dr. F. LANGE stated that he had operated on the ankle of the first patient shown when the boy was three years old, and Dr. W. Meyer, in later years, had operated upon the same child for tubercular disease of the hip joint. The future treatment would depend upon the possibility of healing the sinuses. Amputation might be performed below the knee joint and an artificial leg employed.

Dr. J. A. WYETH believed it would be better to apply in that case some apparatus that would fit on the foot, rather than use prothetic apparatus after amputation.

Dr. GIBNEY stated that he thought in his first case he would attempt to heal the sinus by an operation, divide the femur subcutaneously, keep the foot in a plaster-of-Paris dressing, and then apply such an apparatus as Dr. Wyeth had referred to. In the second case he proposed doing a subcutaneous osteotomy.

**Intestinal Obstruction.**—Dr. FRANK HARTLEY presented a patient on whom an operation had been performed two years ago for suppurative appendicitis with acute suppurative peritonitis. In November, 1891, he presented symptoms of intestinal obstruction. An incision was made in the median line and a slender constricting band was found and removed. It was the second case of the kind that he had operated on.

Dr. L. A. STIMSON thought that such cases as this exhibited the ultimate, as well as the immediate, risks attending late operations for appendicitis, an operation that could be considered neither simple nor safe.

Dr. R. H. M. DAWBARN wished to call attention to a point that he believed to be new in reference to laparotomy for appendicitis, and that was, the way in which to find the appendix. Where agglutination had not occurred, the small intestines were continually falling into the field of operation and annoying the surgeon. In a dozen instances he had found it a simple expedient to change the patient from his back to the left side and to pull the abdomen forward (away from the spine), thus forming a space into which the small intestines would fall, the caecum being, however, held in position by its short mesentery.

**Pyloroplasty for Stenosis after the Heineke-Mikulicz Method.**—Dr. LANGE presented a man, twenty-nine years old, whose family history was good. He had been in good health until about six years ago, when he commenced to suffer from dyspeptic trouble. He was treated for a long time for nervous dyspepsia and gastric catarrh, but never for supposed ulcer of the stomach. Though he often vomited, he never vomited blood, and no blood was observed in his stools except what was readily explained by the presence of moderate piles. Within the last year he had often vomited large masses containing particles of food that had been swallowed from a day to three days previously. The degree of acidity had often been examined and found to be abnormally great, as stated by Dr. Alfred Meyer, his attending physician. He had often very severe cramp-like pain in the region of the stomach, radiating toward the back and the space between the shoulders. His bowels were regular.

The speaker saw the patient, in consultation with Dr. Alfred Meyer, on January 4th. An examination by inflation proved the stomach to be considerably dilated. An indistinct hardness could be felt in the region of the pylorus, also some pain on deep pressure. The patient was emaciated but did not present a cachectic appearance. On the 8th of January laparotomy was done. The pylorus was covered by the gall-bladder, omentum, and large intestine, which had to be separated with the thermo-cantery, scissors, and blunt manipulations to get access to the pylorus. The separation of the gall-bladder was especially tedious, and in this attempt the lumen of the stomach, close to the stricture, was burned into. The pylorus was greatly narrowed and felt like a hard ring; a longitudinal incision an inch long into the stomach and a like incision into the duodenum proved its lumen as narrow as a lead-pencil. The longitudinal wound was closed by two rows of suture, an internal catgut and an external silk suture. The application of a loose iodoform-gauze tampon and union of the laparotomy wound finished the operation. The wound through the abdominal wall was a

longitudinal incision in the linea alba, with a shorter transverse one to the right, about three or four inches in length. The operation was very tedious, requiring over two hours. The patient made an uninterrupted recovery and was discharged after four weeks. His pain had not returned since the date of the operation, and he was in fair health and gaining.

From a paper by Dr. Senn, who reported two of his cases with favorable result in November, 1891, it appeared that this was the eleventh case on record, and that the operation yielded safe and good results. The speaker desired to state that Dr. Prudden's examination of a specimen from the case of gastric ulcer presented at a December meeting had shown it to be carcinomatous.

Dr. WYETH asked whether he considered this operation preferable.

Dr. LANGE replied that he thought the functional results were better in Mikuliez's.

**Musculo-spiral Paralysis complicating Fracture of the Humerus.**—Dr. F. W. MURRAY read a paper having this title. (See page 708.)

Dr. WYETH said that in a case of fracture of the humerus symptoms of musculo-spiral paralysis appeared, and two weeks after the injury he operated and successfully released the nerve. An analogous condition was sometimes caused by the plaster dressing on a fractured patella compressing the external popliteal nerve and producing talipes.

Dr. STIMSON said that in one of his own cases, referred to by Dr. Murray, there was no apparent injury to the nerve, and in another there was a bony canal within which the nerve was noticeably smaller, but not tightly held; whether the nerve was ever actually compressed in the canal needed demonstration. In one case that he had seen, the nerve was injured by the violent grasping of an assistant in turning the humerus so that the end of the bone could be excised; this patient recovered spontaneously in two years. It seemed to him that the interference with the function of this nerve was not always the result of compression, but rather of some unknown factor; this, however, need not interfere with the advisability of operating. He would always seek for the nerve below the point where it was hidden by cicatricial tissue, and then follow it up.

Dr. ROBERT ABBE had had no experience in musculo-spiral paralysis, but the demand for surgical interference should be heeded in any case where the nerve was probably stretched across a sharp edge of bone. He recalled a case in which the popliteal nerve had been stretched across the sharp fractured end of the femur at the epiphysis that resulted in fatal tetanus in spite of amputation.

Dr. J. D. BRYANT recalled a case of musculo-spiral paralysis in which the question of a suit for damages arose, the parents alleging malpractice because paretic symptoms developed after the injury. It would be wise for the surgeon, in treating fracture of the humerus, to test the muscles supplied by this nerve at the time of the injury and frequently afterward, so "as to cast an anchor to the windward," in case of subsequent legal complications.

Dr. HARTLEY reported a case of paralysis of the posterior interosseous branch of the musculo-spiral nerve in a case of fracture through the internal condyle of the humerus above the capitellum. At the operation he found the bend of the nerve caught between the ends of the fractured bone; he released the nerve and approximated the fracture, and there was complete recovery. In this case, as in two others published in the *Roosevelt Hospital Reports*, this branch was given off rather higher than usual.

**Intestinal Strangulation by a Fibrous Band.**—Dr. BRYANT presented a specimen that he had removed from a musician,

aged sixty-six years, who had never suffered from any intestinal or abdominal trouble until forty-eight hours before the speaker was called in. He had excruciating pain, and was almost pulseless when seen, the abdomen was distended, and intestinal strangulation was obvious. Despite the grave condition, the abdomen was opened, and a considerable portion of gangrenous jejunum (fifteen inches) was exposed. This was drawn out until a fibrous band, connected with an intestinal diverticulum, was found constricting it. He removed the band, opened and cleaned the intestine, and cleansed the abdominal cavity. The patient lived fourteen hours.

Dr. DAWBARN asked whether this was an example of Meckel's diverticulum.

Dr. BRYANT stated that it was connected with the jejunum, but he could not examine it as he would have desired owing to inability to obtain a post-mortem; therefore he could not reply definitely.

## NEW YORK ACADEMY OF MEDICINE.

SECTION IN ORTHOPÆDIC SURGERY.

*Meeting of May 20, 1892.*

Dr. HENRY LING-TAYLOR, Chairman.

**Congenital Dislocation of Both Patellæ.**—Dr. S. KETCH presented a little girl who at first glance seemed to have only knock-knee, but on flexing the limbs, a complete dislocation of the patella downward and forward was observed, and the dislocation could be readily reduced by extending the limb. The deformity was much more marked on the right side. The condition was probably congenital, although it had not been noticed by the mother until recently, as the child was able to walk with no more difficulty than was observed in an ordinary case of knock-knee. Dr. Shaffer had suggested that this was the opposite of the condition which he had described under the head of elongation of the ligamentum patellæ at the last meeting of the American Orthopædic Association.

Dr. JOHN RIDLON said that he had seen three such cases in the practice of the late Mr. Thomas. The treatment had consisted in hammering the deficient condyle with an egg-shaped wooden mallet, and in two of the cases the treatment had already effected sufficient development to prevent dislocation, and in the other case the treatment had only just been begun.

Dr. W. R. TOWNSEND said that he had presented some time ago to the Surgical Section of the Academy of Medicine a colored girl who could, by muscular action, produce at will a complete dislocation of both patellæ, either to the outer or to the inner side. A knee-cap was applied, and an effort made to restrict the movements of the fibers of the vastus externus and internus, which seemed to be abnormally developed. She was kept under observation for six or eight months, and at the end of this time she could not produce the dislocation at will, and the dislocation occurred quite infrequently.

Dr. N. M. SHAFFER said that in his case of elongated ligamentum patellæ the man had had a fall which was followed by an outward dislocation of the patella on the right side. After consultation with several other surgeons, in view of the fact that the intercondyloid notch was filled by an exostosis, it was considered best to make no attempt at reduction, and at present, although the patella lay on the outer aspect of the joint, the man was perfectly able to walk ten or fifteen miles a day. In the case just presented, he did not think the external condyle was deficient, but the ligamentum patellæ was so short that the patella, instead of passing over the trochlea, was drawn down to a point where, owing to the knock-knee, it was very easily dislocated. On this account, he thought that treatment directed toward securing an elongation of the ligament would

be more apt to prove successful than simply hammering the outer condyle.

Dr. KETCH agreed with the last speaker as to the inadvisability of resorting to operative measures. Not long ago he had seen a young lady with a somewhat similar condition. Twelve years before, the patella had been dislocated by muscular action, and this had again occurred shortly before he saw her. Reduction was easily effected by extending the limb.

**Ankylosis of the Hip.**—Dr. IRVING S. HAYNES, present by invitation, exhibited a specimen of this condition which he had found in the dissecting room of the University Medical College. The subject was a man about twenty-five or thirty years of age. The limb was slightly flexed, adducted, and rotated inward. A sinus opened about half an inch below Ponpart's ligament and an inch internal to the anterior superior spinous process. It passed backward and soon divided into two tracts, one leading down to the front of the great trochanter, the other up under Ponpart's ligament into the iliacus, and then into the obturator internus muscle, then around the middle of the outer border of the obturator foramen into the cotyloid notch, and so into the hip joint. The iliacus and obturator muscles, as well as all the muscles acting upon the hip joint, had undergone extensive absorption and fibrous degeneration. The center of the disease, and the starting point, seemed to have been in the head of the femur, but there was also a focus in the epiphyseal line of the great trochanter, which communicated with that found in the head of the femur by a sinus running through the neck and also opened in front through one or two small openings. Another sinus seemed to have led from the acetabulum through the cancellous portion of the ilium into the iliac fossa, where the opening was surrounded by bony formations. Between the ilium and the sacrum there was slight mobility of a gliding nature, which the speaker had never observed before and which was probably intended to partially compensate for the lack of motion at the hip. There was no evidence of the disease in the capsule of the joint. The abscess cavities were limited to the absorbed portions of the iliacus and obturator internus muscles.

**Arthritis Deformans.**—Dr. HAYNES also exhibited a specimen of this condition showing erosion and reproduction of bone, with a depression in the acetabulum and disappearance of the ligamentum teres. The motions of the joint were slightly limited in every direction. The specimen had been removed from an old subject.

**The Treatment of Large Abscesses in Pott's Disease.**—Dr. W. O. PLIMPTON presented several cases of Pott's disease with large abscesses as an illustration of the treatment which he advocated. He did not favor aspiration, because he thought that after this had been done the abscesses were likely to continue to enlarge and burrow into the tissues. While admitting that abscesses were not infrequently absorbed, he wished to deprecate the let-alone treatment of large abscesses which tended to burrow deeply into the tissues, threatening to inoculate these tissues and often causing mechanical deformities of other parts.

Dr. TOWNSEND said that the location of the tube in the first case reminded him of an accident which had occurred about a year before. He was hastily summoned to the hospital on account of one of the patients having a hæmorrhage. He found that a patient with a large psoas abscess which had been opened and a drainage-tube inserted three weeks before, had suddenly begun to bleed profusely. The hæmorrhage was arterial, and, with the assistance of Dr. W. T. Bull, he cut down and found that the pressure of the drainage-tube had caused a large perforation in the femoral artery. He accordingly tied the artery above and below the perforation, and the child recovered without further accident.

Dr. KETCH thought the cases presented very much the appearance of those which he had seen in the hospital when it was the rule to open all abscesses as soon as they approached the surface. They did not seem to him to differ materially in their course from those where the abscesses were allowed to open spontaneously, and he could not see that anything had been gained by this method of treatment.

Dr. RIDLON asked if the drainage-tube had been left in for so long a time for fear that the opening would close up, and make another operation necessary. He had always thought that it was not requisite to leave the tube in more than a few days.

Dr. A. M. PHELPS thought that the second patient had had a decided advantage over the first in being subjected to the operation at a much earlier stage. The slightest increase in an abscess, in his opinion, warranted prompt incision. He spoke emphatically because the Section had almost been committed to the idea that it was better for these abscesses to take care of themselves. But it must not be forgotten that they were originally collections of tuberculous material, and that when they became infected with pyogenic germs, as almost inevitably occurred, there would be a rapid burrowing of the pus. Another reason for opening them was that they exerted an injurious effect by the internal pressure of the exudate upon the carious foci in the diseased vertebræ, keeping them bathed constantly and furnishing a fertile source of the subsequent breaking down of these vertebræ and of a consequent increase in the deformity.

Dr. KETCH thought that the previous speaker had not correctly stated the position of the Section on this subject. He thought it would be more correct to say that they took the ground that so many of these abscesses disappeared spontaneously under proper mechanical treatment that something more than mere accident was necessary to explain it, and that these collections of pus caused injurious pressure had not been proved. The proof of this would be found in a marked increase in the size of the deformity, but in disease of the dorso-lumbar spine, where these abscesses were the most frequent, this did not occur, and Dr. Myers had recently presented a boy who had had two large iliac abscesses disappear spontaneously, and yet there had been no increase in the kyphosis, as shown by repeated and careful tracings.

Dr. SHAFER said that extensive observation had taught him that, with efficient mechanical treatment, the abscesses of Pott's disease almost uniformly pursued a benign course, and he believed that the time would come when those who now operated would see their error. He had seen in the practice of some of the best surgeons in New York deaths occur after operating upon just such abscesses. When an abscess was very tense, and there were severe local or constitutional symptoms, everybody recognized the propriety of incision, but ordinarily these abscesses were flaccid and did not cause any such "daunting up" and injurious pressure as had been described by Dr. Phelps.

Dr. WHITMAN could see no good reason for waiting until the abscesses appeared below Ponpart's ligament. When first discovered they should be aspirated, and, if this failed, iodiform emulsion should be injected. Surely a method of treating the abscesses of Pott's disease which yielded in the hands of Brunz fifty successful cases out of fifty-two, and in those of Fraenkel eighteen out of twenty, was one which deserved a fair trial before resorting to severer measures. If aspiration and the injection of iodiform emulsion proved unsuccessful, the method of evacuation recommended by Barker and Treves, with immediate closure of the wound, might be employed before resorting to open drainage.

Dr. PLIMPTON said that the tube had been left in for free drainage, as it had been found that where it was removed shortly after operation the exuberant granulations choked up the sinus and gave rise to a great deal more trouble and discomfort than where the tube was retained. At the time of the operation he had had in mind the possibility of accident from having the tube in too close proximity to the femoral artery, and in this particular case there were dense cicatricial barriers between the tube and the artery. Small and not readily accessible abscesses should not be interfered with unless they caused some disturbance, but he would not hesitate, if circumstances seemed to demand it, to open them above Poupart's ligament. The existence of pressure within an abscess and its effect upon the general health were well demonstrated in one case in which he removed about half a pint of the contents of the abscess by aspiration, with the result of causing an immediate return of the child's appetite and a prompt relief from pain. He had seen the iodoform emulsion used in a number of instances without apparent benefit. In considering the percentage of abscesses which disappeared spontaneously, it must be remembered that many of them were small abscesses or were nothing but fluid in the joint, so that the statistics on this point were very defective.

**A Contribution to the Study of Non-deforming Club-foot.**—Dr. L. W. HUBBARD read a paper with this title.

**A New Apparatus for overcoming Abduction of the Thigh in Hip-joint Disease.**—Dr. SHAFFER exhibited a new apparatus which he had devised for the purpose of overcoming the abduction of the thigh in hip-joint disease, and at the same time avoiding the infliction of any traumatism upon the joint. It consisted of a thoracic attachment to the ordinary long hip splint, with an arrangement of curved levers actuated by a key, by which motion was imparted to the limb in a direction downward and inward, instead of, as in other instruments of this class, inward and upward. This was the chief feature, and it was on this account that traumatism was avoided. It could be attached to any ordinary long traction splint, and, like the thoracic part, it was to be used only as a temporary arrangement for reducing the deformity.

Dr. PUELP said that he was glad to see that Dr. Shaffer had come to recognize the fact that we could not act upon the hip joint with any degree of precision without taking hold of the thorax; but he failed to see any necessity for such an apparatus as the one shown, because his lateral traction splint did the same thing, and no patient with hip-joint disease need recover with angular deformity. Since he had devised and made use of his lateral traction fixation splint, which acted on the same principle as the apparatus just exhibited, he had not seen a case of angular deformity. If such a thoracic splint was applied after the deformity had once been overcome, recovery must take place without angular deformity.

Dr. SHAFFER explained that the apparatus he had just presented was intended only as a temporary apparatus for overcoming persistent abduction of the thigh, and he considered it a very serious mistake to use the thoracic attachment in the ordinary treatment of hip-joint disease, because it limited the motion of the spinal column, and this would necessarily increase the strain upon the diseased joint. It was for this reason that he had discarded the thoracic addition to the hip splint many years ago. The idea of his new apparatus was to provide a temporary means of overcoming abduction, and it was only to be worn long enough to accomplish this purpose, and then it was so arranged that the abduction and thoracic portions could be removed readily, leaving the ordinary hip splint, which permitted a free movement of the dorso-lumbar spine, and thus diminished the traumatism at the hip, which was best

shown when a patient with hip-joint disease and dorso-lumbar caries attempted locomotion.

## Book Notices.

*The Diseases of the Mouth in Children* (Non-surgical). By F. FORCHHEIMER, M. D., Professor of Physiology and Clinical Diseases of Children, Medical College of Ohio, etc. Philadelphia: J. B. Lippincott Company, 1892.

THE contents of this volume were first published in the form of a series of articles in the *Archives of Pediatrics*. Many of the articles have, however, been revised and added to.

One of the principal motives of their republication was to furnish the medical student with a systematic course which should give him a working basis for his usefulness as a practitioner. The author has endeavored to bring together the facts in connection with the non-surgical diseases of the mouth in children—something which has never been done before in the English language.

The older physicians were very careful about the examination of the mouth, especially the tongue, but in these days the examination is usually performed in rather a perfunctory manner. The diagnostic value of certain changes is largely disputed, and probably justly so. At the same time it is certain, as the author says, that the older physicians, with their limited means, made diagnoses that were very wonderful; and it is equally certain that we, with all our appliances, overlook very important conditions.

There are chapters on the various forms of stomatitis, each variety being thoroughly discussed as regards its ætiology, pathology, diagnosis, prognosis, and treatment. The phenomena of dentition are also considered in a separate chapter. The author takes strong ground against lancing the gums, believing it to be useless either as giving relief to symptoms, or as facilitating or hastening teething.

The book is well printed, the style is clear and forcible, and the views expressed are evidently based upon wide reading as well as a full personal experience.

*A Treatise on Practical Anatomy* for Students of Anatomy and Surgery. By HENRY C. BOENNING, M. D., Lecturer on Anatomy and Surgery in the Philadelphia School of Anatomy, etc. Philadelphia and London: F. A. Davis, 1891.

THE author has endeavored to arrange the subject-matter in this book so as to make it equally serviceable as a text-book on anatomy and as a guide in dissection.

It is illustrated with one hundred and ninety-eight wood-engravings, all of which are well executed and unusually clear, considering the reduced scale required by the small size of the volume.

As stated in the title, the work is intended mainly for students, and is probably meant to be used more as a convenient manual than as a substitute for the larger treatises, such as Quain's and Gray's.

The author's style is agreeable, and the typographical execution is such as to make a very attractive-looking volume.

### BOOKS, ETC., RECEIVED.

*Treatise on the Diseases of Women, for the Use of Students and Practitioners.* By Alexander J. C. Skene, M. D., Professor of Gynecology in the Long Island College Hospital, Brooklyn, N. Y.; formerly

Professor of Gynecology in the New York Post-graduate Medical School, etc. Second Edition, revised and enlarged. With 251 Engravings and 9 Chromolithographs. New York: D. Appleton & Co., 1892. Pp. xiv to 968.

How to feel the Pulse and what to feel in it. Practical Hints for Beginners. By William Ewart, M. D. Cantab., F. R. C. P., Physician to St. George's Hospital, etc. With Twelve Illustrations. New York: William Wood & Co., 1892. Pp. xv to 112.

On Contractions of the Fingers (Dupuytren's and Congenital Contractions) and on "Hammer-toe." Including Two Essays on Dupuytren's Contraction of the Fingers, and its Successful Treatment by Subcutaneous Divisions of the Palmar Fascia, and Immediate Extension. One Essay on Congenital Contraction of the Fingers and its Association with Hammer-toe; its Pathology and Treatment. One Essay on the Successful Treatment of Hammer-toe by the Subcutaneous Division of the Lateral Ligaments. And One Essay on the Obliteration of Depressed Cicatrices after Glandular Abscesses, or Exfoliation of Bone, by a Subcutaneous Operation. By William Adams, F. R. C. S. Eng. With Eight Plates and Thirty-one Wood Engravings. Second Edition. London: J. & A. Churchill, 1892. Pp. xx to 154.

Zeitschrift für orthopädische Chirurgie einschliesslich der Heilgymnastik und Massage. Unter Mitwirkung von Professor J. Wolff in Berlin, Dr. Beely in Berlin, Professor Dr. Lorenz in Wien, Privatdocent Dr. W. Schulthess in Zurich und Dr. Nebel in Frankfurt a M. Herausgegeben von Dr. Albert Hoffa, Privatdocenten der Chirurgie an der Universität Würzburg. I. Band. Mit 85 in den Texte gedruckten Abbildungen und 12 Tafeln. Stuttgart: Ferdinand Enke, 1892. Pp. iv to 487.

A System of Practical Therapeutics. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Assisted by Walter Chrystie, M. D., formerly Instructor in Physical Diagnosis in the University of Pennsylvania. Vol. III. Diseases of the Skin—Diseases of the Nervous System—Diseases of the Genito-urinary Apparatus—Diseases of the Eye—Diseases of the Ear. With Illustrations. Philadelphia: Lea Brothers & Co., 1892. Pp. 11-17 to 1352.

Materialism and Modern Physiology of the Nervous System. By William H. Thomson, M. D., LL. D., Professor of Materia Medica and of Diseases of the Nervous System in the University of New York. New York: G. P. Putnam's Sons, 1892. Pp. 112.

Psoriasis and the New Remedy—Gallacetophenone. By Juha W. Carpenter, M. D. [Reprinted from the *Lancet-Clinic*.]

Suppuration of the Middle Ear, complicated with Abscess of the Neck, with Report of a Case. By E. Oliver Belt, M. D., Washington, D. C. [Reprinted from the *Ophthalmic Record*.]

What is Homeopathy? A New Exposition of a Great Truth. By William H. Holcombe, M. D. Philadelphia: Boericke and Tafel.

The Successful Treatment of Chronic Diseases. A Plea for their more Methodical Management. By Simon Baruch, M. D. [Reprinted from the *Dietetic Gazette*.]

Expert Witnesses. By J. T. Eskridge, M. D., Denver, Colorado. [Reprinted from the *Denver Medical Times*.]

Charge to the Graduating Class. By J. M. Masters, M. D., Professor of Ophthalmology and Otolaryngology in the Tennessee Medical College. Delivered at the Third Annual Commencement. Knoxville, Tenn., March 17, 1892.

Opening of the Mastoid Process. By Dr. Harry Friedenwald, Baltimore.

The Pathology and Treatment of Tetanus; including a Series of Investigations in regard to the Micro-organism of the Disease and the Influence of Disinfectant Substances on the same. A Study from the Pathological Laboratory of the Jefferson Medical College. By D. Braden Kyle, M. D. [Reprinted from the *Therapeutic Gazette*.]

A Plea for the Medical Expert. By L. Harrison Mettler, A. M., M. D., of Chicago. [Reprinted from the *Journal of the American Medical Association*.]

Accidental Utero-vaginal Fistula following Hysterectomy; Cure by Kolpo-uretero-cystotomy, Gradual Preparatory Treatment, and Button-suture. By Nathan G. Bozeman, Ph. B., M. D. [Reprinted from the *New York Journal of Gynecology and Obstetrics*.]

Some Remarks on Pulmonary Tuberculosis, with Especial Reference to our Most Recent Knowledge on the Subject. By Louis F. Criado, M. D. [Reprinted from the *Brooklyn Medical Journal*.]

Results of Experiments with Inoculation for the Prevention of Hog Cholera. By Dr. D. E. Salmon, Chief of the Bureau of Animal Industry. [U. S. Department of Agriculture, *Farmers' Bulletin*, No. 2.]

Ueber intraoculäre Erkrankungen im Gefolge von Nasenkrankheiten. Von Dr. Ziem in Danzig. [Separatdruck aus der *Münchener medic. Wochenschrift*.]

Traitement de l'hystérie. Par le Dr. Paul Blocq. [Extrait de la *Gazette des hôpitaux*.]

Traitement de l'hypertrophie des amygdales. Par Dr. E. J. Moure. [Extrait des *Mémoires et bulletins de la Société de médecine et de chirurgie de Bordeaux*.]

Report relating to the Registration of Births, Marriages, and Deaths in the Province of Ontario, for the Year ending 31st December, 1890.

Acromegaly—Paralysis Agitans. By Simon Baruch, M. D. [Reprinted from *Illustrated Medicine and Surgery*.]

## Miscellany.

**The Commitment and Care of the Insane in the State of New York.**—The State Commission in Lunacy has issued the following circular:

By the statute no insane person can be admitted to an institution for the care and treatment of the insane except upon a medical certificate of lunacy, made jointly by two physicians, under a form prescribed by the State Commission in Lunacy. The form at present in use went into effect July 1, 1890, and commitments can now only be made under such form and upon blanks prepared and furnished by the State. These blanks can be obtained upon application to the State Commission in Lunacy, county clerks, superintendents of the poor, and superintendents of asylums or hospitals for the insane, both public and private. The medical certificate must be filled out strictly according to its terms in order to secure the commitment of a patient. There must be a final examination of the patient on the same day by both certifying physicians, although the final examination need not be conducted by each physician in the presence of the other. *The date of the final examination is the date of the certificate.* A patient can be admitted under such medical certificate at any time within ten days from its date—namely, the date of the final examination. While a patient may be admitted upon such certificate prior to its approval by a judge of a court of record, the patient can not be detained more than five days without such approval, and therefore it is advisable, in order to avoid delays and a re-examination when such approval is not made within the required time, to procure the approval prior to the admission of the patient. The approval must be made by a judge of a court of record, of the county or judicial district in which the patient resides. If, however, the patient has no fixed residence within the State, then the certificate may be approved by a judge of a court of record of the county or judicial district wherein such patient may be. A medical certificate prescribed by the commission is an absolute requisite to the commitment of a patient; a judge, however, may require other and additional evidence. He may summon witnesses or additional physicians, or may, in his discretion, call a jury in each case to determine the question of lunacy. Therefore, in order to avoid expense and delay, it is essential that great care should be taken in the preparation of such medical certificate. The statute provides that only such physicians as have been properly certified by a judge of a court of record, and only after a certified copy of their certificate of qualification has been filed in the office of the State Commission in Lunacy, can prepare such medical certificate. A medical certificate prepared by either one or both physicians whose certificate of qualification has not been filed in the office of the commission is void by statute and a re-examination of the patient must be had.

Section 2, chapter 446, Laws of 1874, provides that "It shall not

be lawful for any physician to certify to the insanity of any person for the purpose of securing his commitment to an asylum, unless said physician be of reputable character, a graduate of some incorporated medical college, a permanent resident of the State, and shall have been in the actual practice of his profession for at least three years. And such qualifications shall be certified to by a judge of any court of record."

Section 7 of chapter 283, Laws of 1889, as amended by chapter 273, Laws of 1890, provides that "One year after the date of the passage of this act (May 14, 1889) it shall not be lawful for any medical examiner in lunacy to make a certificate of insanity for the purpose of committing any person to custody unless a certified copy of his certificate has been so filed and its receipt in the office of the commission (State Commission in Lunacy), as above provided, has been acknowledged."

Public patients, except in the counties of New York and Kings, are required by the statute to be cared for in State hospitals situated within the hospital district in which they reside, the statute requiring that the State be divided into as many districts as there are State hospitals. A patient, however, who desires care and treatment in a State hospital situated beyond the hospital district in which he resides may be admitted to such hospital upon the following conditions:

*a.* When there is a vacancy. *b.* In the discretion of the president of the State Commission in Lunacy and the superintendent of the hospital to which the admission of the patient may be desired. *c.* That any expense of removal beyond the limits of the hospital district in such case must be borne by said insane person's guardians, relatives, or friends, as the case may be.

This statute is liberally construed, and in no instance has the consent of the president of the commission been refused or will such consent be refused in any proper case. When applications are made by mail or telegraph to the office of the commission, in Albany, such consent will be promptly given.

Public patients from the counties of New York and Kings may be admitted to any State hospital within the State, with the consent of the authorities of such hospital and the Commissioners of Charities and Corrections of either of said counties.

Private or pay patients may be admitted to any State hospital without reference to the hospital district in which they reside upon the following conditions:

*a.* That there is room. *b.* That the hospital authorities are willing to receive the patient. *c.* That no patient shall be permitted to pay a sum in excess of ten dollars per week.

The maximum sum of ten dollars per week to be charged for the care and treatment of a private or pay patient in a State hospital was agreed upon at a conference of the State Commission in Lunacy and the trustees and superintendents of State hospitals. This limit of price was fixed upon in order that the rights of the dependent insane for whom the State hospitals were established should not be encroached upon by patients who are able to pay a greater sum and who would require in return therefor a corresponding amount of room-space and other allowances which, in view of the constant demand for accommodations for the dependent insane, could not properly be accorded them. Each State hospital being established upon the principle of the greatest good to the greatest number, and recognizing no class distinctions, obviously no advantages, in the way of extra room-space, etc., can properly be given, and especially in view of the fact that adequate and competent private care and treatment, both allopathic and homoeopathic, can now readily be obtained for the non-dependent insane in private institutions, under the supervision of the State, for ten dollars per week and upward.

All private institutions for the care and treatment of the insane are required by statute to be licensed by the State Commission in Lunacy, and the commission is empowered to revoke any such license in its discretion, when proper cause exists therefor, and no insane person can be committed to any institution, retreat, home, or sanitarium which is not so licensed.

The following is a list of the licensed private institutions for the insane, with the name of the physician in charge, the location, and the minimum sum charged per week:

Institution.	Physician in charge.	Location.	Minimum rate per week.
Bloomington Asylum . . .	S. B. Lyon . . . . .	New York . . . . .	\$5 00
Providence Retreat . . . . .	Harry A. Wood . . . . .	Buffalo . . . . .	6 00
Marshall Infirmary . . . . .	J. D. Lomax . . . . .	Troy . . . . .	5 00
Long Island Home . . . . .	O. J. Wilsey . . . . .	Amityville . . . . .	10 00
Brigham Hall . . . . .	D. R. Burrell . . . . .	Canandaigua . . . . .	10 00
* St. Vincent's Retreat . . . . .	J. A. Underhill . . . . .	Harrison . . . . .	10 00
Sanford Hall . . . . .	J. W. Barstow . . . . .	Flushing . . . . .	25 00
* Dr. Wells's Sanitarium . . . . .	T. L. Wells . . . . .	Brooklyn . . . . .	10 00
Dr. Combes's Sanitarium . . . . .	R. C. F. Combes . . . . .	Woodhaven . . . . .	10 00
Dr. Choate's House . . . . .	G. C. S. Choate . . . . .	Pleasantville . . . . .	75 00
Dr. Parsons's House . . . . .	R. L. Parsons . . . . .	Sing Sing . . . . .	75 00
Falkirk . . . . .	J. F. Ferguson . . . . .	Central Valley . . . . .	20 00
Vernon House . . . . .	W. D. Granger . . . . .	Bronxville . . . . .	35 00
Breezehurst Terrace . . . . .	D. A. Harrison . . . . .	Whitestone . . . . .	20 00
Waldemere . . . . .	E. N. Carpenter . . . . .	Mamaroneck . . . . .	25 00
The Pines . . . . .	Fred Sefton . . . . .	Auburn . . . . .	20 00
Glennary Home . . . . .	J. T. Greenleaf . . . . .	Owego . . . . .	10 00
Dungartheil . . . . .	H. R. Stiles . . . . .	Lake George . . . . .	25 00

\* Receive female patients only.

Respectfully, T. E. MCGARR, Secretary.

**To Contributors and Correspondents.**—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

*Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.*

*All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.*

*Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.*

*Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.*

*All communications intended for the editor should be addressed to him in care of the publishers.*

*All communications relating to the business of the journal should be addressed to the publishers.*

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