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Original Communications.

A WONDERFUL POST-MORTEM.

TRANSLATED BY DR. J. WORKMAN.

Five years ago Professor Tebaldi, of the University of Padua, published a charming and very instructive little book, with the title *Ragione e Pazzia*—(Reason and Madness.) He was well qualified for the task, as he had well and long studied both his subjects. It is never possible to translate from one language into another any work of genuine merit, without more or less detraction from the force or beauty of the original, and none understand this better than those who undertake to turn into our bald but powerful English idiom, any production appearing in the primitive garb of the sweet and graceful language of Italy. It is a pity that so interesting a book as this of Professor Tebaldi should be passed over unheeded by English and American publishers, for it would, or at least it certainly should, command an extensive sale.

We purpose at the present time to abstract from its pages a portion of the concluding chapter, but with the admonition to the reader, that he is not take to this as a specimen of the preceding contents. It is manifestly but a parting *jeu d'esprit* of a good-natured author, but it may be read by that class of young men for whom, no doubt, it was mainly intended, with some profit.

We must now allow Professor Tebaldi to speak for himself, in introducing the wonderful personage who was the protagonist of a most thrilling drama.

"Before parting with my reader," writes the kind-hearted Professor of Psychiatory, I would like to answer a question which is frequently heard by alienists :—Do we find in the organic changes of our subjects any which may account for the numerous and varied forms of mental disorders? Is there a material structural alteration of the brain, which should explain the strange manifestations of insanity?

The answer might be rather difficult, but I shall try to give it by relating a singular occurrence which happened in a University of this world or if better should please if the reader in the world of dreams, into which I am pleased sometimes to wander.

An old professor, whose hairs had become silvered in the study of insanity, and who was accustomed to long vigils whilst poring over questions of science, was one night overtaken by drowsiness; he placed his head against the back of his chair, and closed his eyes, to get a little repose. When he awoke he found on his table a letter; it showed no post-stamp; it was strangely addressed, a little in one direction and a little in another, partly in small characters, and partly in large, with some hieroglyphics interposed; it was just one of those to which alienistic physicians are accustomed, and thus it read :

My dear and good Doctor,—A sentiment of profound gratitude, to which I am not a stranger, my respect for the untiring kindness which you lavish on your patients, and the desire to explain an occurrence which has caused so much noise, have induced me to address to you this letter.

I know that the sedate and tranquil minds of the Professors of this celebrated University, as well as of a few of the public authorities, have been much disturbed by the fact of the disappearauce of the body of a woman from the School of Anatomy; here I am to explain the secret, and by so doing I hope to quiet the minds of all those gentlemen.

You know who I am, and you will well remember that, whilst I was your clinical guest, you made a world of enquiries in order to know me thoroughly. My genealogy was traced back to its most remote source, and it was discovered that I descended from a merry and thoughtless god; my features were studied as earnestly as those of a lover; my body was subjected to a thousand examinations and experiments, poked, punched and peered into in every part; convulsed by electricity when I was quiet; restrained in a camisole with long, closed sleeves, when I became too lively; my inward parts were no less annoyed, for I swal-

lowed as many pills and decoctions as might have terrified a hypochondriac.

At last I was one day believed to be dead, and I hoped now to have peace, but I was disappointed. I must, distinguished doctor, make to you, in strict confidence, a confession, without which you could not comprehend the mystery. You must not regard me as the equal of any of the other afflicted ones who have the good fortune to be under your care; I am a privileged being. When I was yet in baby swathings, a genius came to my cradle, and bestowed on me some whimsical caresses, and placing her hand on my tender forehead, she pronounced nearly these words, which have proved prophetic: "Live, dear child, as long as humanity shall endure, and every individual who shall look upon you, or shall touch the hem of your vestment, or possess a lock of your hair, shall derive something from you, and transmit it to most distant generations. The spirit shall animate every several part of your body, so that, even when detached from all the others, it shall still have sense and consciousness, and by its own proper virtue it shall tend to reunite with them."

If, Doctor, you look closely into these words *of obscure color*, you will find something which was before known to you; as to the truth of the last part of them, here I now am to prove the truth of them, by relating to you, in length and breadth, all that happened to me whilst I appeared to be dead.

You had just pronounced the fatal word, "*morta*," when I felt the white sheet drawn over my face. A few hours afterwards, two rough hands laid hold of my shoulders, and two others of my feet; I was laid on a litter, and next placed on a long table, in a row with six or seven other bodies. Having once commenced the fiction, it pleased me to go on with it; and I wished to see how it would end. They tied a string round my great toe, and attached the other end to a little bell, and I was left in that cold and silent company. I took care not to move a single member, lest somebody might come in; by and by I turned my head, and peeped at those seven or eight faces, white and motionless, which were my neighbors; I gave a little smile, hardly enough to show my teeth.

Twenty-four hours passed, and then those two gentlemen returned, and with but little politeness they denuded me; they lifted me up, and then let me drop into a box, but not without paying a compliment to my body, which, as a handsome female, I accepted with gratification, though I was obliged to appear dead. I was carried out of this place, and I passed into the hands of a man who was still more rude than the first two; this fellow was the grave-digger; with the assistance of another he lifted me out of the box, raised me high up, and let me plump down on a hard cold stone table, that would have made any creature shiver.

Now began a strange exhibition. All around, on the seats of an ampitheatre, were stretched a hundred young fellows, some of whom were near to me, and you, dear Professor, were among these; the others were higher up and more distant. Oh! how many eyes were fixed on my members, which I, through all my life had so modestly guarded, excepting on occasions in which I was rather indiscreet. How many complimentary epigrams did I hear!

One long, lean gentleman, with a thin gray beard below the chin, and a pair of spectacles on his nose (he was very like you, Professor), and wearing a long, black, glossy cloak, came near where my head was placed on a wooden pillow. An iron hand squeezed my face and pressed it against the hard cushion; I then heard a very sharp blade running round my head, from which the hair was removed, and the skin was cut down to the bone; next I heard the scalp leaving the skull, with a sort of rustle, very like that given by my silk dress when I used to attire myself for a ball.

I did not feel the least pain, and I listened with curiosity to what the Professor was saying to one of those young students, who had come beside me, and from time to time rested his writing board on my abdomen, with very little respect, if I must tell the truth.

They now, with a saw, removed the upper half of the cranium. When the Professor uncovered the brain, there was a general movement of curiosity; all eyes, armed with magnifying glasses, were turned to this organ, which, being very carefully raised out of its shell, was placed on a weighing scale; and when the Professor announced the weight of it, there was an exclamation of general astonishment, for it exceeded not only the average of that of the brain of woman, but even that

ascribed to the brain of man. A shower of compliments was then bestowed on me from the benches of the school, and I was very near breaking into a laugh, but I choked it within my throat, because it would have scattered the whole gathering.

They now began to slice the brain, but I did not lose a bit of my consciousness or my finest senses. I heard the Professor at every cut uttering his remarks, which were spiced with strange words, such as the topography of the brain abounds in; these classic pearls dropped from his lips whenever he had to speak of lobes, nodes, ventricles, feet, pillars, tubercles, thalami, and a thousand other things. His observations invariably ended —*all normal!* (nel testo, *ganz normal*).

At one moment he held up, on the point of his scalpel, a reddish, round bodikin, on which I had never before bestowed any attention, and jokingly he said,—"behold also the Pineal gland *ganz normal.* For a little pleasantry, the Professor now made a short digression, whilst he related an anecdote pertinent to this little body, believed in the past to be the centre of life. He stated that a certain literary personage, named Brossette, a famous Cartesian commentator, who, having lost a wife whom he dearly loved, resolved to keep, as a memorial of her, the most precious part of her; he therefore preserved the pineal gland, and had it put into a ring, which he religiously kept on his finger for more than thirty years after her decease. All the students laughed at this, but not I, for I had too often heard the beliefs of the past laughed at in the schools, and some day yet I expect to hear those of the present laughed at.

When the pieces of my poor brain were placed in a vessel, I felt the knife running over my breast and abdomen, and then, after learned cuts and tearings, a hand grasped my heart, raised it out of its mysterious nook, and carried it to the light of day. Some of the students now lighted their cigars; the smoke of tobacco has indeed its place in the dramas of the heart; why then should it not honor its dissection? The odor of my internal parts perhaps disturbed the olfactories of these genteel youths:—alas, what a metamorphosis of matter!

My heart, as a dethroned sovereign, was laid on my breast; the point of the knife was pushed into it, and it was split open in two or three directions; they fingered its walls and explored its every recess, but, deluded in their search, they put it back into its lodging. I tell you truthfully that these wounds, inflicted on the dearest of my organs, were the only ones that made me feel a sort of thrill; but I found comfort in the thought that the treasure had long ago been removed from its shrine; they sought for the prize in an empty casket. Sentiments, affections, passions, emotions, ravings, all its tumultuous array, I had given over to the custody of other keepers. It had no longer any need to beat, and therefore I stopped its motions; they might then cut away to their full content; a single strong contraction would have driven those jolly students and that grave cold anatomist out of their wits; but for the present I denied myself this pleasure, feeling certain that my half hour would in time come to every one of them. What they did with me afterwards it is unnecessary to tell; you know it all quite well; in the end I got off with only my arms and feet sound, excepting a few slits on them bestowed on me for pastime.

I was hoping that this entertainment had closed, when I was put to a fresh trial. The Professor, having cut off a little slice of my brain, put it between two glasses, and placed it under a lens which magnified enormously. "Behold," I heard him proclaim, "a nervous cell!"—and all those gentlemen, one by one, looked at it, but on finishing I thought I heard them say to themselves,—"we knew all that before."

After this the Professor turned round to his scholars, and with much solemnity declared:—that as no special lesion was found, to which death could be ascribed, they must hold that the cause of this patient's death must have been paralysis of the heart.

I laughed in all the little bits into which they had divided my poor body.

A stroke of the bell emptied the amphitheatre; the sexton remained, and smoking the stump of a cigar, and muttering with a monotonous cadence a vulgar jest, he threw my ill-used members into the casket; he then poured water over the stone table, to make it ready for another dissection; after which he took off his black, blood-stained tunic, and with his wonted refrain and the last puffs of smoke, he went out of the school.

A profound silence now reigned in that chamber of death, when every part of my body, seized by

the force of affinity, moved towards those which had been its neighbors during life, and in a short time I felt myself re-made; the edges of the wounds of the heart were united; it commenced to beat, and the blood again flowed through the most distant windings of the vessels. As if awaking from a fearful dream, I raised my head and looked around, and hearing no sound I arose from that dread repository and proceeded to the door. I was naked, and I must cover myself with something; it would have made a devil of a row, and they would have shut me up again in the asylum if I had gone out in that state; and yet those young fellows had seen and examined me from head to feet; so I took down from its peg your black gown and put it on me; I put a white covering on my head, and then I went forth from that place which I shall never be able to forget.

Once outside, I became mistress of myself; I went around, as is now my custom, among the people; to-day I walk in professional vestments, which suit me just as well as any other, in which I disguise and conceal myself.

You have now, my dear Professor, the story of the post-mortem of a living woman. You may be grateful to me for the secret, as I am to you for all the kindness lavished on me by you, and for all the experiments made on my body both in life and supposed death. I do not kiss your hand, fearing that I might thus infect you with a little of my own whimsicality; but I make you a low courtesy, and I hope to see you soon again, in some new and interesting resemblance.

Continue to me that friendship which was so great a favor to me, and which shall never be forgotten by

Your most devoted,

La Pazzia.

SOME OBSERVATIONS ON LACERATIONS OF THE PERINEUM.*

BY H. S. GRIFFIN, M.D., HAMILTON, ONT.

In opening this section with a short paper upon lacerations of the female perineum, it may be objected that the subject has been so fully and exhaustively handled by eminent gynæcologists, that not only is it presumptuous on the part of a general practitioner to take it up, but that there is actually nothing left to say. My only excuse is, that it is one of general and universal interest to every physician engaged in general practice; and though I may be unable to throw any new light, yet one may fairly be justified in believing that, among the many able gentlemen present, information of interest and importance may be elicited from the discussion which it is the object of this paper to call forth.

I have said that it is of special interest to the general practitioner, for the reason that every physician meets continually with cases in practice, and the secondary effects of an unremedied laceration form one of the most fruitful sources of female suffering and distress. Those physicians who declare that they seldom or never meet with instances of this lesion, may fairly be regarded either as imperfect observers, or else of limited experience.

I have not been able to gather statistics, that are of a satisfactory character, as regards the frequency of the occurrence of lacerations. In fact, statistics are more or less worthless—because what one man will call a laceration, another will not. Indeed, quite extensive tears may easily be overlooked, especially when confined to the vaginal mucous surface. As far as I can judge, about thirty per cent. of primipara suffer from laceration to a greater or less extent. The cause of this frequency of occurrence is difficult to ascertain. It is supposed that in earlier times and among half civilized communities it occurred much less frequently than at the present time and among civilized nations, and it has been thought that this was due to the enlarged size of the fœtal head, naturally evolved from the cultivation of the intellect and improvement of the mental faculties. It may be observed, however, that the process of nature would not be complete without the compensating provision of an enlarged female pelvis.

We may briefly mention some of the more commonly occurring causes which predispose to laceration. As broadly classified by Mekerttschiantz, they are as follows: From the side of the mother—anomalies of the pelvic outlet, projections of the sacral vertebræ, anomalous sacral curvature, capacious sacral hollow, deep symphysis and anomalous axis of the rami, anchylosis at the sacro-coccygeal joint, anomalous pelvic obliquity, rigidity and alterations and abnormalities of the soft parts. Fur-

* Read before the Ontaro Med. Association, June, 1889.

ther factors are the age of the patient, want of elasticity in the perineum, and disproportion between the size of the fœtal head and the maternal parts.

From the side of the child the causes are numerous, altogether aside from congenital vice and abnormalities. Regarding the head, there is a difference of opinion. Hecker and some others maintain that a small head is more liable to cause rupture, as it escapes more rapidly; whereas a large head slowly distends the parts. It seems there is frequently a difficulty in telling whether the laceration is due to the head or the shoulders, but any part may cause rupture. The *direct* causes are, of course, precipitate labor, retarded labor, injudicious use of ergot and of the forceps, etc.

With regard to the means resorted to for the prevention of rupture, the old-fashioned recommendation to supprt the perineum has, I believe, in injudicious hands, frequently been the cause of the trouble it was thought to prevent. Neither do I agree with the practice of greasing the parts. I regard those means only to be rational which are directed towards retarding too rapid labor, and securing more time in gradually dilating the introditus. I have spoken of the injudicious use of the forceps as a frequent cause of rupture; on the other hand, I have the utmost faith in their efficiency to prevent laceration, when skilfully and properly used. We have no means in our possession equal to the forceps, for controlling the course of labor, gradually dilating the soft parts, and safely guiding the head over the pelvic floor. So much so, that I am accustomed to regard the perineum as safe when I have the forceps. They should be applied in cases where rupture is threatened, before it is too late; and in no case should they be removed until the head is completely born. I pass over the subject of anæsthetics, powerful factors though they are in the prevention of perineal rupture, and merely refer to the practice (but seldom resorted to, I trust) of making incisions, only to condemn it. Of manipulating, or kneading and stretching the perineum, the best plan is that recommended by Mekerttschiantz. When the presenting part appears at the vulva and distends the frenulum, the left hand is placed over the woman's right thigh and with the palm turned towards the child, the thumb grasps the right labium and the middle finger the left, and by pulling these together, they are relaxed. The head is thus slowly allowed to distend and expand the vulva. This method I have tried in a number of cases, and believe it to be really efficient.

After the completion of the third stage of labor and the discovery of a laceration, the question of treatment must be immediately considered. This will depend in some measure upon the extent of the lesion. When complete, extending through the sphincter ani and involving more or less of the recto-vaginal septum, there are few who oppose an immediate attempt at repair and suturing the parts together in more or less perfect contact. But considerable difference of opinion exists as to the treatment of incomplete lacerations, and considerable difference of practice obtains, even among those that believe in the immediate operation.

It has been argued that these lacerations heal readily and satisfactorily when perfect cleanliness is observed, and that even when the restoration is imperfect, it does not lead to prolapse of the vagina or uterus; for, as maintained by Emmet, the uterus is swung from above, and not supported by the perineum below. It is also claimed that the symptoms usually attributed to the loss of the perineum bear no relation whatever to the extent of the injury, and that there need be no fear of immediate danger resulting from leaving the lesion unsutured. Adherents of this practice maintain that lesions occurring elsewhere in the pelvis are the sole cause of trouble, whether showing itself immediately, or at a later period; that it is a needless infliction of pain to a woman who is already worn out and exhausted, and that even when the primary operation is performed, it is far from being invariably successful.

The tendency of the times, however, is rather to the opposite extreme—to the suturing of even the slightest tear. And to the objectors we may reply, that stitching is not so severely painful, even in the absence of anæsthetics, as the condition of the parts is one of more or less analgesia. It is moreover amply proven that restoration of the perineum favors involution of the vagina—a result of prime importance. Nor should it be forgotten that the chances of septicæmia are certainly much lessened by the operation It is our duty to give the patient every chance of obtaining a perfect recovery, especially when the operation is so simple, so easily performed and so generally successful, and when

the only objection worthy of the name is the aversion to give a little more pain.

A brief consideration of the secondary operation will close these few notes. By this we mean all cases where an interval of two or more months takes place between the injury and the attempt at repair. Almost every gynæcologist of eminence, and many who can make no such pretensions, have devised special operations, each more scientific and complicated than the last. I must express my strong preference for Tait's flap or splitting operation, as described by Saenger, above all others for its simplicity, its scientific correctness, the rapidity and ease with which it may be performed, and the facility with which any practitioner may learn it. In my hands it has been most successful, not only in operations for restoration of the perineum, but also in three cases of recto-vaginal fistula. This operation seems to me to present the only practical method of reaching the torn muscular and aponeurotic structures that form the pelvic floor, a result which cannot be obtained by the process of denuding the mucous membrane.

When the laceration extends high up the septum, I have used the buried catgut sutures in the axis of the wound; but I believe, where possible, that it is better to include the entire wound by at least one deep suture. Even when the laceration is of no great depth, I have found a difficulty in passing the ordinary curved needles around it. In order to facilitate the introduction of the deep sutures, I have a jointed needle made, which I have used satisfactorily in two cases, and which I desire to present to the notice of the section. The eye is armed with a silk thread and the point inserted at or near the margin of the wound. The point immediately becomes directable by the handle, and as the needle is freely movable, it can be guided completely around the wound and made to emerge at the desired spot where the suture can be hooked into the silk thread, and the needle withdrawn. Or the eye may be made open, so that the needle can be readily threaded after it is passed. The needle shown is not perfect, the curve should be greater and the needle longer.

Polyuria.—M. Bucquoy recommends (*Br. Med. Jour.*) ergot of rye in simple polyuria. He reduced the daily volume of urine from 14 litres to 2 litres in two weeks' treatment with ergot.

Correspondence.

OUR EDINBURGH LETTER.

(From Our Own Correspondent.)

Skin-Grafting as Practised at the Royal Edinburgh Infirmary.

Two methods are now employed here:—I. Where the superficial layer only of the skin is transplanted on a raw surface. II. Where the whole thickness of the skin, as well as a small amount of the subcutaneous tissue, is applied to a granulating or raw surface.

First method.—This process is practised on raw surfaces only, never on a granulating one. The surface to be grafted is first prepared for the grafts. Here nothing has to be done but to see that all hæmorrhage is stopped, and to render the surface aseptic by a solution of boracic acid (saturated). If it is a granulating surface, and this method is to be adopted, the granulations must be first scraped away with a Volkmann's spoon, the bleeding stopped and the surface rendered aseptic by boracic acid lotion. The surface having been thus prepared, is covered by a sponge or piece of lint, wet with boracic acid, while the grafts are cut. The grafts are taken from the patient's own thigh in the case of grafting a leg, or from the arm—over the deltoid region. Whatever part is selected is first thoroughly washed with soap and water, by means of a brush; then with the boracic acid solution, and then with ether. The surface being thus cleansed, the grafts are cut by means of a razor or a very sharp long amputating knife.

They are cut as large in area and as thin as possible, only including the superficial layer of the skin, in such a manner that the surface left after their removal bleeds only slightly. These grafts are then applied to the raw surface that has been already prepared for them, taking care that the raw surface of the graft and the raw surface of the part to be grafted come into contact. They are applied their full size, and the larger the better. Several such grafts may be applied, according to the size of the surface to be grafted. After the two raw surfaces have been placed in immediate apposition, small strips of protective are placed over the parts, boracic acid lint, and a considerable quantity of antiseptic cotton applied, the whole being kept in

position by a properly applied bandage. The part is then placed in the most favorable condition for rest, *e.g.*, in the case of grafting near a joint a splint is applied to keep the parts at perfect rest. The part is then re-dressed every twenty-four hours, using boracic lotion, and avoiding anything that might irritate the part, and the same kind of dressing applied.

This plan of treatment is carried out with all wounds of large size that would have to heal by granulation, as those left after removal of the breast, when the skin is largely implicated. It is also adopted in treating large granulating wounds, as those left after extensive burns, etc., not until the granulations have been scraped away. This operation is not so largely employed in the case of burns, etc., as the second method, to be described.

Second method.—Where the whole thickness of the skin, as well as a small amount of the subcutaneous tissue, is transplanted. This method is practised on both raw and granulating surfaces, the granulations, if healthy, being left. The grafts for the operation are obtained from the parts removed by amputation from healthy patients, or, if this is not possible, from some of the lower animals.

Strips of skin four or five inches in length, or longer, and about three-quarters or an inch in width, are dissected off, along with a small portion of the subcutaneons tissue. These strips are then placed in a solution of boracic acid (saturated), and then used from time to time as required. You must first make certain that the patient, from whom these grafts are to be taken, has not been affected by any specific disease, etc., otherwise syphilis, tubercle, etc., may be communicated to your patient by the grafts. The grafts obtained may be used with success after having remained in the solution of boracic acid for days, even as long as fourteen days.

Having thus obtained the grafts, the surface to be operated upon is now prepared. In the case of a raw surface, nothing has to be done but wait until the hæmorrhage has subsided, then, after rendering the parts aseptic by washing with a solution of boracic acid, the strips of grafts are applied to the wound. A number may be placed on, according to the size of the wound and extend from one end of the surface to the other.

If a granulating wound is to be operated upon, the grafts are simply applied to the healthy granulations after they have been rendered aseptic; or, if the granulations are not healthy, they may be scraped away with a Volkmann's spoon, and the grafts then applied to the raw surface. The parts are then placed at perfect rest, and dressed daily as in the previous method.

This method has met with great success of late, and the great advantages, not only of rapid healing of the wound, but of all the elements of the true skin being contained in the result over a wide area, are obvious to all.

Selected Articles.

PREVENTIVE INOCULATION.

(*Continued from September Number.*)

The microbe of *rouget* is a bacillus which is found in the spleen and the lymphatic glands of the swine which die of the disease. In cultivation it produces no spores, and is therefore specially amenable to the influences of the air, and, in fact if left long enough exposed to its action, its virulence is totally destroyed. But there is a further method of attenuation discovered by MM. Pasteur and Thuillier, and which is of great interest, as it shows the changes which a virus may undergo in its passage through animals of different kinds. *Rouget* injected into a rabbit kills it within a few days. A small quantity of the "pulp," from the spleen of this rabbit inoculated into a second one will cause death still more quickly, and the disease can thus be passed throngh a whole series of rabbits. But the extraordinary point (discovered by MM. Pasteur and Thuillier) in these inoculations is that, as the strength of the virus increases for the rabbit it is diminished for the pig; so much so that, after a sufficient number of passages of the virus have been made through the rabbit it has become a vaccine for swine, able to confer upon them exemption from the fatal form of malady.

With this example before us, the question arose, What would happen with certain human diseases if we made them also pass through a great number of different kinds of animals? Is not this very process taking place in Nature, and does it not give fresh support to the idea that the vaccine of small-pox becomes modified by its passage through the horse and the cow?

After all this work upon the prevention of fowl cholera, anthrax and swine fever had been accomplished, M. Pasteur devoted himself to the study of rabies. When, in 1880, the study of this disease was begun in M. Pasteur's laboratory, the

following facts concerning it were alone known: that it was an infectious disease; that the virus was contained in the saliva of rabid animals, and that it was transmitted through their bites. We knew also that the period of its incubation varied from some days to some months, and here our definite knowledge of its pathology ended. Many experiments, however, had been made on the subject, but two causes had rendered them especially difficult to carry out and their success uncertain.

Inoculation of the saliva of a rabid into a healthy animal does not always produce rabies, but often has no effect whatever. Among animals susceptible to the malady, some only become rabid after such a lapse of time that the prolonged waiting, combined with the uncertainty of the results, puts the patience of the experimenter to a most severe test. The saliva of a rabid animal affords an untrustworthy virus, because it contains a quantity of different microbes, which, when introduced under the skin contemporaneously with the virus of rabies, may prevent the development of this latter, and set up inflammatory processes originated by their growth. The first thing to do, therefore, was to find some source of the virus of rabies which should be uncontaminated by other microbes. All the symptoms of rabies arise from the disturbance of the nervous system; hence the idea that in that system the rabic virus was specially to be found presented itself to the mind. The previous attempts made, however, to show that the nervous system of a rabid dog was virulent were unsuccessful, because the manipulations to which the nervous matter was exposed in order to inoculate it introduced into it those other microbes which it was essential to exclude.

By inoculating with absolute purity from the spinal cord the brain or the nerves of an animal which had died of rabies, M. Pasteur demonstrated that the true seat of the virus was to be found in the nervous system. A portion of the nerve centres of a rabid dog injected subcutaneously into a healthy one will produce rabies more surely than the most active saliva. This demonstration enabled us to take a decided step forward in its study. The rabic virus being contained in the nervous centres, and the symptoms depending entirely upon that system, the idea naturally followed that the disease only showed itself when the nervous centres are attacked by the virus. Further, that the incubation period is governed by the time taken by the virus to travel from the point inoculated up to the cerebro-spinal axis and for its development therein. If, therefore, the virus be inserted directly into the nervous system, where it has to develop, the incubation ought to be shortened and the disease follow with certainty, because the virus can no longer be destroyed or diverted from its course during its long journey.

Gentlemen, experiment has fully confirmed this theory, as may be seen from the record of the first dog inoculated by trephining, in which the incubation period was reduced to fourteen days. In fact, any dog inoculated under the dura mater with a little of the spinal cord or brain of a rabid dog takes rabies with absolute certainty and within a period rarely extending beyond eighteen days. Thus we are delivered from the uncertainties belonging to subcutaneous inoculations and from the weariness of a long incubation period. After this experiment, the study of the disease went rapidly forward; it was proved that the virus existed in the nerves and that by that route it travels from the original wound to the brain and spinal cord, and also that it can in some cases be conveyed by the circulatory system. It will be seen, therefore, that the manifestations of rabies may be varied, as the manifestations of the disease in the beginning will depend upon the particular region first encountered by the virus, and finally why it is that there are forms of the disease which until now were unrecognised. and which differ from the classic type. The operation of trephining is in itself harmless when performed with proper antiseptic precautions. It is as successful with the rabbit as with the dog. If inoculation by trephining is performed upon a series of rabbits from the spinal cord or medulla oblongata of an animal which has just died, and this process is continued with successive animals, we find that the duration of the incubation period, which was at first from fourteen to eighteen days gradually diminishes. It becomes shorter and shorter as the number of passages of the virus increases, until, at the end of a hundred of the successive inoculations, it has gone down first to seven days and finally to six. At that point it remains stationary, the rabic virus seeming then to have attained its maximum virulence for that animal (the rabbit), and the virus is said to be "fixed." It is from this "fixed" virus that M. Pasteur obtains his vaccine for rabies by a process similar in several details to that already used for attenuation in chicken cholera, swine fever, and anthrax.

If in a bottle with an upper and lower tubulure containing below fragments of caustic potash and closed by a piece of cotton-wool there is placed a spinal cord of a rabbit which has served in a passage series of inoculations, this cord, which contains a quantity of "fixed" virus, gradually dries, preserved from dust and exposed to the contact of the air at a temperature of 25°C, care being taken to keep it at this point. If each day we take a small quantity of this cord and inoculate on the surface of the brain of a rabbit, we shall perceive that as the cord becomes dry in the sterilised warm air so it loses its virulence. At the end of five days' drying it will only be capable of killing some few of the rabbits who have received it. At the end of fourteen days we find it absolutely in-

nocuous after having passed down the scale of gradually diminishing activity during the preceding days.

Having now obtained our material containing the attenuated virus, if we each day inject subcutaneously into a dog a portion of the attenuated cord, crushed in water, taking care to begin the injection with the harmless fourteen days' cord, to go on on the second day with the thirteen days' cord, then the third day with the twelve days' cord, and so on till we reach the cord at zero, or, in other words, spinal cord unattenuated, spinal cord which is deadly, this dog thus inoculated will not die, nay more, we may try him with the most active rabic virus inoculated into the brain and he will remain perfectly well, though we know that otherwise intracranial inoculation produces rabies without fail. There is, therefore, positive proof that the injections of the dried cord have produced exemptions from the disease. The experiment may be repeated as often as you please, but the results remain the same. Dogs which have subcutaneously received the series of cords commencing from the fourteenth day cannot take the disease either from the bites of mad dogs or in any other way. The exempt condition has been obtained in one fortnight.

Usually rabies remains latent in a dog which has been bitten for a period generally exceeding one month. It might therefore be possible to profit by this long incubation period to give before its manifestation exemption from the malady. To elucidate this point, out of a number of dogs bitten by rabid dogs, or inoculated under the skin with rabic virus, some were preserved for control experiments, while the others were subjected to the preventive inoculation of the dried cord in augmenting degrees of virulence. Of these latter not one took rabies, while of the former a great number died with the characteristic symptoms of the malady. It was proved possible to prevent hydrophobia even after the bite.

Notwithstanding, however, the favorable results obtained upon animals, the application of the same method to man was undoubtedly a bold step. By what urgent solicitations and "medical advice" M. Pasteur agreed to take it is a matter of history. In July, 1885, the boy Meister terribly bitten by a rabid dog, was the first to undergo the anti-hydrophobic inoculation. It is a noteworthy date, and marks an epoch, not only in the history of M. Pasteur, but in that of Science herself. I shall not dwell upon that which is well known; how, after this first successful attempt, persons bitten came to the laboratory from all parts, nor how, since then, each month about 150 persons came to obtain the antirabic inoculations. Some among you have been present at these inoculations, and have seen how the emulsions of dried—that is, attenuated—cord are prepared to avoid the introduction of any alien germs. The injections are made in the side on the right and left alternately, and are repeated during fifteen days. For ordinary bites the inoculations start with the fourteen days' dried cord, and end with that of three days. For more dangerous wounds, those of the head and face, the number of inoculations is greater, and we proceed to the more recent cords more quickly, as it was soon discovered that these last-mentioned kind of wounds required a more active treatment.

Since the commencement of the inoculations until now (March 21st, 1889) 6,870 persons have been treated in the Paris Institute alone; and among them many were very severely wounded. The proof of the rabidity of the animal which gave the bite has been furnished either by experiment or by veterinary examination in 80 per cent. of the cases. The mortality among the persons bitten by indubitably rabid dogs and thus treated is about 1 per cent., a very low rate if compared with that of 15 per cent. which usually follows the bites of mad dogs. It is scarcely credible that this extremely small number of failures should have given rise to such violent attacks against this practice; the most contradictory accusations have been brought against it. It was declared to be inefficacious, that its good results were obtained by the treatment having been applied almost entirely to persons bitten by healthy dogs, that the statistics showed that as many persons had died in France of rabies since the introduction of M. Pasteur's system as before it. This last assertion was made by badly informed persons who took for complete statistics documents allowed to be insufficient even by the very individuals who published them. The proof of the efficacy of the system is to be found by examination of those cases where the rabidity of the attacking animal was incontestably, because experimentally, proved; and above all, from such of these cases as were bitten on the head and face. In this latter class alone, it is well known that the ordinary mortality is 80 per cent., whereas among those treated at the Pasteur Institute the mortality does not reach 4 per cent.

Other adversaries asserted that the treatment was dangerous, and increased the probability of death, and thus found themselves confronted with the singular paradox of a dangerous treatment enormously diminishing the death-rate of the disease, and with their previous assertion that the inoculations produced no result whatever. These last opponents were furnished in support of their contentions with the violence of their assertions alone, as they had made no experiments whatever.

Others followed, however, who contended that they had proved by experiment that the foundations themselves of the system were unsound, and that the antirabic inoculations could not give im-

munity to dogs. The fate of these pretended experiments is well known to you. They were shown on unquestionable authority—that of the English Commission charged with the inquiry into the inoculations—to be inexact. You know, gentlemen, of whom this Commission was composed,* and in order to answer once for all the whole series of attacks, it is only necessary to recall their judgment as embodied in their report—namely, that M. Pasteur had discovered a method of prevention against rabies comparable to that of Jenner against vaccination. The absolute nullification of fatal results among persons bitten by mad animals and treated I do not, however, believe to be possible.

Nearly all the individuals treated who have succumbed to the dsiease developed it during the fortnight following the commencement of the inoculation owing to the fact that in their case the virus passed probably by the blood-stream to the nervous centres immediately after the bite. Indeed, experience shows that the disease may break out from the first (?) to the eighteenth day after inoculation, and it also demonstrates that in cases of submeningeal inoculation it is extremely difficult to outstrip the dsiease, because the inoculation period is so short that attenuated cord inoculated subcutaneously and far from the central nervous system has no time to do its work. In such cases therefore, of extremely short incubation period, it is possible that the treatment may fail. Fortunately they are rare even where the bites have been received in the face. As for the few cases which succumb even where the treatment has been completed and has apparently had sufficient time to produce its effects, it is extremely difficult to assign the true cause of such failures, but they may perhaps depend upon the special liability of the individuals in question.

The most remarkable point, however, in the whole discovery of this preventive inoculation against rabies is that it has been carried out, the virus itself being still unknown. Not only do we not know how to cultivate it outside the body, but in allowing it to be really a microbe, we can but do so by analogy, for as yet no one has been able to isolate it. Notwithstanding this, however, it is daily being attenuated and made to pass through the various stages of virulence. Unable to cultivate the organism artificially in flasks and tubes, M. Pasteur has been obliged to do so in the rabbit, and so easily and with such perfect regularity are these cultivations in the living animal performed that they are ready each day for use in the inoculations at a specified time and in the condition of genuinely pure cultivations. There is no stronger example of the power of the experimental method applied to medical matters than this one of the prevention of a malady the absolute virus of which is still obscure.

Certain microbes—that, for example,— of anthrax—grow with such tremendous rapidity in the bodies of animals, that at the time of their death their blood contains more parasitic elements than blood-corpuscles. The bacilli form occasionally capillary obstructions, and so act mechanically; but like all living cells they have their vital products, and with such an enormous number of them it is easy to imagine that these very largely modify the nature of their surroundings. The bacillus of anthrax, which is specially greedy of oxygen, draws it from the blood-corpuscles, and produces asphyxia of the tissues; but the greatest source of danger from microbes is to be found in poisonous products which they manufacture. A striking proof of this fact is given us by the diphtheritic bacillus, which, notwithstanding that it grows not in the interior of the tissues but on the surface of the mucous membrane—outside as it might be called, the body—yet causes death, and sometimes with a frightful rapidity. In this case there is no invasion of the body nor struggle between the cells, but simply poisoning by the products of a very active parasite growing on the border of the false membrane. It is difficult to find in the body of an animal which has just died of an infectious malady these poisonous products of which we have been speaking, as the complex surrounding of tissues is unsuitable for such researches, and the poisons being only present in very small quantities, the animal during life partly eliminated them from its system; it is therefore in the cultivations in the flasks and tubes that we must endeavor to find these products of the pathogenic activity of the microbes.

The first experiments made on this subject were originated by M. Pasteur. In order to find out what the action of the products of the cholera microbe really was upon fowls, M. Pasteur injected into them a large quantity of a culture which had been absolutely purified from the microbes by filtering it through porcelain. The fowl into which this liquid, absolutely free from living virus, was injected, became sleepy, its wings hung down, its feathers stood up, and, in fact, for several hours it displayed all the symptoms of the disease, after which it recovered. We thus see that the chemical products obtained during cultivation of the microbe are able of themselves to cause the symptoms of the disease, and it is therefore very probable that they are really manufactured by the microbe in the body itself of a fowl attacked by cholera. It has since been shown that many of the pathogenic microbes manufacture these poisonous products, and the microbes of typhoid fever, Asiatic cholera, blue pus, acute ex-

* The members of the Commission were Sir James Paget, Sir Joseph Lister, Drs. Brunton, Fleming, Quain, and Burdon Sanderson, Sir Henry Roscoe, and Mr. Horsley (Secretary).

perimental septicæmia, and of diphtheria all belong to this class. The cultivations of the baccillus of diphtheria in particular become after the lapse of a certain time, so charged with the poisonous substance that an infinitesimally small dose of it causes death to the animals, with all the characteristic signs observable after inoculation with the microbe itself, no one sign being wanted to complete the resemblance, even down to the gradual encroachment of paralysis where the dose has not been sufficiently strong to ensure a speedy death. In infectious maladies, therefore, the cause of death is poisoning, and the microbe is not merely the means of spreading infection, but it is also the the maker of the poison.

By introducing little by little into the bodies of animals these chemical substances produced by pathogenic microbes, such, for instance, as that of acute septicæmia, in such a manner as to avoid causing speedy poisoning, but so as gradually to accustom the animal to its presence, it becomes refractory not only to toxic doses, which would have originally caused death, but also even to the microbe itself; and the immunity which hitherto we could only give by the introduction of a living virus into the body we can now effect by the introduction of a chemical substance into the tissues and these vaccine substances are exactly those which we have observed in infectious diseases as being the cause of death In large quantities they kill, in small they confer immunity. These experiments on vaccination by means of soluble substances without microbes have been successful in various maladies, and we may be allowed to hope that their field of utility will become much wider.

I would here recall to you the works of Salmon, on Cholera; of Toussaint, Chauveau, Wooldridge, Chamberland, and myself, on Anthrax; of Charrin, on the Pyocyanic Bacillus Disease; Chamberlain and myself, on Acute Septicæmia; Beemer, Brieger, Chantemesse and Vidal, on Typhoid Fever; and of myself on Symptomatic Anthrax, which have established the principle of vaccination by chemical substances; so that we now see it may be possible to protect ourselves from one malady by means of another, for which purpose it is only necessary that the microbes of the two maladies should manufacture similar chemical substances. The question now arises, Has the animal, the recipient of a sufficient dose of these products, become refractory in consequence of their being present in the tissues, and thus preventing the growth of the microbe? Upon this point, while we do know that in cultivation the growth of certain microbes is arrested by the accumulation of the products which they form there we must carefully avoid forming a definite opinion as to what happens in the living body upon the basis of a phenomena which have been observed to take place in culture tubes. For example if we take a little blood from a sheep which has been rendered refractory to anthrax, and place in it anthrax baccilli, they will grow there rapidly and abundantly, thus showing that there is in the blood of this protected animal no substance capable of destroying the life of the bacteria. This experiment is, of course, an extremely crude one, since from a chemical point of view there is an enormous difference between blood while still retained within the living vessels, and the same blood drawn from the body and placed in a culture flask. If any positive result were obtained it could only be from an absolutely enormous chemical change in the composition of the tissues.

A more delicate experiment may be performed by injecting into the anterior chamber of the eye of a protected sheep a few virulent bacilli, which, while growing well in the aqueous humor, will confine themselves to that special spot. It is, therefore, evident that in this aqueous humor, notwithstanding its being a part of the animal, and consequently, of necessity, participating in its chemical modification, there is no substance present capable of resisting the local development and vital activity of the anthrax bacillus.

Besides the chemical we have also the physiological question to deal with, as may be seen from the following experiment. If the virus of "quarter evil," that is, *charbon symptomatique*, be injected into the thigh of a rabbit, an animal which is by nature refractory to the disease, no characteristic tumor will develop, and its immunity appears to be absolute. But if now any lesion be first produced in the tissues, either by a blow or by the injection of some caustic substance, and the inoculation be made at that point, then an anthrax tumor will soon appear, and the rabbit, though habitually exempt from the disease, may chance in this manner ultimately to succumb to it, the reason being, of course, that the injured tissues have formed an inert soil for the microbe to start its growth without hindrance. The immunity, therefore, of a rabbit from "quarter evil" does not arise from its possessing in its body any simple chemical substance inimical to the cultivation of the virus, as we see that is only by artificially causing necrosis of the tissues that the virus is able to gain a footing in it.

What then does happen on the injection of active virus into an animal which is refractory? What becomes of the microbes? M. Metschnikoff has taught us that they are soon destroyed, and that the foremost agents of the destruction are the white corpuscles or phagocytes, which swallow up the microbes and digest them, while on the other hand, the white corpnscles in the bodies of non-refractory animals do not swallow the microbes, or that, if they attempt to do so, the latter develop notwithstanding.

Any satisfactory explanation of the problem of immunity should comprise all these facts, and should be based upon the relative importance of the action of the chemical products and the resistance of the tissues. I believe that the best explanation, in fact, consists in considering immunity as the result of the habituation of the cells to the poisons secreted by the microbes.

When the virus begins to develop in the body of an animal subject to the malady it forms its poisons, and when the white corpuscles begin to struggle against them their activity is arrested by this toxic production. The microbe continues to develop and the malady progresses. But in the case of an animal rendered refractory by previous injection of the soluble substances or by inoculation of attenuated virus, the corpuscles have already got accustomed to the microbic poison, and since the small doses given at the beginning of the cultivation of the virus do not impede their activity, they commence the struggle and devour the parasites. But if, as in the experiment with "quarter evil," some cause should prevent this corpuscular intervention, the cultivation of the microbe would succeed, and in this local centre there would soon be a sufficient quantity of poison to render the corpuscles powerless, notwithstanding that these have been previously accustomed to it, or possess natural powers of resistance against it.

There is no means of habituating the system to large doses. It is therefore in the time immediately following inoculation that the decisive battle is waged. Hence the great importance of clearly understanding the importance of the condition of the seat of inoculation, and of the quantity of virulent matter introduced. When once we are thoroughly acquainted with these poisonous substances formed by pathogenic microbes, we shall perhaps be in a position to find antidotes for them capable of paralysing there action even within the tissues themselves; but in offering this suggestion I perceive that I have deserted the domain of fact for that of hypothesis, and it is therefore time I drew my remarks to a close.

It seems to me that the foregoing view of this wide question reconciles the various works upon it, which have been multiplied in the last few years, and though it is possible that it may be modified by time, one thing will remain unchanged, and that is the gratitude of all to him who by his study of attenuated viruses and preventive vaccinations has enabled us to deal successfully with that problem of immunity which has hitherto remained impenetrable.

It is said (*Rev. de Thérap.*) that common soap is an excellent antidote to poisoning by carbolic acid.

MICROBIC LIFE IN SEWER AIR.*

BY ALFRED CARPENTER, M.D., J.P.

The peripatetic world is now and then convulsed by agitations against the smells which come from openings into sewers. "Shut them up," say the most energetic and demonstrative. Sometimes this is effected, sometimes it is not. In the heated discussions which spring up in consequence of some stinking outlet, argument is useless. The loudest exclaimers often gain the day rather by the loudness of their declamation than by the correctness of their reasons.

I propose to consider the question in its bearing upon the public health in a scientific rather than in a partisan spirit.

The reasons for objecting to smells from sewers are sound enough. It has been proved *usque ad nauseam* that sewer smells do promote sickness. It is reasonable, therefore, that those who object to pay an unnecessary doctor's bill, and at the same time incur the risk of losing one of their beloved ones, should be loud in their antagonism to smells from ventilating gratings.

The first point to be determined is the actual nature of the smells, and (secondly) the causes which produce them. There are various kinds of smells, some pleasant, others objectionable, and some decidedly obnoxious, while there is a class which is utterly offensive. This division is not a satisfactory one, because some smells which are grateful to some persons are most offensive to others. We cannot divide them in this way. Another classification might be made according to their manufacture. The odor of flowers and of individuals—human or animal—differ as to their causation from the odor of a gas works, and yet they are allied. These smells arise from chemical changes in the structures of the bodies engaged, which give off minute particles of matter, usually of an ethereal or gaseous character; and being so are endowed with the attributes which belong to gases, each atom having a repulsive action toward every one of its own kind. These odors are more or less rapidly oxidized when discharged into the air. They do not act injuriously upon human beings except so far as they may take away the ozone or free oxygen which is in the atmosphere, and render the air less vivifying than it otherwise would be, and they cover up other and more dangerous smells. The odors from individuals are also distinctive.

Some individuals smell very disagreeably, but the mere smell is not capable of reproducing its kind any more than those from flowers and chemi-

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cal decompositions, and are not, therefore, disease-producing. They cannot set up disease in other people. The odors from recently-discharged excreta are allied to this class. They are gaseous, have a tendency to diffuse themselves into space, are rapidly oxidized, and are not in any way Phœnix-like—that is, do not grow another generation of a similar kind. It is true that there are individuals with peculiar idiosyncrasies (as they are called) who cannot bear the smell of musk, or other penetrating odors. I have known one lady who could not stay in a room in which a blooming plumbago was placed without feeling faint, though I could not detect any smell at all from the flower. But these are not cases in point. Stinks of this character may seriously affect a person, but there is *no reproductive power in the smell.* It is this point upon which I wish particularly to dwell, so as to bring before you the true facts and the real nature of so-called sewer gas. The smell of a water closet which has been recently used is very objectionable, but there is no probability of mischief to the next user on that account. It is no more injurious than is rose-water or the kennel of a fox. Fortunately for humanity that it is so. The odors from recent excreta are like to musk; they are ethereal, and tend to diffuse themselves, and so to become oxidized, and are rapidly destroyed. The excreta from a cholera or fever patient at its immediate discharge is perfectly harmless, but it is highly charged with ova, or germs of organic living matter, which are not so harmless. They are not volatile or diffusible, like to the ethereal smells of musk or of the fox. They require to be separated from the containing liquid, dried, lifted, and carried by currents of air. When so carried they may or may not fall into congenial soils. Any one walking upon the chalk downs on a midsummer day may see the analogue of that which takes place in sewers. The air blowing over the Southdowns lifts up the seeds of the various thistles which grow there, and carries them on to arable fields below or out to sea. In the one case they reach a congenial soil and grow, to the discomfort of the agriculturist; in the other they are destroyed. So it is with disease germs from sewers.

There is something more than smell or something less, as it has not been proved that disease microbes have any smell at all, and of course it is only those which cause disease that need be avoided, and the sewer must have a tidal state to enable these germs to find exit at the street openings. This brings me to another point in the case. There are benign microbes as well as malignant organisms. There are microbes which are friends to man, as well as those which are inimical. Take a cubic inch of mould from the Beddington Sewage Farm, and it swarms with millions of living creatures, which are hard at work on a warm day preparing the organic matter in the humus by turning its nitrogen into nitrites ready for use by the vegetable world, if it happens that no radicle belonging to a carnivorous plant is at the moment ready to save the necessity for the change. It has been shown by direct experiment that the formation of the nitrites is due to this cause, and that the development of ammonia which takes place under some other circumstances is also a reaction due to another organism of another kind, the result being acid in the one case, alkaline in another. In the one case putrescence is avoided, a nitrite or other acid being formed; in the other it is hastened, and ammonia results. Here we have another line. How does this alteration come about? The answer is that it comes about very much in the earth or in sewers as it does in the air; let oxygen abound, especially ozonized oxygen, and nitric acid tends to form. The organisms which cause this tendency grow as vigorously as does the yeast micrococcus in a solution of sugar. When the air is highly charged with electricity the rain which decends in a thunder-storm contains an appreciable portion of nitric acid. But let the presence of oxygen be diminishing, and compounds of nitrogen form which are alkaline, and putrefaction is then promoted. A set of microbes come into being which are sometimes inimical to humanity; but here again we see the overruling hand of a Divine Providence, for one of the products of putrefactive agency—viz., sulphuretted hydrogen, is completely destructive to those organisms that especially revel in the humors of animal life. This result is shown in the work of the doctor. It is our duty as students to do some dissecting in our student days, and we may be requested to do so at any time by the coroner. It sometimes happens that the operator wounds himself. I have experienced this while making post-mortems upon those who have only been dead for forty-eight hours, more or less. This class of wound is always very serious, for disease germs may be transplanted; but a wound which is inflicted at the end of a dissection, when putrefaction is established, perhaps six or eight weeks after the death of the subject, has very little danger in it, for the disease-producing microbes, if they had been present, have all been destroyed in the process of the putrefactive action which has taken place. This result happens in sewers as well as in dissecting rooms.

There are two classes of microbes which have to do with destructive agencies—the moulds, which belong to the family of fungi, and the true microbe or schizomycites order. If air be sparsely admitted the moulds predominate, and there is a tendency to acid formations, carbonic acid, butyric, nitrous acid, etc.; but if it is all but excluded the schizomycites are most numerous, and it is on this fact that ventilation must be good or not at all. We now reach a point in our inquiry which is of importance. Microbic life is connected with de-

composition of organic matter containing nitrogen in its constitution. Decomposition is accelarated or checked by outside circumstances, such as the presence or absence of air; it is also influenced by temperature, by moisture, and the presence or absence of other agencies, as is proved by the action of antiseptics and germicides. We may even advance a step further and say that without decomposition there is no development of microbic life; this is an important factor in the consideration of sewer air.

Let us now inquire as to the nature of the decomposition which promotes the formation of these organisms. As experience is gained we become more and more convinced that there is no known means whereby any such organism arises without the previous introduction of a parent germ of the same kind; that the spontaneous origin of such germs is not likely to happen, though no doubt in the case of some kinds of disease germs, such as that of typhus-fever, the dormant organism is an ever-present commodity, as much as that which gives rise to the blue mould in cheese. It is also established by experiment that a germ may be made more malignant by cultivation, or by cultivation may be deprived of its malignancy. It is upon this fact that vaccination is found to be prophylactic against small-pox, and Pasteur is able to prevent the spread of splenic-fever among cattle, and take out the sting of hydrophobia, by giving rise to a disease of a similar but of a milder type, though in the last-mentioned this may be only a choice of two evils.

Let us now ask whether any microbes are to be found in sewer air? Secondly, whether they are necessary parts of a sewage system? Thirdly, whether being there they are benign or malignant? And fourthly, whether it is possible for those which are benign to become malignant by cultivation in the sewer or outside, and *vice versa*.

My attention was first attracted to sewer air in the years of 1853, 1854, and 1855. We had a ventilator fixed to the sewer at the Friends' School in 1854, which was then in Park Lane, Croydon. One of the teachers, who was of an inquisitive turn of mind, got on the roof and smelt at the opening, with the sequence of a severe attack of sickness. It was the first case in which I was able to draw a distinct inference as to cause and effect with which I came into contact, though I was then satisfied that sewer gas did cause much illness in the town. It was not long before that event that I had ventilated the soil-pipes of my house, then in the Dingwall Road, the first ventilator of the kind which was put up in Croydon, and by that means, I think, saved my household from the invasion of typhoid-fever, which affected my neighbors in every house in that road right and left of me. From experiments carried out at that time in various houses in Croydon I was satisfied as to the dangerous character of sewer air when coming from unflushed, unventilated sewers, and I determined to do my best to get the Croydon system of sewers both flushed and ventilated. It was not, however, until after the year 1865, with its distressing events, that the local authorities would agree to adopt the principle that every individual house should have its own protector from the invasion of obnoxious gases. About that time the experiments of the German scientist, Professor Keber, of Dantzic, who followed up Erzenburgh's discoveries, had made out the connection between living organisms and disease, such as that which produced splenic-fever in cattle and relapsing-fever in human beings. I began my own experiments on sewer air about this time, and tried to get some facts from personal observation which should be worthy of a place in the literature of this society. I had proved to my own satisfaction that *potato blight* was caused by a mould fungus (the *Peronospora infestans*), though I did not, for one moment, claim to be the discoverer, but only verified that which was suggested by others. I had learned that *dry rot* resulted from another fungus (the *Meruleus lachrymans*). I detailed my observations upon *Peronospora infestans* in the *Times* newspaper, with the result of drawiug upon me the anger of those who were working in the same field, perhaps in a more conclusive measure than I did, but of whose work in that particular field I was, like most other people at that time, quite unaware. I followed out my observations upon sewer air by suspending microscopic slides in those positions in which sewer air was distinctly found to make its exit. It was while I was so engaged that I made out that a number of Mr. Latham's charcoal baskets were inserted into openings into which air sometimes entered. These baskets had been provided to obviate the mischiefs from sewers by purifying the air by means of charcoal; some were openings for the admission of air rather than as exits. This was especially the case with two or three openings at or near to the Zion Nursery, which had been complained of as nuisances, but which were conclusively proved to my own satisfaction to be completely innocent of offence, for air went in instead of coming out, though it is quite probable that there was a reverse action occasionally. It was evident to me that the smell then complained of came from some other source than the sewer grating. The examination of the slides that I placed in the gratings showed a variety of organisms such as has been found in the wards of a large hospital, but I could not recognize any that I could accuse of being typhoid or other disease germs, which were the organisms I was more especially searching for. The arrested organisms were vibrios, micrococci, and vegetable germs, innocent of malignant action on man, as far as our knowledge then extended. I was not

at that time aware of the plan of cultivation by means of gelatine solutions such as are now so successfully used in similar investigations—some of these I exhibited on a former occasion to the members of this society. I exhibited also some specimens and diagrams prepared by Dr. Heron, showing these developments, when I last addressed the society upon the subject of disease germs.

My last attempt at investigation in this direction was made upon a ventilating opening at the side of my garden upon Duppas Hill Terrace. The results of that investigation have been published in St. Thomas' Hospital reports for the year 1883. They involved a medical question which I was anxious to submit to the medical profession, and did not detail them to this society. The substance of my observations, which were carried on in the winter of 1880-81, was that certain smells came from that ventilator which varied in nature as well as in intensity. Sometimes the smell was excessively offensive from the presence of sulphide of ammonium; at others there was an ordinary sewer air smell; and at others a sweet, hay-like odor which could not be called distinctly offensive. I never smelt that particular smell at the sewer without getting a relaxed throat and a cough in the next day or two, and on two occasions a distinct feverish attack lasting for forty-eight hours. There was one point of importance in the microscopical examination of the slides which I suspended in the ventilator—viz., that whenever the sweet, hay-like smell existed some very minute highly refracted organisms, smaller than the ordinary micrococci, were seen, which were always absent when the sweet hay smell was perceived. I never suffered from relaxed throat after inhaling the sweet hay smell, and I came to the conclusion that the highly refractive particles were the germs which gave me the relaxed throat, and that they were non-existent when putrefaction was thoroughly established. If I had known anything of gelatine cultivation then, I should certainly have cultivated those germs and tried to prove their connection with somewhat similar organisms which are found in diphtheria and croupous or infectious pneumonia. (Some cases of these diseases did exist on Duppas Hill about that time.) It was while making these investigations that I discovered a defect in my own left eye, which led me to give up microscopical research, and which has since disabled me from assisting at the society's microscopic demonstrations.

Since that time I have been educating myself by the microscopic studies of others in the same direction. It has been clearly proved by experiment that actual putrefaction is generally destructive of the life of disease germs, so that the only result which need follow the inhalation of the offensive odors from sewers is the necessity of calling the attention of the local authorities to the fact that the sewer is a sewer of deposit, and before the stink escaped might have been a source of danger to those passing by that locality. We may depend upon it that it is not the sewers which stink that are the most dangerous, though before putrefaction was complete it was possible that there might have been disease germs escaping from that particular opening, though I shall show presently that they need not excite serious alarm.

(*To be continued.*)

THE MOODS OF THE SANE.

It has been said that, "speaking scientifically, we cannot affirm that anybody is perfectly healthy." If the pathologist can detect the symptoms of disease in the most apparently healthy body, no less certainly can the neurologist indicate subtle manifestations in the mental states of the sanest amongst us, which serve to warn us how perilously near we may all come at times to mental derangement. Just as it is impossible to set up a standard of bodily health of universal application, so is it with the mind; one man's measure of mental health cannot be taken as that of another. "Health" and "whole," are both derived from the same Anglo-Saxon term, *hâl*, and no one man has the completeness of either bodily or mental soundness at any one time. We may be sane (safe, sound), but at best only relatively, and the varying moods of our sanity may often be strangely like the true persistent phases of the acknowledged alien. There are few of us who have not moments of depression or abnormal excitement, which, if unduly prolonged, would make us the objects of unpleasant attentions at the hands of our friends, and not one of us can say at any time that we shall never find those unhappy moods persist. Apart, however, from any such painful forebodings, it is an interesting subject to consider some of those mental attitudes of the perfectly sane, and trace their causes to their actual source. There is a posthumous paper in a recent number of the *Neurologist*, by Dr. Milner Fothergill, which deals—in the pleasant and instructive manner for which its distinguished writer was so celebrated—with this interesting question. If we would rightly know the workings of the human mind in their varied conditions, we must study them, as the brilliant author tells us, in the insane asylum. What angry man amongst us may not find food for reflection, and learn the habits of self control from the incoherent ravings of frenzy? What garrulous, self-centred man may not be rebuked when he sees his infirmity a little magnified in the flow of the talkative maniac?

The delusions of the over-sanguine, the groundless fancies of the visionary, the baseless conceptions of the jealous, and the morbid religiosity of the despondent man, all find their legitimate pro-

jections in some fixed conditions common enough in the dread abodes of the insane, and all have lessons for us. The asylum held up the mirror to the observant eye of Dr. Milner Fothergill, showing him our natural and healthy moods when perverted by disease, mismanagement or neglect, into forms of mental disorder. A bad habit or the dominance of an unfortunate predilection may disturb the balance of an otherwise healthy mind, as effectually as the touch of a magnet on the balance wheel of an exquisite watch will impede its regular motion.

How easily is our mental balance disturbed! A single serious reverse may blight a man's hopes for life, yet with another and a sterner habit of thought the advancing phthisis of a Richard Jeffreys will not have the least ill effect. What a variety of moods are caused by food alone! A hungry man can scarcely be termed quite sane in comparison with one who is comfortably digesting the dinner of one of the "city companies."

A cynic might turn upon us, and declare that the man who has just dined well evidences his cerebral disturbance by the ease with which a liberal subscription can be obtained from him, and that his less replete moments are his prudent and normal ones. When the Church desired to reduce us to a proper sense of our deserts and shortcomings, she bade us fast, and as fasting has always been associated with penitence, it might be argued by a theologian that we are more truly our real selves when hungry than full. Andrew Boorde, themonk-physician, in his quaint book, *The Dyetary of Helth*, rather inclines to the "city company" idea of sanity, when he advises his readers to "Fyrste lyue out of syn, and folowe Christes doctrine, and than vse honest myrth and honest company, and vse to eate good meate, and drynke moderatly."

Shakespeare thought that the "lean and hungry" looking Cassius must naturally be dangerous, and the general testimony of English writers at any rate is to the close connection existing between fat folk and good temper. Dr. Fothergill was a grand example in himself, and we can picture the relish with which he wrote, "When the brain is well fed, it has a sense of well being; when it is ill-supplied with blood, it is irritable, miserable, and despondent." But alas! the very process of feeding the brain and making general contentment in the body too often vitiates the blood, and as the old writers would say, "disturb the humors." The good feeder gives a standing invitation to the gout, and the gouty material in the blood makes a man "choleric," that is to say, hasty and irritable. The over-fat, amiable man has fits of "the blues," he often descends to the melancholy mood, and then as old Burton says, "he is the cream of human adversity, the quintessence, and upshot." A disordered liver has made many a one think he has sinned the unpardonable sin, and a good purge has often lifted a burden from the conscience as heavy as that of Bunyan's Pilgrim. Dr. Fothergill thought that the atmospheric conditions of Bath and Bournemouth are distinctly answerable for their religious tone, whilst the tonic effects of Clifton have much to do with its intellectual activity. It would be interesting to compare Margate and Brighton with the special moods of their visitors; but these theories may easily be pushed too far, and we might find ourselves inquiring what are the characteristics of Monte Carlo which foster the gambling spirit, and what makes the Neapolitans so light-hearted and frivolous. Perhaps diet has even more to do with the moods of the sane than atmospheric conditions. An old adage says that, "he who drinks beer thinks beer," but there is beer and beer. The German philosopher stimulates his brain to the highest intellectual exercises on beer, while our working classes deaden their not over active cerebral organization on something called by the same name. Whether we are as sane as we might be in creating any sort of mood by alcohol, is extremely doubtful, for most competent observers agree that the best sorts of intellectual, as of other work, cannot be done under its influence. "The accursed hag dyspepsia," as Carlyle called it, has been answerable for a good deal of the gloomier theology of the past and present. What a victim must have been that monk who wrote *Hell Opened to Christians*, with its appalling pictures of demons riving bolts into men's skulls, and toasting them on great forks! The author of *The Imitation of Christ*, on the other hand, must have been blessed with a good digestion, and a liver which gave him no "moods." His biographers say he was "a placid, kindly, fresh-colored old man"; and, indeed, his books reveal all that. Probably our best moods are always tinged with a shade of melancholy. Montaigne says, "the most profound joy has more of gravity than gaiety in it"; and Dr. Fothergill wrote of the mental attitude of "feeling delightfully low spirited." "The rainbow of our thought life," as the author of *Thorndale* so beautifully expresses it, "is made of joy and tears, the light and storm." The dark and the bright threads of our life are so interwoven, that our healthiest attitude can never be unalloyed joy. The highest music, painting, and poetry most truly express the sanest moods of man when they exhibit joy chastened by the "sadness which is not akin to pain."

The lesson which we should endeavor to learn from a study of the moods which so easily possess us is the importance of a firm will-control acting like the inhibitory nerves. If our mental states are so often caused by pathological conditions, it is no less true that the mind can control the body; and the man or woman who, in popular pahaseology, "gives way" to his moods, runs imminent

risk of becoming their slave.—Editorial in *Br. Med. Jour.*

A CLINICAL LECTURE ON IRRIGATION OF THE STOMACH.

This morning, gentlemen, I wish to call your attention to a therapeutic procedure in the management of certain gastric diseases which, I have reason to believe, is not resorted to as often as it should be. I refer to irrigation of the stomach, or, as it is sometimes called, lavage. A careful examination of our principal medical journals for several years back, in addition to conversations on the subject with a considerable number of physicians in active practice, convinces me that this method of treatment is suffering from an undue neglect. It was introduced, about twenty years ago, by Kussmaul, who employed it in cases of gastrectasis, or dilatation of the stomach, and a majority of those who have since adopted it have limited its use to that particular affection. There is no doubt, however, that its range of application is capable of much greater extension. Indeed, I have no hesitation in saying that it should be given a trial in every case of chronic dyspepsia in which medicines have failed, provided there is no contra-indication to its use. We are safe in assuming that most of these patients have more or less gastric catarrh, and, at any rate, we can do no harm by the exceedingly safe and simple operation which I will show you presently. The chief advantages of lavage are as follows: 1. Owing to a loss of peristaltic power, often present in simple dyspepsia and always in dilatation, the stomach is unable to rid itself properly of ingested material until long after the period of normal digestion. This condition has been termed by Rosenbach, insufficiency of the stomach. This stagnating and fermenting material, in some instances, will remain in the stomach for days at a time, as shown by the vomiting of substances known to have been ingested a long time previously. The stomach is liable to become greatly irritated in this way, and inflammation may even be developed. By the timely employment of the tube all this material may be washed out, and the stomach thoroughly cleansed and allowed a period of perfect repose. We may thus in many cases restore the lost elasticity and muscular contractility of the organ. 2. In cases of simple gastric catarrh it relieves the stomach of the superabundant mucus, and perchance bile, that may be present. 3. By reason of its safety and simplicity an intelligent patient may be taught to use the tube himself. Washing of the stomach should be performed at least six or eight hours after eating, when the organ is supposed to be empty. For this reason an early morning hour before the first meal is commonly chosen. It should be performed every day at first, then every other day, dropping to once a week, and finally discontinuing altogether. Tepid water should be used, to which, if desired, may be added certain medicaments—bicarbonate of sodium, carbolic acid, creasote, hyposulphite of sodium, Lugol's solution, etc. The prognosis is, of course, most favorable in cases of simple dyspepsia and early dilatation. In old cases of gastrectasis we can expect palliation only. The best results are seen in cases of gastric insufficiency, the criteria of which I have mentioned.

With these preliminary remarks, we will now devote ouselves to the patient who presents himself. He informs us that he is thirty-four years of age and a brass-moulder by occupation. On February 21st he came under my observation, giving a history as follows: For about a year past he had been suffering from flatulence, pyrosis, obstinate constipation, and cardiac palpitation. The latter symptom especially was so severe and constant that the patient was firmly fixed in the belief that he had heart disease. He had applied to several physicians, but had failed to obtain relief. I found him in a very melancholy frame of mind, as he had begun to lose hope of ever getting well. He was put under treatment and various remedies prescribed for the relief of his symptoms. There was no improvement, however, and at the end of two months he was rather worse than at the beginning of my treatment. On April 24th I resorted to irrigation of the stomach, and have continued it at gradually increasing intervals since that time. For the past month it has been performed at intervals of two weeks, and to-day I think is about the last time it will be required. If you will question the patient, you will learn that the symptoms began to abate immediately after the first washing, and his improvement has continued steadily ever since. He has gained in weight, his appetite is greatly improved, and he has a regular daily evacuation from his bowels. He has not been troubled for three weeks with cardiac palpitation, and the pyrosis has disappeared entirely. This improvement I attribute to the periodical irrigations of his stomach, although certain dietetic and hygienic precautions have doubtless had some influence. His nourishment has consisted chiefly of fresh milk and tender beefsteak, broiled underdone, chopped fine and thoroughly masticated, with stale or toasted bread. Latterly he has been allowed a mutton-chop, the white meat of fowls, and an occasional lightly cooked, poached egg. Saccharine, amylaceous, and fatty substances have been excluded as far as possible. Such notorious dyspepsia breeders as boiled cabbage, rich cake, pies, strong tea, fat pork, etc., have been given a wide berth. The patient has been allowed a glass of claret for dinner, but no other stimulant whatever. The

only medicines taken since employing lavage have been a little bismuth and pepsin, with a few grains of aromatic powder to correct occasional spells of flatulence occurring in the intervals of the irrigations. I may say that the patient has been exceedingly tractable, and, I believe, has obeyed my instructions to the letter.

The instrument I employ is a large-sized soft-rubber tube about thirty inches in length, and having two eyelet holes in the distal extremity. It is exactly similar to a large-sized Jacques urethral catheter, being of the size marked 19 A (American scale) by Tiemann, of this city. Some employ a longer tube, having a funnel connected with its proximal extremity, known as the Fancher tube, but I prefer the one I have here, attaching it by means of a short glass cylinder to the hose of an ordinary fountain syringe, which I hang on a convenient hook in the wall above the level of the patient's head. After anointing about twenty inches of the distal portion of the tube with vaseline, I pass it back to the patient's pharynx, instructing him at the same time to swallow. The end of the tube readily engages in the upper extremities of the œsophagus, and by a little gentle continuous pressure it gradually passes down into the stomach. When I first passed the tube in this case there was considerable retching and even a little vomiting, but by repeated use the patient has acquired a toleration for it, and you will notice now that it produces no sign of annoyance or discomfort. In some cases we will have to exercise no little patience and perseverance at the first attempt at introduction. Sometimes the patient will vomit the tube as quickly as it is placed in position. Such cases are not common, however, and tolerance is usually quickly acquired. In obstinate cases a four-per-cent. solution of cocaine may be applied to the pharynx and fauces by an atomizer before introducing the stomach-tube. Having the tube *in situ*, I now connect it with the syringe, at the same time filling the latter with simple tepid water, which, as you see, passes rapidly from the bag into the stomach. After I allow about two pints to run in, the patient expresses a sensation of fulness in the region of the epigastrium, so I cut off the flow by means of a stop cock on the hose of the syringe I now disconnect the hose from the syringe and depress the former, holding it over a vessel placed ready to receive the fluid from the stomach. A reverse current is immediately established on the principle of the siphon, and the contents of the stomach pass very readily through the tube into the receiver. There is no solid matter in the stomach, as the patient informs us that he took nothing for his breakfast except a cup of chocolate with a little milk. You will notice that the flow is occasionally interrupted and stops altogether at times. This is due to flocculi of phlegm and mucus in the stomach, which engage in the tube and arrest the current. This mucus was very abundant at first, but has progressively diminished until now it amounts to very little. It may be driven through or disengaged from the tube by instructing the patient to bear down; by gentle but firm pressure over the epigastrium with the hands; by shifting the position of the tube, withdrawing it slightly, and returning it; or, finally, by connecting it with the syringe again and allowing more water to enter the stomach. While the water is flowing into the stomach it is a good plan to walk about the room with the patient, holding the syringe on a high level and instructing him to lie down a little while and to agitate his body in such a way that the fluid reaches every portion of the gastric mucous membrane. I continue to replenish the water and allow it to flow out again until six or eight pints have been consumed. You will see that it now returns from the stomach perfectly clear and contains no mucus whatever. In the last instalment of water I dissolve fifteen or twenty grains of salicylate of sodium as a safeguard against renewed fermentation. Just here I will mention another application for irrigation. We now know this man's stomach to be perfectly empty. By percussion of the epigastrium we may, if we desire, ascertain the condition of affairs in this region, carefully noting the areas of tympanitic resonance, dullness, etc. Now, if we introduce another pint or two of water and percuss again, we shall find a new area of dullness which corresponds to the lower border of the stomach. If we find this line persistently an inch or two below the level of the umbilicus, it is fair presumptive evidence of gastric dilatation. By repeated examinations we can make out any changes occurring in this level and thus estimate to some extent the value of treatment. If the stomach is regaining its lost muscular power and elasticity, the lower border will gradually return to its normal position just above the umbilicus.

Feeling convinced that this patient's stomach is thoroughly cleansed, I withdraw the tube gently and the operation is completed. In the present case as in others I have treated by lavage, the operation is followed within a few minutes or half an hour by two or three watery evacuations. This has occurred even in cases of obstinate constipation. It is doubtless caused by a certain quantity of water escaping from the stomach into the duodenum and passing through. It is probable also that in some cases the lower end of the tube passes through the pylorus if we introduce it too far, so that the duodenum receives a considerable proportion of the fluid. At any rate, this watery evacuation of the bowel is probably a favorable occurrence, and is usually regarded in that light by the patient. A gentleman of the class asks whether the dietary precautions in this case may not be responsible for

the favorable result. While by no means underestimating that part of the treatment, I think a sufficient answer to the question is found in the fact that the same restrictions were observed for weeks before employing lavage, but with no improvement whatever in the symptoms. Before dismissing the subject I should state that there are certain contra-indications to the use of the tube. It should not be used: 1. In cases of aneurism of the great thoracic vessels. 2. In cancer of the œsophagus or cardia. 3. In cases of recent hæmatemesis, hæmoptysis, or gastric ulcer. 4. In very nervous or hysterical patients, and in cases of great debility and prostration with a tendency to syncope. Of course, in cases where we wished to secure an immediate evacuation of the stomach, as in cases of poisoning, we should have recourse to the pump. —James K. Crook, M.D., in *N. Y. Med. Jour.*

COUNTER-INDICATIONS TO THE SUSPENSION TREATMENT.

Since the treatment of progressive locomotor ataxy, and other affections of the nervous system by suspension was advocated by Dr. Motchoutkowsky, and sanctioned by Dr. Charcot, it has spread rapidly in every direction and is now used not only by the profession, but also by the laity, in such an indiscriminate way, that a few words as to the counter-indications for this treatment will not be amiss. Dr. Charcot has, in one of his lectures, indicated the cases in which suspension is beneficial.

First of all, it seems only prudent that the application of this treatment should always be confined to a physician or an experienced assistant. It has been customary in city practice for the physician, after having himself conducted the suspensions a number of times, and explained the modus operandi to the relatives of the patient, to leave the succeeding treatment in their hands. The result has been, up to the present time, three fatal accidents, which would have been averted if a physician had been present. The history of these cases is as follows:

The first is the case of a man, reported by Dr. Vincent, and a woman, both of whom succumbed in the same way; they had suspended themselves according to the recommendation of an American physician, when, of a sudden, the bandage under the chin slipped and they were strangled to death. The third case is reported by Dr. Blocq. The patient was suffering from tabes dorsalis, showing some signs of general paralysis, and the suspension treatment was instituted. The first few applications were made by Dr. Blocq himself and were followed by some amelioration; the succeeding treatment was left to the patient to carry out, without the surveillance of the physician. Shortly after, the doctor learned that after a suspension the sick man was attacked by coma, and died 24 hours afterwards without regaining consciousness. It could not be learned whether he died of an apoplectic attack, or whether it was the result of an accident. Several more or less unpleasant accidents have happened to patients treating themselves, and serious ones may be looked for, all of which shows the necessity of the physician's supervision each time. The counter-indications may be grouped under three headings; 1. The state of the general health. 2. Certain affections of the nervous and cardio-pulmonary system, and 3. Certain local lesions.

1. Organic debility, be it from the nervous affection itself or from any other cause, is one of the least favorable; anemia, so often the cause of general debility, especially if accompanied by disorders of the circulation; œdema, which makes the usually painless suspension exceedingly painful, as has been noticed by the auther; and obesity, which is not in itself a counter-indication to the treatment, but which makes surveillance indispensable and necessitates greater precaution.

Weir Mitchell has constructed an apparatus in which the axillary pieces are replaced by supports to the elbows, pressed close to the sides, and which is furnished with a double system of blocks, the one for the elevation of the body by the elbows, and the other for the traction on the head alone. This apparatus has the advantage of not compressing the axillary vessels and nerves, and of graduating the extension of the head, allowing the operator in this way to lengthen or shorten the duration of suspension without immediate inconvenience.

2. It has been observed that during suspension the respiration is more frequent, and at the same time the movements of inspiration and expiration are diminished in their amplitude; cases of phthisis pulmonalis, emphysema and chronic affections of the air passages in particular, were much oppressed; would this counter-indicate suspension? The same can be said of the majority of cardio-vascular affections; athermatous degeneration of the arteries contra-indicate, because rupture of the same may be precipitated. Suspension accelerates the frequency of the pulse and augments arterial pressure, consequently this treatment is not recommended in patients subject to congestion or to apoplectic attacks. It is important to examine the sick with reference to this point. Mitral and aortic lesions forbid the use of suspension, because of the dyspnœa, somnolence and tendency to syncope to which these affections predispose.

Of the nervous affections which counter-indicate this treatment we know as yet very little; vertigo seems to be one of them, although Dr. Charcot recommends that the operator speak to the patient during the suspension, which will often do away

with the dizziness. It is of the utmost importance to minutely observe every symptom at the first trial of the treatment, and to act accordingly.

3. Before applying suspension, examine the condition of the teeth, determine whether they will withstand the pressure of the chin-bandage Also ascertain if the patient is subject to spontaneous fractures, often present in certain cases of tabes; if this tendency be present, abstain from the suspension.—*Le Bulletin Med.*—*Weekly Med. Rev.*

LATENCY OF ATAXIC SYMPTOMS IN CASES OF OPTIC ATROPHY.

It has been long noted that optic atrophy, when present in locomotor ataxia, appears generally among the earlier symptoms. Indeed, given a case of optic atrophy without recognizable cause, the chances are altogether in favor of characteristic pains, bladder irregularities, or other symptoms, appearing later, which, even if not marked, will enable us to place the case under this category.

Charcot emphasizes the fact that most women coming to the hospital with amaurosis develop sooner or later, in the majority of cases, ataxic symptoms, perhaps ten, perhaps fifteen years later. In one case cited, the blindness was followed in ten years by shooting pains and girdle pains, these symptoms remaining stationary for ten years more, when appeared symptoms of muscular incoördination.

Gowers mentions cases of his own in which optic atrophy preceded ataxia by sixteen and twenty years, and quotes a case reported by Buzzard, in which atrophy existed fifteen years, associated only with lightning pains and loss of knee-jerk.

In his recent text-book, Gowers has stated that atrophy of the optic nerve so universally appears early in the disease, that, after the ataxic gait is fairly established, it is of rare occurrence. Conversely, he states that when optic atrophy has become developed, it is common for the other symptoms of locomotor ataxia to remain in abeyance. To use his own words, "In a large number of cases, the ataxia never comes on, the spinal malady becoming stationary when the nerve suffers." If this is true, its bearing on the question of prognosis is of considerable import. It is certainly something to be able to assure a patient, at any stage of this disease, of his probable, or even possible, immunity from any of its distressing symptoms. In the matter of diagnosis, also, the subject is worthy of consideration.

I have looked through the records of sixty-six consecutive cases of locomotor ataxia,—fifty two seen in the Neurological department of the Massachusetts General Hospital, and fourteen in private practice,— in the hope of throwing additional light on this branch of the subject. The result is as follows: Out of the sixty-six cases, the diagnosis, optic atrophy, was found in fourteen; and six more had decided loss of eyesight. In these six there was no description of the optic nerve given in the notes, which prevents their being classed with certainty under the cases of atrophy, although undoubtedly some, and perhaps all, of them belong there. Out of the fourteen cases of optic atrophy, the degree of incoördination was mentioned in eleven. In three of these eleven, there was no ataxia; in five, it was slight; in three only was there marked ataxia. In the eight cases in which the ataxia was slight or wanting, the duration of the disease was respectively, two, three, four, seven, eight, ten, twelve and twelve years. In nine of these fourteen cases, the knee-jerk was noticed. It was present in one or both legs, in four out of the nine; and in one other case, where the loss of eyesight was so considerable as to leave little doubt that optic atrophy was present, the knee-jerks were normal. In all of the cases the disease was well advanced. These figures, while far too incomplete to be regarded as statistical, are still of some interest, sufficiently so to encourage further investigation.

The noticeable features are the large proportion of cases in which the knee-jerk was retained in one or both sides, and the large proportion in which ataxia was either absent or very slight. With regard to the ataxia, this has been already considered by neurologists as a symptom not necessary to the diagnosis, hence the tendency to restore the name "tabes dorsalis" in preference to locomotor ataxia. The point to which I would call attention is that to which Gowers has practically alluded, namely, that it is the cases in which optic atrophy is present in which we may expect to find the absence or indefinite postponement of ataxia. Again, with regard to the preservation of the knee-jerk, the loss of knee-jerk in locomotor ataxia is, as a rule, one of the earliest and most constant symptoms, a fact which lends considerable significance to its preservation in four out of nine (probably five out of ten) cases where optic atrophy was present. The practical bearing of these facts is to assist us in both diagnosis and prognosis. As regards diagnosis, they would lead us to place with confidence under the head of locomotor ataxia certain cases of optic atrophy which we may have hesitated to place there on account of the presence of knee-jerk and absence of ataxia. As regards prognosis, they would lead us to predict a comparative latency of the motor symptoms of the disease where optic atrophy has become pronounced.

The constancy of one symptom was noticeable in the cases with optic atrophy as in those without it, namely, the Argyle-Robertson pupil. This symptom, together with characteristic pains, may,

it seems, be looked for early in this class of cases, however latent the motor symptoms. If the Argyle-Robertson pupil were dependent on optic atrophy, it would be expected particularly in these cases; but its constancy in the other cases shows it to be independent, at least in general, of the lack of conducting power in the optic nerve, a fact already well recognized.

It is worthy of note, that, out of sixty-six cases taken indiscriminately, there were fourteen with the diagnosis of optic atrophy, and several more in which it was probably present. Statistics on this point vary greatly. Erb found eight cases in about seventy, while Topinard noted disturbance of vision in forty-nine out of one hundred and two, and Cyon found sixty cases with amblyopia and amaurosis out of two hundred and three. The statistics of more recent observers also vary markedly. The figures of oculists would naturally run higher than those of neurologists. Gowers states that the proportion is much less than is generally believed, certainly not exceeding one case in ten.—Dr. Walton, in *Bost. Med. & Sur. Jour.*

MEDICAL NOTES.

In the treatment of *ovarian neuralgia*, Prof. Bartholow recommends the tincture of gelsemium, given in 5-drop doses t. d., and gradually increased till double vision results.

In the treatment of *fibroids of the uterus* by ergot, where the stomach rebels, give the remedy hypodermatically; it may be continued for months in this manner. (Prof. Parvin.)

In cases of *temporarily irreducible hernia* (non-strangulated), Prof. Brinton advocates the application of ice bags, using at least three layers of flannel over the surface, and only keeping the cold applied one-half hour at a time.

In cases of *chancroid* which are excessively painful, Prof. Gross directed the following wash:

℞—Chloral hydrat., ... gr. viij.
Aquæ destillat., ... f ℥ j.—M.
Sig.—Apply on cotton.

In the *administration of cod-liver oil*, Prof. Da Costa recommends the following modes: either floating the oil in its purity on ice water, or taken in carbonated water made agreeable by the addition of a little syrup.

For a man at the clinic, with *hyperæsthesia of the stomach*, Prof. DaCosta directed a milk diet exclusively; 3 ij sodii phosphas in the morning, and the following *ter die:*

℞—Acidi arseniosi, ... gr. $\frac{1}{10}$.
Ext. cannabis indicæ, . . gr. $\frac{1}{8}$.—M.

In the treatment of a *chronic ulcer*, free the bound-down edges, paint the surrounding tissue with equal parts of alcohol and iodine, touch the surface thoroughly with solid nitrate of silver, put the patient to bed, and wrap the limb up in a solution of lead water and laudanum. (Prof. Gross.)

For a case of obstinate *sciatic rheumatism*, at the clinic, Prof. DaCosta ordered the following, to be taken *ter die:*

℞—Sodii salicylat., ... gr. xv.
Tinct. aconiti, ... gtt. j.—M.

and also directed that, in case this failed, injections of osmic acid should be used.

Coll. & Clin. Rec.

MEDICAL TREATMENT OF THE INTESTINES.—In concluding an article on the subject of intestinal obstruction (*Medical Press*) Prof. H. Nothnagel says:

"I may briefly state in one sentence all the treatment I can recommend as an hospital consultant: Absolute abstinence from food; induce the peristaltic action from below; still it from above; and, above all, avoid purgative medicines. Further I know of nothing to add for the guidance of others.

"As regards other methods of treatment, very little can be said, but there are one or two forms of recent origin which I cannot pass without a remark. Washing out the stomach was introduced by Kussmaul as a remedy, but past experience of this form of treatment has nothing particular to commend itself, and has been of very little use. One advantage in using it is that it is a harmless application, and there is not any danger attending its use. The clyster I can always recommend as a most effectual remedy in all forms of fecal accumulations, but it is not suitable for fecal vomiting where there are inflammatory conditions. The object of a large clyster is to break up large fecal masses, but this is to be avoided where there is a tender bowel. Electricity is another remedy which has come into recent favor, and is not without merit. When using this agent it is recommended that both poles be placed over the tender or painful part of the bowel, or one pole introduced into the bowel. The successful cases from this treatment are so few that no opinion can be vouchsafed. There are other drugs, like belladonna, nicotine, and others that might be named, but there is one regularly prescribed drug that might be noticed. There was a time when every case of stoppage of the bowel must be drugged with mercury, but the greater number of the observers of this treatment have spoken very adversely of it. No doubt an individual case has arisen where success may be attributed to the drug, but these are very few, and leave us in grave doubt when it should be used at all. If the tradition of this drug tempts you to its use in any form of vomiting, I beg to consign it to your charge with care, and trust that you will

carefully use your own judgment in applying the drug where the least danger exists. In concluding my observations on the medical treatment of the bowel, I felt it my duty to say that the most severe eases that we meet in our daily practice are frequently beyond the reach of our medicines, when arising from locking of the bowel, and properly belong to the region of operative surgery for their relief."

Some Hair Recipes.—Lassar, of Berlin, in 1882 published, in connection with our fellow-countryman, Bishop, an account of some experiments tending to show that alopecia præmatura was contagious, and could be cured by antiparasitics. In this article ("Therap. Monatsheft," 1888, No. 12) he still insists upon the contagiousness of ordinary baldness and its spread through the agency of barbers, and the employment by several persons of one comb in common. Even though as yet no definite parasite has been found in alopecia, Lassar believes that there is one and that it will be found in time. He does not believe that alopecia areata is a neurosis, though he allows the possibility of it in a few cases, but does believe that most cases are from contagion. In the past few years he has met many hundreds (?) of cases of alopecia areata, many of which have been in relatives, patrons of the same barber-shop, school-mates, or possessors of dogs or cats having similar bald-spots. In the belief of the parasitic origin of alopecia, our author has treated more than a thousand cases by means of an antiparasitic plan of treatment, and with marked success. His method is the following: For six to eight weeks the hair is washed with a soap rich in tar (Berger's), the suds being rubbed well in for ten minutes each day. Then the suds are washed out with warm, followed by cold water, the scalp and hair dried, and the former anointed with ℞ Sol. hydrarg. bichlor. (one third of one-per-cent. strength), glycerin, and cologne water, equal parts; then rubbed dry with absolute alcohol containing one half per cent. of naphthol, and then anointed with ℞ Salicylic acid, ʒ ss.; tincture of benzoin, gr. xiv; neat's-foot oil, ʒ iij. M. After six to eight weeks the process is to be less often repeated. In obstinate cases the sublimate solution should be used many times a day. Or this salve may be used: ℞ Carbolic acid, 15 grains; sublimed sulphur, 65 grains; horse-neck fat, to ʒ ij. M. Another good stimulant is oil of turpentine, either with equal parts of an indifferent oil or with dilute alcohol. Another is pilocarpine hydrochloride, 30 grains; vaseline, 5 drachms; lanolin, 2 ounces; oil of lavender, 25 drops. M. Ear is good; and as a final formula we have: ℞ Pilocarpin. hydrochlor., 30 grains; quinin. hydrochlor., 1 drachm; sulph. præcipitat., 2½ drachms; balsam. peruv., 5 drachms; medul. bovin., ad ʒiij. M.

Lying-in-Toilet. — On entering the lying-in chamber with clean hands and a clear head, whether it be in hovel or palace, determine by the usual methods that labor has begun or is about to begin, ask the patient to leave the bed for a few minutes, while you prepare it. The information frequently offered by some attendant, that "I have made her bed," means that it is so prepared that when labor is ended everything within reach is soiled.

You should undress the bed to the mattress. Fold a sheet crosswise, with folded edges lying at the head of the bed. Over this spread a rubber blanket or oilcloth; over this a sheet. Now fold a sheet as a mother does a diaper, and lay it across the bed, to be used in dressing the patient for her labor. Now direct the nurse to put the patient to bed, and before retiring that her garments should be neatly folded about the chest and back, baring her to the waist.

The abdomen, thighs and genitalia are now protected by the large diaper. The usual covering to suit the patient's comfort completes the preparations.

The third stage of labor terminated, the placenta is carefully examined, placed in a heavy newspaper and quietly cremated. With a receptacle at hand, the folded sheet is now removed, and with its removal comes ninety per cent of the detritus. An assistant on the opposite side of the bed now gathers, as do you, the rubber blanket and overlying sheet, and carefully draws them towards the feet. As the buttocks are reached, stop and give the woman a very careful but thorough antiseptic bath. Dry the parts, and apply on a napkin your favorite antiseptic. Remove the sheet and rubber blanket, placing necessary protection over the mattress. Upon this, whatever it be, sprinkle antiseptic fluid.

Draw the upper half of the sheet first laid upon the bed to the feet. Apply a bandage, if you use one. Draw the clothes down, and the new mother is ready to rest.

Advantages offered. First. All ladies appreciate any effort upon the part of the physician to lessen the disagreeable features of parturition.

Second. A cremated placenta is inoffensive.

Third. An antiseptic bath given by the one upon whom the responsibility of the case rests is more likely to be carefully given than by another person.

Fourth. Anyone who has attempted it knows how difficult and unpleasant is the operation of dressing and undressing the new mother. How slight in comparison, the mere drawing toward the feet of the chemise and gown!—*Dr. Dunham in Med. Era.*

Accumulation of Potassium Bromide in the Brain.—The very large use of potassium bromide

as a drug given continuously for many years, has suggested an inquiry into the extent and the methods of its accumulation in the human body. It is well known that its elimination is slow. If a dose of 20 grains is given to a dog, the greater part has left the body in thirty-six hours, but there are traces left for a month, and it is a special point of interest to notice where those traces are to be found in the body, and also, if possible, in what organs the accumulation takes place. M. Doyon contributes a noteworthy case. A boy æt. 12, was under hospital treatment for a year for a series of epileptic attacks complicated with acute mania. He was taking during the whole of this time from 60 to 120 grains a day of potassium bromide. In November, 1888, he caught scarlet fever. The fever was not severe, and ran a normal course, but the attacks of epilepsy and mania continued to occur, and in the intervals between those there was profound depression and disinclination to speak or eat. At first the potassium bromide was given up as unsuitable, and indeed perhaps dangerous; but when the convulsions recurred again and again, it was resumed in doses of 60 grains a day. After some days a cough began, which was sometimes very choking; there was no auscultatory sign of pneumonia, but the temperature rose, and he died eighteen days after the onset of scarlet fever. A post-mortem examination showed some patchy congestion of the lungs, with a little pus in the bronchi, and no pathological change in the kidneys or elsewhere, except perhaps that the brain substance was a little tougher than usual. The torpor between the convulsive attacks had been very striking clinically, and his doctors were interested in attempting to trace a connection with the bromide treatment and a possible accumulation of the drug. M. Cazeneuve analyzed the brain, and M. Doyon the liver, for comparison. In the brain there was found 30 grains of bromide; in the liver 12 grains. The relative weights of the brain and liver are 15 to 8; and making allowance for this, our conclusion would be that if the percentage in the brain and liver had been the same, when the liver contained 12 grains there would have been 22½ grains in the brain. In this case, however, the brain had 30 grains, and the conclusion M. Doyon wishes to draw is, that though the bromide accumulates both in the liver and brain, the accumulation in the brain is the greater.—*The Practitioner.*

THE TREATMENT OF GONORRHŒA.—In the *Med. Record* for July 20, 1889, Dr. E. P. Rice summarizes as follows his method of treating gonorrhœa. The patient should be placed in the recumbent position, and after lubricating an ordinary soft rubber catheter with five per cent. carbolized oil, introduce it as far as the prostatic portion of the urethra. In acute cases it may be necessary to inject a little five per cent. solution of muriate of cocaine, if pain is produced. Now insert into the free end of the catheter an ordinary glass syringe, having a nozzle with an opening sufficiently large to allow the liquid to pass through easily, which will be about the consistence of an ordinary emulsion, and should be made as follows:

℞—Acid. boric., ʒiij;
Glycerini, ʒj.

Mix and rub well together, and shake well before using.

Pour about two drachms of this mixture into the syringe, having previously withdrawn the plunger. Now, gently insert the plunger, and force the liquid into the catheter, which is held in place with the thumb and forefinger of the left hand; the forefinger of the right hand should be used to force in the plunger. After all the liquid has passed out, gently withdraw the catheter, stripping it at the same time in order to force all the liquid into the urethra. Let the patient remain in the recumbent position for ten minutes longer, the whole operation lasting generally about fifteen or twenty minutes. This treatment should be repeated every day, for the first two or three days, and then on each alternate day. As a rule, in acute attacks, five or six treatments will suffice. In long-standing cases the same treatment should be used, alternating with some mild astringent injection used in the same way. The sound should be used in subacute and chronic cases, at intervals of about three days. It is also advisable to give internally, in all cases, a saline laxative, and in the old cases I generally give, in addition, capsules of bal. copaibii, ɱvi; ol cubebæ, ɱiv, t. i. d., either before or after meals.

The fact of antisepsis should never be lost sight of, as so many are apt to do. It is a well-known fact that boric or boracic acid is a mild and unirritating antiseptic, which, when combined with glycerin as a vehicle, also an antiseptic, renders a very safe agent to use for this purpose.

One important point is also gained in this plan We always have the patient practically under control, and can watch the progress made, not being dependent upon the say-so of the patient.—*Therap. Gaz.*

TREATMENT OF DIABETES BY ANTIPYRINE.—Dr. Joseph S. Carreau, of New York (*Med. Record*), cites three cases of this disease successfully combated by this remedy. He also states the fact that Dujardin-Beaumetz, at a meeting of the Académie de Médicine, March, 1888, praised the happy effects of antipyrine in certain cases of diabetes, especially when the two symptoms, polyuria and nervous irritation predominated. Henri Huchard, at the Société de Thérapeutique, February, 1888, said that he employed antipyrine

in a case of symptomatic polyuria resulting from meningo-myelitis, with good effects. He gave from four to six grammes daily, and the quantity of urine was brought down from thirty-six litres to four. He also reported a case of diabetes, where he noticed, in a few days, the sugar diminish from 735 to 271 grammes a day under the use of antipyrine—two to six grammes daily. He also said that the prolonged administration of antipyrine, in his own experience, has never been followed by albuminuria.

M. Panas reported two cases to the Académie de Médicine, April, 1889, where great relief followed the administration of antipyrine. A man aged thirty-eight, passing forty-nine grammes of sugar in twenty-four hours, by taking two or three grammes daily during six days, had all traces of sugar in his urine removed. A woman, aged seventy-three, by taking three grammes daily, for a few days, also received similar benefit.—*Coll. and Clin. Rec.*

Treatment of Tuberculosis in Children.—According to Dr. Jacobi, arsenic is a remedy of much usefulness in the treatment of tuberculosis in children, but it is necessary only to administer the drug in small doses. A young patient, for example, could take every day, and that for weeks or months, two drops of Fowler's solution. This dose should be diluted in a sufficient quantity of water, and given three times a day after meals. If any signs of saturation supervene, the dose should be withheld for a time. A second remedy, of almost equal value in these cases, is digitalis. Under the influence of this drug the contractility of the heart muscle is strengthened, and, consecutively, the arterial pressure is increased, and the rapidity of the pulse diminished. The general effect of the increased arterial pressure is to favor the nutrition of the tissues. The choice of the particular preparation of the drug is a point of some moment. Oftentimes the infusion and the tincture are badly borne by the stomach; digitaline, on the other hand, is an inconstant preparation; thus the fluid extract is most to be recommended, either in pills or in capsules, and this can be dispensed with other drugs, such as narcotics or iron.—*Med. Press and Circular.*

The Antiseptic Action of Ammonia.—One of the facts now becoming abundantly substantiated with regard to the effect of organisms on the organic bodies on which they live (albuminoids, etc.) is, that the products of bacteria lactivity tend to limit and finally to destroy the vitality of the growing organisms Not only is this so with bacteria, but it is now well known, and can be readily demonstrated by experiment, that the products formed by digestive ferments from albuminoids or carbohydrates tend to "choke" ferment activity, which indeed revives when the products are removed, as, for example, by dialysis. Ammonia is one of the commonest products of putrefaction. It is formed not only by the action of putrefactive bacteria on albuminoids, but is a result of the decomposition of urea, which occurs from the action of the bacillus ureæ. Gottbrecht has lately tested the anti-fermentative action of ammonia. In his experiments he did not use the gas itself, but carbonate of ammonium, which, although less volatile than the gas, readily develops ammonia. It was found that a two per cent. solution of this salt delayed the decomposition of portions of fresh organs for nine days, a five per cent. solution for nineteen days, while a ten per cent. solution delayed it for sixteen days. In mixtures in which decomposition had already occurred, ammonium carbonate added to the amount of five per cent. after a time killed the organisms; while a two and one-half per cent. admixture of the salt diminished their activity. On the other hand, it was found that smaller proportions of ammonium carbonate, one-fourth to one per cent. not only did not diminish, but actually increased the activity of the organisms, so that putrefaction became more rapid. This is only another example of a very large class of substances, which in small doses increase activity, in large doses diminish it; many of the drugs which act on the heart have this action. It might be considered that the action of carbonate of ammonium on putrefactive changes was due to the state of alkalinity produced in the liquid; but that this is not so, is shown by the fact that sodium carbonate added to the same degree of alkalinity does not possess any anti-putrefactive action.—*Br. Med. Jour.*

Paraldehyde as a Hypnotic.—Mr. Morgan Finucane, Assistant Medical Officer, Hants County Asylum, believes that in paraldehyde we have a perfectly safe, and if given in large enough doses, a very effective hypnotic. The usually known dose is practically useless, anything less that one drachm and a half producing little or no effect. The immediately observed effects are quiet and refreshing sleep, the average being seven to eight hours; on waking the patients do not feel the effects produced by certain other drugs, *e.g.*, headache, drowsiness and dryness of the mouth. The heart and pulse are increased in frequency and force, the general effect being that of a diffusible stimulant. In all forms of maniacal excitement with extreme restlessness, and in cases of restlessness with dementia, whether paralytic or otherwise, paraldehyde is of the greatest use. The value of the drug is especially seen in cases such as general paralysis, where hyoscyamine is obviously wrong, and opium is often contra-indicated owing to the presence of renal disease.—*The Lancet.*

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PROPLYLAXIS OF TUBERCULOSIS.

The germ theory of disease has certainly revolutionized modern surgery, and is going far in the direction of revolutionizing practical medicine and obstetrics. The discovery of the bacillus of tuberculosis by Koch in 1881, was perhaps one of the most momentous events connected with the advance of the science of medicine, that has ever taken place. True, we can hardly imagine that, even without Koch's genius and painstaking labor, the discovery could have been delayed till the present time; still to him is due the glory of having made tangible the etiology of one of the greatest scourges, not only of humanity, but also of many species of the lower animals. The belief in Koch's bacillus being the definite cause of tuberculosis, whatever form that protean disease may assume, may be said to be practically universal among the educated minds of the profession. Indeed consumption is said to be "infectious," in the same sense that scarlet fever or smallpox is infectious. This fact, which is not only believed, but we think abundantly proved, opens out a whole new world for the physician. It has taken some time—since 1881—for the medical mind to become educated up to this point, namely, the firm and unshaken belief in the transmissibility of tuberculosis from an infected individual to a healthy one, or from the lower animals to man.

We have in a former number pointed out the fact that certain individuals are especially liable to become a prey to the ravage of this parasite, thus meeting the old and apparently valid objection to the bacillary theory, namely the influence of heredity in the transmission of the disease. Such a land-mark, as a family tendency to consumption, could not be overlooked by practical men, and no doubt did much to retard the true scientific appreciation of the real nature of tuberculosis. For, said the opponents of the germ theory, if the disease be from *without*, how can the fact of whole families dying off at about the same age, from this fell disease, be accounted for? Has the germ of consumption an especial predilection for the Smiths, while it eschews the Robinsons?

So far as we know, Lauder Brunton was the first to answer these objections, which he did very effectually by showing that not the disease itself is inherited, but a peculiar quality of tissue which renders the individual susceptible to the influence of the poison. Every practising physician must have breathed in myriads of tubercle bacilli, as have also nurses and attendants in hospitals, friends of phthisical patients, and indeed all others coming in contact with such patients, yet not a tithe of the persons thus exposed have become infected, simply because their respiratory tracts were in a healthy state and thus able to get rid of the intruding germ before it had time to grow, and form a focus of inflammation, from which the disease might be disseminated to other parts of the same system. For the bacillus tuberculosis is of *slow growth*, about ten days being necessary to elapse before it can, even in a suitable position, "establish itself and begin to grow." This one fact explains how so many persons having healthy lungs, escape, though often exposed to the disease, while others having a poor quality of epithelium in the respiratory tract, with imperfect function, offer a tempting resting-place for the bacillus, and leave it in peace long enough for it to begin its deadly work. It is not only in this disease that such bad quality of epithelium is noticeable.

Many skin diseases offer a parallel too obvious to need further notice here, as also catarrhs, ophthalmias, etc. It is from a consideration of such facts as have been hinted at rather than discussed above, that the practical side of the question has of late occupied so much the attention of sanitarians the world over. If consumption be an infectious disease it may surely be, if not eradicated, at

least greatly lessened by proper measures for the disinfection of those suffering from it, as also by their isolation, as far as is practicable from a humanitarian stand-point. It is gratifying to notice that more or less stringent measures are being adopted in many of the great centres of population, as Paris, New York, Glasgow and Berlin, for the limitation of possible infection. These measures are very various, but in all cases the principle of transmission is fully recognized. Many corporations are insisting upon a periodical inspection of all dairy-men's cows, with a view to reduce to a minimum the risk of infection through the milk of tuberculous cows, a product which has been shown to be full of danger to those using it. The Paris Congress of 1888, to which we called attention at the time, spoke very strongly, as to the absolute necessity of the most strict measures being adopted to stay the spread of this disease. Thus, the following resolutions, taken from the Transactions, will be of interest:

"It is imperative that every possible means should be adopted, comprising compensation to parties interested, for the general application of the principle of seizure and general destruction in totality of all flesh belonging to tuberculous animals, no matter how slight the specific lesions found in such animals."

"The Congress expresses the wish that tuberculosis be included in the sanitary laws of all countries in the world amongst contagious diseases requiring special prophylactic measures."

Practically, what can each of us do in the way of prophylaxis? The most humble of us can, to a certain degree, educate our *clientèle* as to the dangers of infection, whether from personal contact or from the lower animals. Thus, arrangements as to sleeping in the same room or bed with persons suffering from the disease, might be, and we have no doubt would be, greatly modified if the doctor in charge insisted upon it, or even, indeed, if the family recognized the necessity for isolation to a certain degree. Reception and disinfection of the sputa of tuberculous persons, in properly constructed vessels, would surely minimize the risks run by other members of the family living in the same house, or in the same room often. By attention to such apparently small and easily-managed prophylactic measures, we believe much could be done, which is not now being done, to lessen the ravages of this dread disease.

TYPHOID FEVER.

Dr. Simon Baruch, of New York, in commenting upon the article which appeared in *Gaillard's Medical Journal* for April, 1889, with reference to Zeimssen's treatment of typhoid fever, draws attention to the fact that the object of Zeimssen's treatment by the graduated bath, is not so much the lowering of the temperature as the refreshing excitation of the central nervous system. The stimulus which the nerves of sensation receive from the low temperature of the bath is centripetally propagated, and affects in a greater or less degree all vitally important nerve centres. The depressed excitability of the brain is relieved, and from the refreshed centres emanates a refreshed innervation of the circulation, respiration, digestion, tissue change, and locomotive apparatus. The effect is a free sensorium, a bright eye, active movement and surprising desire for food. When the true office of the cold bath is fully grasped, it will lead to the abandonment of all drugs, and other measures which simply reduce the temperature, without counteracting the toxic effects of the typhoid process, which is the true lethal element rather than the high temperature. Dr. Baruch lays down the following aphorisms:

1. Every case of typhoid fever, pronounced or suspicious, should be subjected to the bath when the rectal temperature reaches above 103° F.

2. The temperature should be taken and the bath continued every three hours, unless the patient is sleeping naturally.

3. If patient or friends are timid, begin with cold ablutions hourly, with clothes partly wrung out of water at 65° F.

The next step is to immerse the patient every three hours, in a bath at 90° F. and gradually reduce the temperature by removing the warm and adding cold water, to 68° F.; duration of bath half an hour, unless chattering of the teeth occurs. The patient and friends being now somewhat re-assured, the cold half bath with friction, temperature 65° F., with occasional affusions, may be given every three hours; the last step in this gradual education being the full bath at 65° to 75° F. for fifteen minutes every three hours as indicated.

4. In cases of adynamia or muttering delirium with a temperature below 103,°a half bath at 100°

with gentle cool affusions (65°) over head and shoulders, will arouse the nerve centres and often change the entire aspect of the case.

5. Chafing the surface during the bath opens the superficial vessels and prevents rapid chilling. The collapse-like manifestation, sometimes resulting from the latter, are more apparent than real.

6. The tub must stand next to the patient's bed; the water need be renewed only once in 24 hours, unless soiled by the patient.

7. Systematic bathing has reduced the mortality of typhoid fever from 25 to 17 per cent., as I have demonstrated by statistics of 30,000 cases, the largest number ever recorded for the elucidation of a question of comparative therapeutics.

DILATING URETHROTOMY IN TREATMENT OF URETHRAL STRICTURE.

Dr. Fessenden N. Otis presented in a short paper to the Association of Genito-Urinary Surgeons at Washington, D.C., September, 1888, a résumé of his experience of seventeen years in the operation of dilating urethrotomy, lately published in the New York *Medical Record*. We have read this paper with much interest, and are pleased to find that the method of treatment for urethral stricture advocated by the author in 1871 has been unusually successful, since he reports the condition of many cases operated upon by his method and by himself, cured—that is, there has been no return of the constriction years after the final treatment. Bearing in mind Sir Henry Thompson's statement that he doubts ever to have known stricture of the urethra permanently cured by any treatment, the publication of Dr. Otis' success is extremely important, more especially since all these cases have been subjected to the most severe test—exploration by the bulbous bougie. From experience in the treatment of stricture elsewhere, as well from a knowledge of simple pathological laws, we cannot clearly understand how an organized band of cicatricial tissue in the urethral wall, can be removed, either by incision, dilatation, or rupture; but that such can be done, as the result shows is undoubted. It is our duty then not to denounce a method which experience justifies, because in our philosophy it appears irrational.

Most surgeons agree with the learned specialist that careful cutting of a stricture, moderately stretched on a dilator, is more satisfactory and less severe than violent rupture by powerful instruments. For obvious reasons the incision should correspond with the exact upper urethral plain, for at that spot there is less danger of hæmorrhage or urinary infiltration; and internal urethrotomy should not be practiced posterior to the bulb. These are precautions familiar to all surgeons. But there is, and always has been, general reluctance to extensive cutting of the meatus, as practiced Professor Otis and his school. It would seem that by thus lessening the inter-urethral tone of the passing urine the physiological harmony between the propelling force of the bladder and the normal resistance of the urethral wall is destroyed, which may in the end cause disease. But as this fear is not supported by fact, it is presumptive that the meatus urinarius has but little to do in the act of micturition.

In 1675 Dr. Otis published his first observations, based upon a series of thirty-six re-examinations with bulbous sounds of the full size of the normal urethra, at periods ranging from six months to three years after operation, during which interval no use of sounds had been resorted to. In thirty-one of these cases, or about 80 per cent. *complete freedom from the former strictured condition* was demonstrated by the unobstructed passage to and fro throughout the entire urethra anterior to the bulbo-membranous junction, of a metallic bulbous sound of the full normal size of the urethra, as determined at the time of operation. In a second series, consisting of 136 tabulated cases, presented in 1878, eighty-two re-examinations were reported, out of which sixty-seven were found entirely free from stricture. In three of these cases six years and six months had intervened between the date of operation and the re-examination; in two cases, over five years; in three cases, over four years; in ten cases, over three years; in seven cases, over two years; in twenty cases, over one year; in ten cases, six months. This is a remarkably good showing and deserves the attention of every surgeon.

OUR MEAT AND DRINK.

So it has come to this, that men
Must dine no more on flesh again,
The chances being nine to ten—
Tuberculosis.
The thought's enough to there and then
Cause cyanosis.

I wonder what is safe to eat!
Swine seem as bad as butcher's meat,
For porcine flesh they say's the seat
Of trichinosis,
And even tea, that household treat,
Brings on neurosis.

They are all tabooed—well, let them go!
What though it brings my system low,
And fond friends cry in tones of woe,
"He's got chlorosis!"
Impoverished blood is less a foe
Than scrofulosis.

Farewell, my modest evening tea!
Microbic flesh depart from me!
Seductive beer it may not be!
Who wants cirrhosis?
E'en sugar's not suspicion free,
There's teeth necrosis.

No more the cherished hope I'll hug
That all this cry is mere humbug;
Henceforth I'll feed on "flesh that's dug."
If plants have "oses,"
I'll swill some antiseptic drug
In treble doses.

—E. P. W., Glasgow, in *Hosp. Gazette.*

Retroflexion.—As a simple means of replacement in some cases of retroflexion and retroversion (*Obs. Gaz.*), the tenaculum is especially useful. Here, sometimes, it is absolutely necessary, in order to replace the uterus satisfactorily, to exert pressure and traction in three directions at one time. The great obstacle in the way of an easy and immediate reposition, in cases of retroflexion where the cervix has not also descended towards the vaginal outlet, is the fact that upward pressure upon the fundus through the vagina or rectum only tends to drive the body of the uterus into the body of the sacrum. By catching the tenaculum in the cervix and drawing it down, the uterine body is straightened out; then holding the tenaculum in the left hand, and exerting pressure upon the fundus with the index finger of the same hand introduced into the rectum, the body yields and begins to go upwards into the pelvis, describing an arc around the fixed cervix, sweeping clear of the sacral promontory; at this point the fundus is caught by the other free hand working through the abdominal walls, and drawn forward. The left hand now lets go the tenaculum, and the index finger is withdrawn from the rectum, and is used (after washing) to push the cervix high up and far back in the pelvis, while the body is brought further forward and forced down. In this way the reposition is satisfactorily and easily accomplished.

American Public Health Association — Health Exhibition. — The American Public Health Association will hold its next Annual Meeting at Brooklyn, N. Y., October 22, 23, 24 and 25, 1889. This Association comprises over eight hundred members, all devoted, officially or otherwise, to its declared purpose—the advancement of sanitary science and the promotion of organizations and measures for the practical application of public hygiene. In the furtherance of this purpose it has met annually, during the last sixteen years, in different cities of the United States and Canada, and has in every instance had the effect of greatly stimulating public effort in the promotion of health and measures for its maintenance. With the hope of still further magnifying this interest and effort, it is the purpose of the Association, through its local committee, at the forthcoming meeting, to provide an *Exhibition of everything available adapted to the promotion of health.* The following topics have been selected for consideration at the meeting:—1. The causes and prevention of infant mortality. 2. Railway sanitation. (*a*) Heating and ventilation of railway passenger coaches. (*b*) Water supply, water closets, etc. (*c*) Carrying passengers infected with communicable diseases. 3. Steamship sanitation. 4. Methods of scientific cooking. 5. Yellow fever. (*a*) The unprotected avenues through which yellow fever is liable to be brought into the United States. (*b*) The sanitary requirements necessary to render a town or city proof against an epidemic of yellow fever. (*c*) The course to be taken by local health authorities upon the outbreak of yellow fever. 6. The prevention and restriction of tuberculosis in man. 7. Methods of prevention of diphtheria, with results of such methods. 8. How far should health authorities be permitted to apply known preventive measures for the control of diphtheria. 9. Compulsory vaccination. 10. Sanitation of asylums, prisons, jails, and other eleemosynary institutions.

The Prevention of Mammary Abscess.—Miall says (*Med News*), when mammary abscess is on

the point of forming, he has frequently seen all the symptoms disappear in a few hours under the influence of fomentations with hot water and carbonate of ammonia. He uses an ounce of the carbonate in a pint of water, and, when solution is accomplished, the temperature of the fluid will be hardly too high for fomentation to be commenced with cloths dipped in the liquid. He applied them from half an hour to two hours, at the same time protecting the nipples. He has often had immediate relief, and seldom requires more than three applications.

FLATULENT DYSPEPSIA.—Dr. Eloy, *Therap. Gaz.*, suggests the following:

℞.—Creasot. pur. . . . . gtt. x.
Sodii. bicarb. . . . . ʒij.
Acaciae. pulv. . . . . q. s.
Aquæ. . . . . f. ʒv.—M.

SIG.—A coffeespoonful one hour after each meal. If the dyspepsia be dependent upon gastric atony and insufficient gastric secretions, the following is suggested:—

℞.—Pepsin . . . . . ʒj.
Creasot. . . . . gtt. x.
Bismuth Subcarb. . . . . ʒj.—M.

Divide into chartas xxx, of which one may be given in a gelatine capsule.

THREATENED ABORTION.—M. D. Makuna, M. R.C.S. Eng., Lic. Med. University, Bombay, 1876, Trebeebut, Rhondda Valley, South Wales, says: I have much pleasure in expressing my satisfaction with the results I have obtained by the use of Aletris Cordial. One of my patients who had miscarried three times previously took Aletris Cordial during the last three months of pregnancy and was delivered of a fine healthy boy. I ordered it at her own solicitation, as she expressed so much ease and comfort after the use of the first bottle. I am now giving it to two more patients who have miscarried several times before and I am in hopes of good results. I consider it a valuable addition to the Pharmacopœia, on account of its antispasmodic and nerve-tonic properties, and I should not like to go without it.

THERE is no other exhibit of the class in the United States section to rival that of Wm. R. Warner & Co. From the globe-advertising Philadelphia merchant comes an exhibit which the native pharmaciens can look at with both admiration and wonderment. The display is enough to make any Frenchman curious, and their arrangement such as to be above deprecatory criticsm; and than Frenchmen there could not be a people with better taste for the proper and harmonious exhibition of products. A glance through their own magnificent section of pharmacy will verify this. Readers would find superfluous a description in detail of the Messrs. Warner's essentially fine installation covering all their soluble sugar-coated pills, salts, etc. Suffice it is to remark that at the Paris Universelle their exhibit is thoroughly representative, comprises all the makers' fabrications, and is decidedly an honor to the concern.—*Pharmaceutical Record.*

TINCTURA CASTOREI SPIR. FOR MORPHIA HABIT.—A peasant woman (says the *Va. Med. Monthly*) who, during a case of exudative peritonitis, became addicted to morphine, taking daily sixteen grains, was denied the drug. Cramer sent her tinctura castorei spir., with the assurance that it would answer as well as morphine. What was his surprise to hear from the patient that it filled all the indications, and she was soon relieved of the fearful morphine habit. This suggestion is worthy of further trial.

OL. TEREBINTH IN CROUP.—Dr. Lewentaner recommends the following in croup, having had much success in its treatment:

℞—Rectified oil of turpentine, . 1 fl. ʒ,
Oil of sweet almond, . . . 2½ "
Simple syrup, ... 3 "
Mucilage of acacia, . . . 10 "
Yelk of one egg.
Canella water, enough to make 3 fl. ʒ.—M.

Sig.—A teaspoonful every hour for a child ten years old.

FOR FUNCTIONAL JAUNDICE.—Dr. Samuel, writing to the *N. Y. Med. Jour.*, speaks highly of the following in functional jaundice:

℞—Sodii phosphatis, ... ʒ ij.
Aquæ pur., ... f ʒ j.
Misce, et ft. solut. et adde:
Tinct. nucis vomicæ, ... f ʒ ij.
Tinct. gentian, ... ad f ʒ iv.—M.
Sig.—Teaspoonful three times a day.

New York Polyclinic.—The annual announcement of the New York Polyclinic, a Clinical School for graduates in medicine and surgery, shows an attendance for the session of 1888-9 of 383 physicians, making since the opening of the pioneer post-graduate school in 1882, a total of 1,883. These figures demonstrate beyond all doubt the popularity of the Polyclinic system of instruction. The most important feature of this year's catalogue is the *Polyclinic Hospital.* By the enlargement of their property the Faculty have established an extensive hospital, which will afford at all times ample material for all clinical purposes. The Polyclinic and hospital buildings have been completely fitted out with all the modern appliances conducive to the healthfulness and comfort of the patients and physicians in attendance. The session of 1889-90 opened Monday, Sept. 16.

For Chapped Nipples.—Says the St. Louis *Med. and Surg. Jour.*:—Mitropolsky, of Moscow, recommends chloral as an excellent local means for fissured and excoriated nipples. The latter should be kept covered with compresses (soft linen) soaked in a solution of half a drachm of chloral in three ounces of water. The compresses should be changed every two and a half or three hours. When a prolonged application is necessary, it is advisable to use a weaker lotion (half drachm to six ounces). The solution leaves a thin, whitish, firmly adherent film over the diseased surface, which does not disappear by suckling. Pain and tenderness are said to be strikingly relieved almost immediately, the lesions rapidly healing. The chloral compresses do not produce any bad effects on nurslings.

Fistula in Ano.—Several journals, says the *Pacific Med. Jour.*, have of late been discussing the origin and treatment of fistula of the anus. The old observers long ago asserted that anal fistula and consumption were frequently concomitant diseases, so much so that they were believed to possess some intimate bond of connection. It was further thought to have been proven that when the troubles existed together in the same individual, to cure the fistula was to encourage the disease in the lung. To Professor Volkmann is due the honor of first demonstrating the tubercular nature of fistula, and to-day, in most such cases, the presence of the tubercle-bacilli can be shown by the microscope. With our present knowledge as to the etiology of tubercular disease the treatment of fistula is no longer a matter of question. The removal of the local tuberculosis by surgical procedure as quickly and as radically as possible is clearly indicated.

Chronic Cystitis.—Dr. Moestig-Moorh, of Vienna, says the *Wiener Med. Presse*, has had much success in the treatment of chronic cystitis with iodoform injections. The bladder having been irrigated with moderately hot water, an injection of the following emulsion should be made:

R—Iodoform, ...	50 parts.
Glycerin, ...	40 parts.
Aquæ dest., ...	10 parts.
Tragacanth gum, ...	¼ part. M.

Sig.—One teaspoonful to a pint of lukewarm water, well stirred, for one injection. Injections should be made every third day.

Another Bacillus—Dr. Achille Manlinconico, in a pamphlet mentioned in the *Deutsche Med. Zeit.*, concludes that decay and death are due to the baneful action of a specific micro-organism. It is to be hoped the Dr. may soon succeed in "spotting" this germ, and then the dream of perpetual youth may be realized; for, with the list of germicides now at our disposal, no difficulty should exist in bringing down the game, once it is sighted. It will be a fine line that the Dr. will have to draw as to just when to begin slaughtering the new game, as no arbitrary rule as to years can be laid down, stating when the individual has reached the zenith of his development and decay is about to set in.

Cyanide of Mercury in Diphtheria.—Dr. A. Selldén, *Lancet*, a Swedish provincial medical officer strongly recommends the use of cyanide of mercury in diphtheria; he looks upon this drug almost as a specific. He recommends the following formula:

R.—Cynide of mercury . . .	gr. ⅓.
Tr. of Aconite	♏ xv.
Honey	℥xiij.—M.

Sig.—℥j every fifteen, thirty, or sixty minutes, according to the patient's age. A gargle is prescribed to be used every fifteen minutes, composed of cyanide of mercury in peppermint water, in the proportion of 1 to 10,000.

TREATMENT OF THE OPIUM HABIT. — (1) No confirmed case of the opium habit can be satisfactorily treated at home. (2) Hypodermic injections of morphine, administered by the physician, constitute the best means of administering the drug during its gradual withdrawal. (3) The substitution of other narcotics does not constitute any special part of the treatment. (4) The systematic administration of suitable food at short intervals, and the judicious use of alcoholic stimulants, will prevent many of the serious symptoms following the withdrawal of the drug. (5) The insomnia and asthenia of convalescence are incidental to the readjustment of the nervous system to normal conditions. So long as these symptoms persist there is danger of a relapse.—*Med. and Surg. Rep.*

MENTHOL IN PRURITIC AFFECTIONS.—Menthol is highly recommended by Saalfeld, Berlin, in cases of pruretics of various kinds. He prescribes it either as a wash or as a salve, the formula being :—

1.	Menthol	22–37 gr.
	Spirit vin rect.	℥j ℥ss.
2.	Menthol	37 gr.
	Ol. Olivarum	(℥ij – ℥iij.)
	Lanolin	℥j ℥ss.

Both preparations have done him excellent service in urticara, pruritus cutaneus, and pruritus senilis.

ANTIPYRINE IN LABOR.—Dr. Ermanno Rinzani, says the *Bv. Med. Jour.*, after experementing with antipyrine in labor, came to the conclusion that it relieves the pains of labor simply by lessening the force of the uterine contractions. He noticed that infants suckled by women who had taken antipyrine during labor, were apt to suffer from diarrhœa. His verdict is, therefore, against the use of antipyrine in midwifery practice.

DYSPEPSIA.—The following (says Dr. I. N. Love, in *Med. Rev.*) is good for fermentative dyspepsia :—

℞	Acid carbolic	gr. vj.
	Tr. nucis vom.	f ʒ ss.
	Acid nitro. mur. dil. . .	f ʒ ss.
	Elix. lacto. pep.	f ʒ iij.
	Spts. frumenti.	f ʒ ij. M.

Sig.—ʒ j. tid. ante. cib.

TO STERILIZE MILK.—It is not necessary (*Dietetic Gaz.*) to invest in a sterilizing apparatus, as any housekeeper can arrange one equally efficient for herself. All that is necessary is to have some bottles, capable of containing the milk to be used in a day; each large enough to contain what will be needed at one time. These bottles and their corks should be thoroughly cleansed by boiling in a solution of washing-soda. The corks should be selected, and of the best variety. When the milk is brought to the house it should be placed in these bottles, which should be arranged on a wire frame in a pot of water, and boiled for fifteen minutes. They should then be corked securely and placed in the refrigerator with the ice *upon* them, not under them. In the country they may be lowered into the well. Milk thus treated will not only keep sweet and fresh, but almost any impurity it may originally contain will be rendered innocuous. The flavor of boiled milk is unpleasant to many persons; but this may be remedied by the addition of a little coffee or cocoa. At any rate one must not expect too much in this world; and for the sake of safety put up with the unpleasant taste, or learn to like it.

NEURALGIA.—A writer in the *Courier Méd.* gives the following as useful in neuralgia :

℞	Alcohol, camphorat., . .	90 parts.
	Ætheris, ...	30 "
	Tinct. opii, ...	6 "
	Chloroform, ...	20 " —M.

Sig.—Apply on flannel.

PRESERVE YOUR INSTRUMENTS.—You can preserve your instruments from rusting by immersing them in a solution of carbonate of potash for a few minutes. They will not rust for years, even when exposed to a damp atmosphere.

GALL-STONES.—In the case of a woman who had passed gall-stones, Prof. Bartholow (*Med. World*) directed $\frac{1}{10}$ gr. arseniate of sodium ter die, and :

℞	Sodii phosphate, ...	
	Sodii sulph., ...	āā ʒ ss.

Sig.—Ter. die in water.

HICCOUGH.—Dr. Brinkerhoff writes to the *N Y. Med. Jour.*, that calamus is an excellent remedy for hiccough. He has used it in some cases of an aggravated nature, and always successfully. Only a small quantity is needed.

Acute Coryza is said to be cured by the inhalation of camphor fumes, the camphor being powdered and placed in a vessel containing boiling water. Ten or fifteen minutes suffice for the cure of acute cases if taken early.

It is stated (J. Mosse, *Lyon Med.*) that ten minims of tincture of iodine, taken in half a glass of water twice a day, will cause the disappearance of warts. The Dr. has tested the drug in ten cases, with success in all

Books and Pamphlets.

An Introduction to Pathology and Morbid Anatomy, by T. Henry Green, M.D., Physician to Charing Cross Hospital, and to the Hospital for Consumption and Diseases of the Chest, Brompton; Examiner in Medicine to the conjoint Examining Board for England; late Lecturer on Pathology and Morbid Anatomy at Charing Cross Hospital Medical School. Sixth American from the Seventh English Edition; revised and enlarged by Stanley Boyd, M.B., B. S. Lond., F.R.C.S. Eng., Senior Assistant-Surgeon to Charing Cross Hospital, and Surgeon to the Paddington Green Hospital for Children; Lecturer on Anatomy in the Charing Cross Hospital Medical School, and formerly Pathologist to the Hospital. Illustrated by 167 fine engravings. Philadelphia: Lea Brothers & Co. Toronto: Carveth & Co. 1889.

This justly popular work comes before us in a considerably improved condition. Unfortunately Dr. Green has had nothing to do with the present edition, but his place has been well supplied by Dr. Boyd. Several chapters have been re-written, and the whole is brought up to the standard of to-day's knowledge of pathological processes. Several new wood-cuts have been added, and altogether the work is one which, in our opinion, is just what the student requires.

Wood's Medical and Surgical Monographs—Consisting of original treatises and complete reproductions in English, of books and Monographs selected from the latest literature of foreign countries, with illustrations, etc. Published monthly at $10 per year. Single copies, $1. New York: William Wood & Co., 56 & 58 Lafayette Place. Toronto: Vannevar & Co.

The September number of the above work contains the following articles:—Congestive Neurasthenia or Nerve Depression, by E. G. Whittle, M.D.; The Art of Embalming, by Benjamin Ward Richardson, M.D.; The Etiology, Diagnosis and Treatment of Tuberculosis, by Dr. H. Von Ziemssen; Psycho-Therapeutics or Treatment by Hypnotism, by Dr. C. Lloyd Tuckey; Sexal Activity and the Critical Period in Man and Woman, by Dr. Louis De Sere. Index and Contents for Vol. III.

Inebriety: Its Etiology, Pathology, Treatment and Jurisprudence, by Norman Kerr, M.D., F. L.S., Fellow of the Medical Society of London; President, Society for the Study of Inebriety; Chairman, British Medical Association Inebriates' Legislation Committee; Consulting Physician, Dalrymple Home for the Treatment of Inebriety; Corr. Mem. Medico-Legal Society of New York; Corr. Sec. American Association for the Cure of Inebriates. Second Edition. London: H. K. Lewis, 136 Gower Street, W. C., 1889. Toronto: Vannevar & Co.

This is a book which should be in every physician's hands. It is a classic on the subject, and now that the profession at least have learned to look upon inebriety as a disease, we take it that each of us should be educated, regarding that disease. The book is beautifully printed, and we heartily recommend it to our readers as worthy of a careful perusal.

Institutes of Economics: A Text-book for College Classes. By E. Benjamin Andrews, D.D., LL.D., President of Brown University, late Professor of Economics and Finance in Cornell University. 228 pages. Cloth. Introductory price, $1.30. Boston: Silver, Burdike & Co., 1889. Toronto: Carveth & Co.

This is a succinct manual of political economy for the class-room, on a plan thoroughly its own. Its pre-eminent aim is to be a first-rate teaching-book. Its chief peculiarities in point of method are: 1. The utmost brevity which can be made to consist with clearness, indispensable amplifications and illustrations beyond this beiug referred to notes. 2. Thorough and conspicuous analysis, general and special, greatly aiding pupils both to master and retain the thought. 3. Encouragement to side reading, each paragraph being introduced by references to the best accessible authority upon its theme, and more recondite works, in various languages, named for the behoof of teachers.