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## Original Communications.

*Abstract of a paper on the disposal of sewage matter, read before the Sanitary Association of Montreal, June 6th, 1874.* By RICHARD A. KENNEDY, M.D.C.M., Professor of Anatomy, University of Bishop's College.

The problem before us has been forced upon the attention of every civilized community during the present century, and to mention the various plans which have been tried would occupy too much time. The waste products of a community must be removed before decomposition sets in, else the results will be injury to public health, and the generation of a weakly and deteriorated population. This latter statement is amply proved by the accumulated experience of scientific men. As an example we find that London, during the 17th century, was visited by the plagues. The last, which is styled the great, occurred in 1665, and so great was the infection that 7,165 died in one week, and no less than 68,526 died in the city and its suburbs during the year. An idea may be formed of this immense mortality by considering the comparatively small amount of population which then existed. Foreign visitors of the time describe the condition of the houses and streets as being in a state of intolerable filth, and there is no reason to doubt, that if London had not been purified by the great fire which occurred in 1666, history would have recorded many subsequent invasions. Again, it is well proved that cholera and kindred epidemic diseases have their origin in filth and uncleanness. Cholera has always spread from the east; the favoring influence of a hot climate and the unsanitary conditions of densely populated districts, have more than once caused masses of putrefactive material to generate this poison which has devastated mankind.

Adventurous travellers describe the surroundings of Mecca as a vast effial ground, abounding in scenes of filth and disease, so that large numbers of pilgrims never return; they see Mecca and die. From such nests does disease spread, and disseminating itself through atmospheric influences finds in civilised communities the soil well prepared for its propagation. We know better, but our supineness and inaction favor its visitation. Impure water, lowness of building sites, and emanations arising from the decomposition of animal refuse are the local causes, now determined without doubt to have a more or less constant connection with the development and propagation of cholera and other diseases. Dr. Greer-

how observes, that "an atmosphere impregnated with the products of *fermenting excrement* is at once the most obvious and most constant concomitant of cholera." Such exhalations were often found where least expected, explaining the fact that pestilence sometimes passing over slums invades the dwellings of the rich. "It was found that persons appeared to suffer in proportion to the contamination of the air they breathed with the '*privy odor*,' and that immunity from this appeared to secure immunity from cholera." Other observers also confirm these statements. Observation also proves that our system of sewerage favors the spread of typhoid fever. 1st. By the passage of sewage matter into water afterwards made use of for drinking purposes (e. g., we are now getting the benefit of the sewage of the City of Ottawa.) 2ndly. By the issue of impregnated gases from defective sewers and water closets, which are the receptacle of the discharges from the sick. These observations will also apply to typhus, a fever made memorable by the epidemic which occurred in this city some years ago, and which will not be forgotten so long as the monument of its victims remain in sight of travellers passing Point St. Charles. Dysentery, diarrhoea and many other affections are also due to these conditions of uncleanness. These diseases have been mentioned because it has been fully shown that to "inefficient modes of removing the excreta of men and animals was due the great prevalence of disease in the middle ages." In villages and farm houses these evils are nearly unknown, because sewage matter is returned almost at once to the soil and rendered innocuous. It is only in large communities that the matter becomes of vital importance, and requires special modes of dealing with it. Taking the average amount of solid material excreted by each person, and reckoning our population at 120,000, there is a daily deposit in our cesspools and drains of 10 tons of fecal matter, being upwards of 4,000 tons annually. In this calculation fluid excreta is not included, this latter would probably amount to 30,000 gallons a day.

Two-thirds of all this material must find its way into our drains, there to decompose, to give off noxious and fetid gasses, and if it does not generate the poison of fevers or other disorders, it becomes a predisposing cause of them. There can be no doubt that the large amount of excreta which is locked up in our midst by the cold of winter, is so disintegrated by freezing as rapidly to decompose when summer comes, giving rise by its deleterious emanations to the frightful mortality amongst our infant population.

The mortality of this city is remarkable if we compare our cemetery returns with that of other cities, and this mortality would be increased if it were not that many families and sick persons are away from the city during the hot weather. Coming more directly to the subject before us, two questions meet us, which are more or less intimately connected. The first concerns us chiefly as sanitarians. In what manner can the effete products of our people be removed so as to produce the best results, both physical and economical? The second concerns us indirectly, but, as affording a solution to the first, may be discussed with advantage. How can these effete products be manipulated so as to render them available for agricultural purposes? It may be said that the latter question is needless, but if they can be made marketable the expense of removal may be defrayed, and that which is an offence will enrich the soil and return to us as a benefit. There is nothing new in this, the Mosaic laws ordain it, and I believe we will ultimately adopt some mode by which this can be effected. Much money is expended for fertilizers, and this, the best, we do not take advantage of. To revert to the first question of how can these effete products be best removed? and we must include all offal and house refuse in this designation; much will depend upon the circumstances of our climate. The sooner such material is removed is a necessity recognised by all. Hitherto only two modes have been found to be practical, and are now general in their use.

1st. That by water into sewers. 2nd. The pit method.

In regard to the first, I am of opinion, that, allowing any solid material, whether excreta or offal, to find its way into our sewers, is one of the most injurious and expensive modes which can be adopted. It is not only detrimental to health, but from the accumulation by deposit of so much matter in our drains, more expense is incurred in opening streets and cleaning drains than would be required to empty every pit in the city, even if all refuse were thrown into such pits. It may be more comfortable to have a closet in the house, it is certainly the most convenient, but surely we can have convenience and comfort without risking health, by adopting a better sanitary procedure. To remove solid material by sewerage in the cleanest and quickest manner involves so many conditions that it is almost impossible to have it done effectually. In this city, from the inequality of the streets, sewers are often so placed as to afford but little fall. Take the sewer in Jurors Street for example, which is almost level, and is consequently

nearly filled up, the washings of the street also adding to the obstruction by carrying down debris and gravel. A good fall is a necessity with frequent flushings, or else there will be accumulation and decomposition followed by disease. It has been calculated to take 25 gallons of water per head daily to keep common sewers clean; such drains as the above would require more than double that amount. Arrangements for trapping or other more complicate apparatus are very often defective, and in the best are sure to get out of order after a time, so that there are but few houses in which the air is not contaminated by the effluvia from the closets. As for the dry method, as it is called, accumulating in pits and occasionally removing, no words are strong enough to condemn such abominations. To allow these places to exist in our midst is suicide, for they are converted during the summer into seething and bubbling masses of putrefaction. And yet they exist under the windows of a large portion of our population, and cause us to deplore a great increase in the infant mortality of our city during the summer months. Many such places might be mentioned. One large tenement building, three stories in height, surrounds a small court yard, having a series of closets occupying the most of it. On three sides the only doors and windows open on to this court. The whole building is occupied by about 25 families, who are obliged to inhale constantly the exhalations arising from the pits. From professional visits to the place I have found that, even in the depth of winter, an insufferable odor comes from them. To purify such places by disinfectants and deodorants is both expensive and inefficient, and the occasional cleaning out is abominable from the great stench, and is also expensive. Attempts have been made to convert such material into fertilizers by chemical means. Heretofore such attempts have been failures, owing to their expense and to the heterogenous masses of varying materials to be operated on. To fulfil all the requirements of a proper sanitary condition, demands a method different from those now in use, and there can be nothing more efficient than the daily removal of all excrement and house offal which should be thrown into the same receptacle. Boxes could be constructed on one plan with movable covers, so that as one box was removed it could be immediately replaced by an empty one. Some such plan is imperatively demanded in places like the one already mentioned, and our Corporation ought to be enlightened enough to adopt this simple method. If this plan was adopted no time would be given for decomposition, and our city would be all the better for it.

A valuable plan is at present in use in various places: Dry earth has been found to be the best disinfectant that can be used, but the expense attending its use precludes it from being generally employed. There is, however, a good substitute; a large quantity of ashes is accumulated during the winter, which might be kept for summer use in a box close to the closet, and a small quantity thrown into the receptacle as occasion requires, and thus we would have one of the best and cheapest deodorants that could be devised. The plan is simple, easily carried into execution, and the youngest child using the closet could attend to it. The material thus obtained, if perfectly dried, would form one of the best fertilizing agents, so that part of the expense of removal would be defrayed by the sale of it. The daily removal of refuse, etc., is carried out in one section of Glasgow, which contains 80,000 people; it is sent long distances at a profit, and is applied at once to the land without any preparation. The same is done in other cities of Great Britain. At Baden the excreta of 8,000 soldiers is removed daily and applied to the land, so that what was once a sandy waste is now a garden, the profit for one year amounting to \$3,400. These are examples which should encourage us to do likewise, at any rate the benefit to public health would counterbalance any extra expense at the outset, and would be the most economical in the end.

*The application of Nitric Acid to the interior of the uterus.* By WILLIAM GARDNER, M.A., M.D.C.M., Professor of Medical Jurisprudence, University of Bishops College.  
(Read before the Medico-Chirurgical Society of Montreal.)

MR. PRESIDENT AND GENTLEMEN,—The application of caustics to the interior of the uterus in certain cases of disease of this organ, is admitted by nearly all authorities on the diseases of women to be an established and legitimate practice. Much uncertainty may be said, however, to still exist as to the precise cases which require this mode of treatment, and a wide difference of opinion still prevails as to the best mode of making intra-uterine applications and the best agent for this purpose. Lately the use of nitric acid has been advocated by Dr. Atthill, of Dublin, and this advocacy sustained by a series of published results exceedingly favorable to the mode of treatment proposed. These results were published and the mode of application described in the *Obstetrical Journal* for June 1873. The cases in which Dr. Atthill found this remedy most useful were enlargement of the uterus, whether from subinvolution, or congestion and chronic inflammation of the

whole organ, as well as of the mucous lining membrane (endometritis)—conditions attended with pain, profuse menstrual discharge, and leucorrhœa. The intra-uterine application of nitric acid has been also found very useful in checking hæmorrhage after the removal of tumours from the interior of the uterus, and in cases of uterine fibroid, in such a situation as to render them incapable of relief by surgical measures.

Dr. Atthill has further found that granular and ulcerated conditions of the os uteri yield readily to the topical application of this remedy. The following case of subinvolution, treated by this remedy may, I hope, be not entirely wanting in interest, and will, I trust, aid in eliciting the experience of the members of this society in the use of remedies to the interior of the uterus.

Mrs. D—, a young married woman, was attended by myself in her first confinement, in the month of August of last year. The labor was somewhat tedious, but terminated naturally, and everything went well afterwards. She, however, insisted, contrary to my advice, in leaving her bed on the fifth or sixth day after delivery. About two months after her confinement she came to me complaining of pain in the back, bearing-down pains, and leucorrhœal discharge, and asserted that all these symptoms had existed, to a greater or less extent, ever since her confinement, and were aggravated by any unusual exertion. I made no examination at this time, but prescribed a mixture of tincture of iron and quinine, and directed her to use vaginal injections of a weak solution of tincture of iron in water. This treatment she persevered in for some time, but with only a moderate amount of benefit. I lost sight of her for three or four months, when she returned to say that all the symptoms she previously complained of were much aggravated, and that, in addition, the menstrual discharge had returned rather profusely, lasting for seven or eight days at each period, being preceded and attended by a good deal of pain, and that she suffered very much from the symptom, for which Dr. Barnes has coined the word “dyspareunia;” —painful sexual intercourse, the performance of this function being attended on each occasion by free bloody discharge, lasting for some hours. The slightest exertion now aggravates the pains previously complained of.

On examination with the finger in the vagina, the os uteri was somewhat patulous. When the finger was pushed up along the body of the uterus, this was found to be intensely tender. When the left hand was used to make pressure simultaneously on the

abdomen, with the right *index* finger in the vagina, the enlarged and tender fundus uteri was distinctly felt, lying somewhat to the left of the middle line, and to this situation the patient referred the most severe pain which she felt on exertion, and during sexual intercourse. The uterine sound entered without difficulty, and with the concavity forwards, to the depth of three and a quarter inches. The point of the sound was rather freely movable, indicating some enlargement of the cavity of the uterus. The introduction of the sound was attended with discharge of blood. Examination with the speculum revealed an open condition of the os uteri, the lips being congested and everted.

I decided to try the application of nitric acid to the living membrane of the uterus after dilatation of the cervix. With this view two pieces of laminae were introduced and retained by a pledget of cotton wool in the vagina, being allowed to remain for twenty-four hours. The patient complained of a good deal of pain during the process of dilatation, and I found that the pieces of sea tangle had partially slipped out, so that the dilatation was not so complete as it otherwise would have been. A Marion-Sims' duckbill speculum was then introduced to the vagina, the concavity being well smeared with lard to protect it from the acid, and the os uteri brought into view. I now entrusted the holding of the speculum to the patient herself, as I had no assistance. This she did with her right hand thrown back. The anterior lip of the os was now fixed with a sharp hook and drawn down as far as possible. Holding the hook with my left hand I introduced with the right hand a wire gum catheter stilette, around a loop in the end of which a *strip* of lint had been tied, to the interior of the uterus, for the purpose of removing as much as possible of the secretions present. I then passed in another wire similarly prepared, the lint being steeped in the fuming nitric acid, up to the fundus, moving it freely round so as to act on every part of the lining membrane, and then withdrew it. A pledget of wetted cotton wool was then applied against the os uteri, the speculum withdrawn, and the patient ordered to remain in bed for a week. No pain was experienced after the removal of the instruments for two hours, when she complained, but not to any great extent, of pain in the abdomen for an hour or two. During the next four or five days she had pain at intervals, being, however, entirely free from suffering during the greater part of each day. After a week the patient was permitted to leave her bed. The next menstrual period was painless, but the flow was quite pro-

fuse, lasting eight or nine days. From this date, I did not see my patient till some time after the second menstrual period subsequent to the application of the nitric acid. On enquiry, I was told that she considered herself well, that all the pains of which she used complain had left her, that sexual intercourse was painless, that menstruation was also painless, and that her general health which, previous to the commencement of the treatment was failing considerably, was now almost restored.

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### Progress of Medical Science.

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#### POISONING FROM CORROSIVE SUBLIMATE GENERATED IN THE MOUTH FROM AMALGAM PLUGS IN THE TEETH

Having been invited by an eminent gentleman of the medical profession to attend a convention of the State Medical Society to submit to its consideration a matter of vital importance to the human family, and being unable to comply with the invitation, I have written this article to lay the matter before the medical profession and ask its co-operation.

The matter which I wished to bring to the notice of the profession is the poisoning of thousands of people all over the world from corrosive sublimate generated in the mouth from amalgam plugs in the teeth. Neither Asiatic cholera, nor small-pox, nor any malarious disease, is doing half the mischief in the world that is being done by this poisoning. Every medical man of any considerable practice has undoubtedly had numerous cases of it, but never knew what it was. The symptoms are so numerous and varied in different cases that it would be impossible to give them all in this short article, but I will say that a person poisoned in this way is liable to be treated for dyspepsia, neuralgia, paralysis, consumption, and numerous throat diseases. The patient gradually wastes away as if going into a decline, and no medicine will afford any relief. In many cases the difficulty steals on so gently as not to excite the least alarm, and continues very gradually for a number of years till the patient becomes a total wreck; while in others the attack comes on violently, and the friends and the attending physician think the patient is dying; but he will again rally, and again be prostrated.

There is such a resemblance in the symptoms to nearly all the diseases to which human flesh is heir that the physician is led to treat the patient for some disease which seems to be a very clear case, but his patient gets worse. In more than twenty cases that I have had, nearly all had been pronounced by some physician as having consumption. In nearly all the cases there are at times a very bad cough, eyes sunken, and haggard expression and deep blue or dark color under the eyes, invariably a metallic taste in the mouth, water flowing from the mouth in the night while asleep so as to wet the pillow, and in most cases extreme prostration.

I have not time now to detail the manner in which the corrosive sublimate is formed in the mouth, further than to say that the quicksilver in the plugs is driven off by the heat of the mouth in very minute particles, and, combining with the chlorine in the fluids of the mouth, or any saliae substance, such as our food, passes into the stomach, and produces slow poisoning. If the State Medical Society will appoint a committee to visit this place, I will show them several cases that will place the matter beyond controversy.

There are some twelve thousand dentists in the United States, doing a wholesale business at this poisoning, and I ask the co-operation of the State Medical Society, as guardians of the public health, to assist in getting an act of Congress passed making it a penitentiary offence to place any poisonous substance in teeth that will injure the people.—*J. Payne, D.D.S., Chicago Medical Journal.*

#### ON THE PRACTICAL IDENTITY OF TRUE CROUP AND DIPHTHERIA.

*Read before the Philadelphia County Medical Society, Feb. 11, 1874.*

By BENJAMIN LEE, A.M., M.D.

*Hays's Journal* for January, 1870, contains a valuable and suggestive article with the following title: "Case of Diphtheritic Croup in which Tracheotomy was performed; Death on the Seventh Day from the Systemic Poison. By John H. Packard, M.D., of Philadelphia." At the close of the paper Dr. Packard says, "As to the cause of death. It is a very common opinion that the existence of false membrane in the bronchi or trachea is a strong contra-indication to operating, and that its absence is in favor of success. Yet in the case now detailed there was no such deposit found anywhere in the air-passages after death, although some casts were coughed up within the first three days. The child died from blood-poisoning; all that could be gained by the operation was gained."

"THE CHILD DIED FROM BLOOD-POISONING," or—as the doctor puts it boldly and distinctly in his title, thus distinguishing it from that blood-deterioration which results from deficient aëration—"FROM THE SYSTEMIC POISON."

My own belief is that in many, perhaps the majority of fatal cases of croup, the cause of death is the systemic poison, and that in all cases of croup our main chance of success consists in counteracting the systemic poison. It is in this belief that I offer the following remarks. At the time that I entered upon the practice of my profession in the city of New York, the medical mind was greatly agitated upon the subject of diphtheria, which had burst forth as an epidemic in several centres at the North and East, but nowhere so destructively as at Albany. A new disease to most of those who were thus suddenly called upon to confront it, they were naturally at a loss to know on what ground to meet it. Unfortunately, it was usually looked upon as a sthenic

inflammation, and vigorously combated with anti-phlogistics. That seductive little termination, *itis* which so charmingly simplifies our pathological theories, supplying a bran-new, ready-made nosological nomenclature, with the very trifling expenditure of thought required in appending the same to the Greek (or, as was and is often ignorantly done, to the Latin) name of the organ or tissue which appeared to be most prominently affected in any given case or class of cases, was now most shamelessly married to one of its own family,—tacked on to the end of a morbid process,—and the resultant monster was diphtheritis, or an inflammation of a false membrane. The philological blunder we may pass over with a smile, but the pathological blunder which it expressed and the therapeutical blunder which it induced we can only look back upon with horror. The fatal character of those early epidemics is only too well remembered. But gradually light dawned. Some practitioners, empirically, simply seeking to avoid those remedies which at least produced no beneficial result,—others, on theoretical and rational grounds, tracing in the symptoms the general outline of a systemic blood disease,—began timidly to pursue a supporting plan, and to seek for an antidote to the suspected poison. This was found in the salts of chlorine; and diphtheria speedily became the more manageable disease it is to-day. The analogy between the exudation of croup and that of diphtheria early attracted attention; but a still further analogy impressed me even more deeply,—that exhibited in the unhappily similar results of the same line of treatment,—viz., the depletory and depressant, the grandly named antiphlogistic plan applied to the two affections. The mortality in both under similar arrangement was almost identical, and in this I recognized an argument for the identity of the morbid processes, and determined, when occasion presented, to test the matter by exhibiting in croup the class of remedies which had changed the whole complexion of diphtheria. The opportunity was some time in offering itself. In the course of perhaps a couple of years having in the mean time had occasional cases of the latter disease to treat, I was summoned by telegraph to New Rochelle to see a child suffering under the former. Before leaving the city I fortified myself with a large phial of solution of chlorate of potassium, and a number of sulphate of quinine powders. The physician in charge was an elderly gentleman, of great intelligence, but who had for a considerable period retired from the active practice of his profession. The case was in the second stage, and, although not of the most intense grade, had progressed steadily, and as yet shown no signs of amelioration. The treatment had been thoroughly routine,—emesis by ipecacuanha, antiphlogosis by tartrate of antimony and potash, and defibrination by calomel. I concurred in its propriety, but suggested that it had already accomplished all that it could do, and that the time had perhaps arrived for substituting a supporting course. This was readily acquiesced in. I had the satisfaction of learning the next day that the symptoms already showed some improvement. The child

recovered, happily. I would like in this connection to call attention to the formula which I employed for the preparation of the chlorate of potassium solution, as I doubt if it is in general use, and am confident of its superior efficacy:

R. Potass. chlorat ℥vij;  
Acid. hydrochloric., mviij;

Rub together until greenish fumes of chlorine begin to rise, then add aq. cinnamon, f ʒ vij.—M.

S.—A tablespoonful every two hours.

This preparation contains chlorine, as will readily be seen, not only in its saline combination, but also free, and may be called the chlorinated solution of chlorate of potassium. It is the prescription of a British physician, whose name I unfortunately failed to preserve in appropriating his idea, and has certainly a peculiar potency, not only over diphtheritic processes, but in that troublesome, and just now frequent, form of throat-disease,—ulcerative tonsillitis,—the *herpes gutturalis* of Trousseau. I am well aware that a single case will not serve as a peg to hang a theory on, but it may answer for a text in connection with that first referred to. That I have never had another case of croup to treat is accounted for by two facts: the first, that I shortly afterwards withdrew from family practice; the second, that I invariably examine the throat of a child presenting febrile symptoms or acute disturbance of digestion, and attack every case of acute faucial congestion that offers itself, at the outset, with chlorate of potassium and quinine, carefully avoiding cathartics and depressants, and thus, as I believe, prevent the development of the diphtheritic poison. Had I, however, only my own meagre experience to adduce in support of the theory for which I am contending, I should be guilty of shameless presumption in airing it before a body at once so learnedly critical and so practically familiar with the facies of the affections in question. My design is rather to make use of the observations of those who have had larger opportunities and made a better use of them, in showing, first, that the analogy between these two diseases in every essential particular is so striking as to amount to a proof of identity, and secondly, that such an opinion is now steadily gaining ground among those who have most carefully studied them in their clinical as well as their pathological aspects.

Diphtheria may be defined in the light of the most recent investigations to be a zymotic disease, affecting the entire system through the presence, and probable multiplication, of a foreign living organism in the blood, having as a local manifestation an effusion of plastic coagulable material in the substance of the mucous membrane of the cavities of the mouth, pharynx, and nose, or an exudation of the same upon its surface. Its general symptoms are gradually increasing heat of skin and frequency of pulse, the latter rapidly becoming feeble, slight digestive disturbance beyond loss of appetite, and a degree of general prostration of the nervous forces quite out of proportion to the local lesion. In fatal cases, death evidently results from systemic poisoning.

It is usually plainly epidemic, or contagious, or both.

As to its therapeutics, a system of depletion, whether by blood-letting, or active catharsis, or excessive emesis or profuse diaphoresis, or of contrastimulus by the prolonged use of nauseants, and notably of tartrate of antimony, is almost invariably followed by an aggravation of the symptoms, and if persisted in, too frequently by a fatal termination. On the other hand, the free exhibition of an antizymotic, of which chlorine, either in solution or in composition with iron or an alkaline salt, appears to be the most deadly to this form of fermentative growths, and of bark or one of its alkaloids (of which quinia still stands *facile princeps*), a nourishing diet, and comparatively early resort to stimulus, will in the majority of instances conduct the case to a favorable issue.

Now, I claim that no one can take up a standard text-book on children's diseases, if the production of an author who holds the mirror fairly and squarely up to nature, instead of squinting at her through the crowquill of preconceived bias and prejudice, and read the description of these two diseases, without being struck with close resemblance in their mode of invasion, progress, character of fatal termination, when not induced by immediate suffocation, and rate of convalescence. Even writers who believe croup to be a sthenic local inflammation are forced to admit that the febrile action is of a markedly lower grade than that which obtains in simple uncomplicated or spasmodic laryngitis. Thus, Meigs, than whom no one has described more faithfully the natural history of children's diseases, says, in treating of the differential diagnosis of these two last-mentioned affections, "The pseudo-membranous form of the disease is often preceded or accompanied by the presence of false membranes in the fauces, which is not the case in spasmodic, simple laryngitis; the symptoms of invasion of the former disease are *less acute* than those of the latter, the fever being *less violent* and the restlessness and irritability less marked than is usual in the simple affection, in which the general symptoms are severe from the first. The hoarseness of the voice and the cough follow a different course in the two diseases; the progress of these symptoms being slow and gradual in the membranous, and much more rapid in the severe spasmodic form. The fever is violent throughout the attack in the severe spasmodic disease, whilst in the other form it seldom reaches a high degree of intensity." He aptly describes the invasion of true croup as "*slow and creeping*." What means this "*slow and creeping*"—this stealthy and masked—advance upon the citadel of life, but the development and diffusion throughout the body of a morbid material, gradually making itself master of all the avenues of approach? What has it in common with the bold onset of a frank, declared inflammation, such as an acute pleuritis or simple laryngitis? And how closely is it in relation with the prodromic period of most of the true fevers, and of diphtheria!

Bouchut, in his admirable work on children's

diseases, entitled "Traité pratique des Maladies des Nouveaux-Nés et des Enfants à la Mamelle," unhesitatingly attributes to croup two of the essential characteristics of zymotic diseases,—first, that it does not ordinarily attack the same individual a second time, and secondly, that it is an epidemic disease; and, although he avoids committing himself unqualifiedly to a belief in its contagion, he considers it safer to separate children suffering under it from the healthy.

My impression, from consulting other authorities, is strong that these three traits of resemblance must all be admitted. So much, then, for the general family likeness existing between the two affections. Let us now consider the argument from therapeutics.

Prof. Fordyce Barker, of Bellevue Hospital Medical College, New York, in a communication addressed to Prof. A. Jacobi, on the "Treatment of Croup," which was published in the *American Journal of Obstetrics and Diseases of Women and Children*, vol. iii. No. 1, May, 1870, boldly takes the ground that true croup and false croup are one and the same disease, differing only in the depth to which the tissues are involved, excluding the croup of diphtheria, which he considers a totally different affection. Entertaining, as I do, in addition to the sentiment of respect which the opinions of so conscientious an observer and so skilful a therapist as Dr. Barker command in the professional mind both at home and abroad, that sense of deference which a pupil must unavoidably carry with him through life towards a revered master, I still find myself unable, after a careful reperusal of his paper, to accept the position which he here assumes. He appears to found it, although not perhaps, avowedly, on the fact that the same remedy, administered at the outset, is, in his hands, equally efficacious in controlling both affections. This remedy is the "turpeth mineral," or yellow sulphate of mercury (*hydrargyri sulphas flava*); and the astonishing success which he has met with in its employment, never having lost a case of croup in the course of a long and intensely busy professional life, devoted in an unusual degree to the treatment of children's diseases, certainly entitles it to a most respectful trial. It must be borne in mind, however, to weigh honestly the value of this testimony, that Prof. Barker would call no case croup in which a particle of diphtheritic membrane had been observed upon the fauces. But, this aside, let us consider for a moment whether the agent which he employs does not possess properties which may render it of extreme value in both the simple spasmodic laryngitis and the diphtheritic infection. Every one knows that prompt emesis is the one thing needful (to speak in a general way) to control and usually immediately relieve the laryngeal spasms.

Dr. Barker's reasons for preferring this particular means of emesis to all others in croup are the following: "It acts more promptly and efficiently than ipecac or alum; it is tasteless, and much more easily administered than either; it does not exhaust and depress the vital power like antimony; it is equally prompt in its action with sulphate of copper

while it is much more effective as a revulsive and sedative." He adds, "I think the active emesis from the turpeth mineral accomplishes the following results much more effectively and speedily than any other agent: it depletes the mucous membrane, by an abundant secretion of mucus which is thrown up; it removes from the larynx, by the forced expiration which it causes, any albuminous or fibrinous exudation which may be there in a diffused state, and which by remaining may become subsequently pseudo-membrane; it acts as a powerful revulsive, and thus diminishes the capillary circulation in the trachea and larynx, and thus it becomes a most effective agent in arresting the inflammatory process."

But if an emetic is universally admitted to be the requisite in the spasmodic affection, not less general is the faith in its beneficial action in the diphtheritic or pseudo-membranous. And if we were called upon to sum up the characteristics of an agent of this class which would best satisfy the requirements and present the fewest objectionable features in the latter form of disease, we could not do so more forcibly and succinctly than he has done in the above description of the properties of this medicament. But do its valuable properties as regards diphtheritic croup cease with its power of inducing prompt emesis? I think we are entitled to return a negative answer to this enquiry, on two grounds. First that it is an active depurating agent in causing "so abundant a secretion of mucus, which is thrown up;" but, secondly and especially, because it is a sulphur compound, and sulphur is well known to be one of the most determined and destructive foes to the micro-zyzme which the Pharmacopœia can command. Its efficacy in destroying the disease-germ present in spasmodic cholera can, I think, no longer be questioned, and it may be as potent over the micrococcus of diphtheria. May not the beneficial action of sulphate of copper, of sulphate of zinc, and of alum, the sheet-anchor of the elder Meigs, aside from their emetic properties, be reasonably attributed to the same component? And if so, do we not see an explanation of the superior value of the mercurial salt in the fact that mercury appears to possess to a more striking degree than any other mineral the *open sesame* to the circulatory and absorbent systems, obtaining admittance not only for itself, but for any remedy with which it may be for the time in the intimate companionship of chemical affinity,—a prompter entrance into the vascular system, and more immediate distribution throughout the body? May we not also read in the same light the happy results which have led the younger Meigs to place such confidence in the mild chloride in the management of membranous croup? Is he not administering that subtle and admirable antizymotic, chlorine, with a directness and efficacy perhaps even exceeding that with which many of us accomplish the same result in the exhibition of the much-trusted chlorate of potassium.

If the commencement of Dr. Barker's treatment appear admirably adapted to cut short a case of *diphtheritic* croup, however, not less appropriate is



its continuation should the disease fail to be thus early arrested. Carbonate of ammonium as a vascular stimulus and promoter of mucous secretion, veratrum to shield the heart and vessels from excessive fatigue and fatal prostration, and quinia to sustain the nervous forces, constitute an armamentarium with which the practitioner might well feel himself tolerably equipped to meet a case of pure pharyngeal diphtheria. Nor must it be forgotten in this connection that all the preparations of cinchona have a peculiar potency in checking fermentation, while in sulphate of quinine we again have the sulphur element entering the problem.

Under the title of "Diphtheria in its Epidemiological, Nosological, and Therapeutic Relations," Dr. Max Jaffe, of Hamburg, presents, in *Schmidt's Jahrbucher* for July, 1873, a complete résumé of the periodical literature of this subject during the past four years. The first portion of the paper, that which discusses the epidemiological side of the question, is mainly taken up with the mode of communication and pathological histology of the disease, and the histories of recent epidemics. Numerous interesting experiments in the way of inoculation of the lower animals with diphtheritic poison, on the part of Dr. Oertel of Munich, Letzerich of Braunfels, and others, are rehearsed, especially with the view of determining whether "in diphtheria we have to do with a merely local affection, or with a general infectious disease,"—a question, as he well remarks, of the deepest import, as well for scientific inquirers as for the practising physician. The results are almost invariably in favor of the latter view, that which makes diphtheria a systemic disease with a local manifestation, not a local affection with a resulting disturbance of the general system. A constant microscopic element in the diphtheritic exudation has been found to be fungous growths of extreme minuteness and of immense numbers. These growths are classed as micrococcus or mykothrix. They are found not only in the diphtheritic membrane and in the mucous secretions, but also in great profusion in the blood, distributed through all the organs of the body, and even in the lymphatic vessels and glands. In some instances the lymphatics appeared to be entirely blocked up by them. Collections of these minute organisms were also noticed in the interspaces of the areolar tissue, and between the fat-cells. The kidneys appeared to be the organs to which they were more especially attracted, and in these their presence often coincided with a high degree of inflammation and microscopic extravasations of blood. The second division of the subject is devoted to the consideration of the "Pathology and Anatomical Pathology" of the disease, and it is to this portion that I especially desire to call attention.

Dr. Ludwig Letzerich, in an article "On Exudation and Suppuration" (croup and diphtheria), contributed to *Virchow's Archiv* (liii. 4, p. 493, 1871), after defining croup as a purely inflammatory process, and diphtheria as, on the contrary, caused by the deposit of a foreign fungous growth, which, piercing the epithelium, makes its way into the substance of the mucous membrane, and thus at the same time

excites the diphtheritic exudation and provides for its escape,—while, I say, drawing this distinction carefully, he immediately after makes the following important admissions. First, that the diphtheritic membrane varies greatly in appearance, both under the microscope and to the naked eye, in accordance with the portion of the mucous membrane upon which it is found. On those mucous surfaces which are lined with smooth tessellated epithelium (as those of the mouth, nose, fauces, and vagina) it is usually strong and thick, and microscopically exhibits an abundant dissemination of epithelium-cells, either broken down or well preserved, and a greater or less quantity of pus-cells. On surfaces covered by ciliated or cylindrical epithelium (as the larynx, the upper part of the trachea, and the intestinal canal) it is softer and more creamy; the epithelium is completely eroded, and portions of the exudation appear, under the microscope, as mere masses of detritus, thickly strewn with fungous growths.

Second, that croup and diphtheria are developed together with extreme frequency, passing immediately into each other. Croup, he tells us, is very rarely developed with diphtheria of the mouth, nose, or fauces, but often,—indeed, almost invariably,—with diphtheria of the under surface of the epiglottis, of that portion of the larynx which lies above the vocal cords, in the lower part of the latter, and in the trachea. This striking fact of the co-existence of the two diseases he has had frequent opportunities of verifying by post-mortem examination. In one case the mucous membrane of the entrance to the larynx was completely destroyed by fungi, while that which lay below the vocal cords was scarcely robbed of its epithelium, simply overlaid with a very thin, creamy layer of diphtheritic exudation. The tracheal mucous membrane, on the other hand, from its commencement down to the bifurcation, was covered with a homogeneous croupal exudation, which was with tolerable ease removed as a complete tube. No fungous forms whatever were found in this cast, but a more or less regular stratification of the mass with puss-cells. The mucous membrane of the trachea retained its epithelium, freely strewn with puruloid cells, and its basal layer deprived of its ciliae, as in pure uncomplicated croup. Death ensued in this child from collapse, induced by the entrance of fermentative fragments into the circulation and the collection and reproduction of the fungi in the internal organs, especially the kidneys and spleen.

An essay delivered before the Medical Society of Berlin by Dr. Conrad Kester (reported in the *Berlin. Klin. Wochenschr.*, ix. 18, 19, 1872), on the Nature of *Diphtheria*, provoked a very animated discussion. He boldly took the ground that from the stand-point of the practising physician it was impossible intelligently to maintain the line of demarcation between these intimately-allied forms of diseased action. Diphtheritic and croupous angina, membranous, gangrenous, and false croup, he considered it impossible to hold as distinct diseases appearing together and running the same course of symptoms, simply and only because (and this per-

haps for accidental reasons) the form of the exudation is different. Pathological anatomy explains the difference in showing that in the one case the exudation is superficial, and may then be thrown off as a membrane, while in the other it penetrates deeper into the tissues, producing necrosis, and thus leading to the formation of sloughs. In both membranous and gangrenous anginas we find alike, at the autopsy, diphtheritic sloughs or strongly adherent, deep-rooted deposits, without exception, in the fauces and pharynx and as far as the edges of the epiglottis, and, as we pass into the larynx down the trachea and into the bronchi, only membranous tube-casts, easily removable. We find there a complete mingling of the two forms, and are led to the inevitable conclusion that the character of the exudation is dependent upon the anatomical constitution of the locality in which it is thrown out.

Dr. H. Senator, while supporting the ordinarily accepted view of the distinct entity of the diseases in question, acknowledged that he had never seen a true croupous inflammation and a corresponding true croupous exudation (a fibrous net-work with concentric layers of fibrin and pus-corpuseles) affecting the mucous membrane of the pharynx, either in diphtheria or any other affection, while, on the other hand, a croupal inflammation, under the influence of a diphtheritic infection in the true air-passages, that is, a diphtheritic croup, was an undoubted fact.

Dr. Lewin, in the *Berlin. Klin. Wochenschr.* and other journals, recognizes two forms of the diphtheritic process,—a protopathic, which attacks those mucous surfaces which are most exposed to the external air, is rarely accompanied by fever, often appears sporadically, and is very amenable to simple remedies; and a deuteropathic, which penetrates to the more protected cavities, is preceded by a prodromal fever, and gives every indication of systemic infection. This is the more purely epidemic form, and is extremely difficult to manage.

In regard to the question of the identity or non-identity of the "diphtheritic and croupous processes," he holds that in their clinical relations they present a precisely similar configuration, have the same aggregate of symptoms, and consist of the same etiological elements, but anatomically are distinguished by the fact of being deep-seated or superficial. The cause of this difference, however, appears to lie only in the pre-existing histological characteristics of the membrane attacked,—diphtheria on pavement-epithelium, croup on ciliated epithelium; and the laryngeal croup, so often recognized as an independent affection, is therefore only to be regarded as a local manifestation of the diphtheritic process. In reviewing the history of medicine, Dr. L. recalls the fact that since the time of Bretonneau, who regarded croup as essentially laryngeal diphtheria, no author had undertaken to establish a distinction between the diphtheritic and the croupous processes until Virchow, and that even he did not desire to extend his pathologico-anatomical distinction to the clinical aspect of the disease.

Further, the results of treatment and the revelations of the autopsy agree in declaring that both processes may run their course simultaneously in one and the same individual. The purely histological distinction is thus set forth. In the larynx we find two sharply defined histological regions, that of the pavement-epithelium, extending from the pharynx, along the lingual surface of the epiglottis, thence along its laryngeal surface upon the false and the true vocal cords, and reaching nearly to the *macula flava*, and that of the ciliated epithelium in the lower regions of the larynx and trachea. Closely corresponding with these tracts, we often find, in autopsies, the diphtheritic and the croupous processes separated from one another by this same boundary-line. More than this, during life the same differentiation can sometimes be made out by the aid of the laryngoscope. Similar observations may be found recorded by Virchow, Rindfleisch, and Wagner.

In support of the theory that laryngeal croup only originates from the extension and descent of the diphtheritic affection from the pharynx, he adduces the following consideration. According to all reliable statistics, croup developed primarily in the larynx must be classed among the greatest of rarities. And even these few exceptional cases are often susceptible of other explanation. Diphtheria not seldom runs its course in the larynx unobserved; in those rare cases in which it has been unquestionably observed first in the larynx, it has in all probability taken its rise in the region of the pavement-epithelium, and finally, in cases where no laryngoscopic examination has been made it is more than probable that a severe catarrhal laryngitis has, in consequence of the severity of its symptoms, been mistaken for laryngeal croup. In point of fact, catarrhal laryngitis may often, by a serous transudation, or a copious infiltration, or even a hemorrhagic extravasation into the areolar tissue of this portion of the larynx, induce a constriction of the glottis and simulate the tone and the dyspnoea of croup, without the presence of any croupal membrane.

In a treatise on "*Croup and Diphtheritis of the Pharyngeal Cavity, Exudation and Pus-Formation*," Dr. Franz Hartmann, of Wiesbaden (*Virchow's Archiv*, liii. 2, p. 240, 1871), concludes that we are entirely unable to decide as to the "*identity or non-identity of croup and diphtheria*" from their clinical course, and that we must therefore refer to the development of the pathologico-anatomical processes for a solution of the problem. As regards the exudative process, every exudation has its origin in the vascular system, and consists of a coagulable fluid. In the production of the exudation, the capillaries of the lymphatics, which are closely connected by means of the so-called *serous* (juice) *vessels*, are both concerned. The anatomical arrangement of the mucous membranes is such that there is a possibility of the escape of plasma upon their free surfaces, and in diseased conditions this possibility becomes an actuality. In the pharyngeal cavity this escape of exudative material is favored

by the firm compression of the mucous membrane, by means of strong muscular contractions. The primary exudation either coagulates at the spot where it is poured out, or flows down and coagulates below, constituting croup; but the subsequent exudation, in consequence of the muscles having to a considerable extent lost their contractility, is retained in the areolar tissue: that is diphtheria. The croupal exudation, therefore, always precedes the diphtheritic. Sometimes in consequence of the inflammation being from the outset very acute, the muscular action is greatly interfered with, or even entirely suspended. We have then neither croup nor diphtheria, but angina, with or without abscess. It follows that in order to the establishment of the croupous process the inflammation must not be of a severe grade. He concludes, finally, that croup and diphtheria are not to be distinguished from each other, but are to be regarded as only different stages or grades of one and the same morbid process, no anatomical differentiation being possible.

Dr. Welsch, a physician practising in Kissingen, publishes several cases of croup and diphtheria occurring simultaneously in the same family, which, he considers, establish the identity of the croupous and diphtheritic processes, and refers to others which he met in the same neighborhood shortly after, as equally significant.

From the year 1868 to 1872, the north of Italy was the scene of a wide-spread and devastating epidemic of diphtheria, which reached its acme in 1871. So great were the alarm created and the interest excited by it that a committee of the most learned French and Italian physicians of the region was appointed to consider and investigate the subject in all its relations. This committee was unanimously of the opinion that the distinction between croup and diphtheria was one which could no longer be maintained, either from a pathologico-histological or a therapeutic stand-point.

In conclusion, I cannot summon to the support of my position a more powerful ally than Dr. Morell McKenzie, one of the highest British authorities on the larynx, whose opportunities of observation have not been greater than his powers of analysis. This writer, in his Jacksonian Prize Essay on Diseases of the Larynx, quoted by himself in the *British Medical Journal* of March 5, 1870, vigorously combats the doctrine of the distinct nature of these affections, on the following grounds: That neither is always, and both are sometimes, epidemic and contagious; that the exudation is essentially the same, being modified by its site, but presenting histologically no marked difference,—that of diphtheria having been noticed to become organized as well as that of croup; and that the sequelæ of diphtheria—albuminuria and impaired innervation—have also been observed to follow croup.

The opinions and facts just rehearsed, whether they carry conviction to the mind or not as to the point at issue, must be allowed to establish the fact beyond a peradventure that there is in Europe a large, respectable, and growing class of physicians

who, however they may differ in their views of the mode of production of these two morbid results, and the accompanying pathologico-anatomical and histological changes and conditions, agree in holding that if not essentially they are at least practically clinically, and therapeutically to be held as one and the same disease. And whether they are identical or not, this much must be allowed, that at the commencement of the attack so similar are the modes of invasion that no man can tell whether the case will prove to be one of uncomplicated or of diphtheritic croup. This was the fact in the case with the recital of which this paper opens. Fragments of false membrane were coughed up before any diphtheritic patches were seen upon the tonsils. In this view of the subject, then, remembering the deadly nature of the diphtheritic poison, does not prudence dictate that we should at once administer those remedies which experience shows to be antidotal to it and which can be of no injury should it not be present, at the same time withholding such methods of treatment as would be contra-indicated by its existence? It will not do to wait until "the little one has become a thousand" and every arteriole and capillary is clogged with the sluggish, poisoned tide. We must destroy the germs before they have a chance to multiply.

I feel the less hesitation in urging a new departure in the management of this disease, so fearful alike in its course and in its termination, from the conviction that no plan can be suggested which will give more lamentable results than those which are universally acknowledged to follow that recommended by the systematic text-books.—*Philadelphia Medical Times.*

#### A GUIDE TO THE EXAMINATION OF URINE

*Continued from our last.*

**BILE IN THE URINE.**—The presence of bile in the urine can seldom be overlooked, since it gives a dark greenish brown color to the secretion. Two substances must be tested for, the bile pigments, and the bile acids, each of which must be looked for separately.

The bile pigments. *Gmelin's Test.* Ordinary nitric acid, which nearly always contains some nitrous acid, is poured into a test tube to the depth of half an inch. A portion of the urine to be examined is then gently poured down the side of the tube, held almost horizontally, on to the surface of the acid, so that the two fluids may touch but not mix; this operation is most conveniently performed by means of a pipette. At the line of contact, a zone of red appears in every urine; but if pigment be present, a zone above becomes first green, then violet, blue, and red, representing the various stages of oxidation of the coloring matters; the most characteristic are green and violet. This reaction may also be performed by allowing a drop of nitric acid, and of the urine to be examined, to run together on a porcelain dish, when the play of colors mentioned above will be observed at their line of contact.

*Caution.* Any urine which contains a large quantity of indican will give a blue or violet, and even green, color with nitric acid. This is a frequent occurrence in cases of melanotic cancers, when the urine often has a dark brown appearance.

The bile acids. *Pettenkofer's Test.* Some of the fluid containing the bile acids, is placed in a porcelain dish, and a drop of saturated solution of cane sugar added; strong sulphuric acid is then dropped into the mixture, taking care that this acid is clearly in excess of the amount of bile acid present, *i.e.* about the same volume as the fluid containing the bile acids. On applying heat (which must only be moderate) a beautiful cherry-red color is produced, passing into a deep purple. The purple color is the only reaction characteristic of the presence of bile acids.

Another, and perhaps a better, way of performing Pettenkofer's test is to pour the fluid containing the bile acids into a test tube; sulphuric acid being then added, at first in small quantity to precipitate the bile acids, but afterwards in amount sufficient to re-dissolve them, which renders the mixture perceptibly hot to the hand. A drop of syrup may now be let fall into the fluid, which then shows a play of colors passing from pink to cherry red, and from red to purple.

This test should never be applied directly to urine: setting aside the fact that the bile acids are never in sufficient quantity to give the reaction, the urine in jaundice frequently contains a small quantity of albumen which gives a reddish violet reaction with sugar and sulphuric acid, while the action of the acid upon the other constituents of the urine renders it impossible to be sure of the distinctive colors of Pettenkofer's test. If, therefore, it be very desirable to ascertain whether the bile acids be present in the urine, the method introduced by Hoppe must be employed for their separation; a long and somewhat complicated process, which can seldom be adopted by the clinical student.

With this object the urine must be rendered faintly ammoniacal with caustic ammonia, and then diacetate of lead added, so long as a precipitate occurs. The precipitate must be collected on a filter and washed with distilled water; then boiled with alcohol over a water bath, and filtered while hot; to the filtrate a few drops of potash or soda are to be added, and the solution evaporated to dryness over a water bath. The residue is again to be boiled with absolute alcohol over a water bath until but a small quantity is left. This must be then shaken with ether in a stoppered bottle, and after some time, the alkaline salts of the bile acids will crystallize out. In order to prove that these crystals are salts of the bile acids, they must be dissolved in a little distilled water, and tested with Pettenkofer's method, as directed above.

*Clinical Import.* The bile pigments and the bile acids are present in the urine in most cases of jaundice. In hot weather, the bile pigments may sometimes be detected by means of Gmelin's test, in the urine of persons who are not jaundiced. The quantity of bile acids present is usually not more than .02 per cent.; the smallness of the amount in the

urine being probably due to their oxidation after entering the blood.

*UREA.*—The clinical student may sometimes wish to know if the urine contain urea, or if a given fluid be really urine, or some other secretion. The fluid is first to be tested for albumen, which, if present, must be removed by acidulation with a few drops of acetic acid, raising the temperature of the fluid to the boiling point, and filtering. This filtrate is used for the subsequent operations of evaporation, etc., as stated below.

If the urine is free from albumen, some quantity, 2 or 3 fluid-ounces, must be evaporated in a Berlin dish over a water bath, until the fluid has the consistency of syrup. A water bath is essential, because an open flame would decompose the urea. After the syrupy fluid has completely cooled, nitric acid, as free as possible from nitrous acid, is added, drop by drop, so long as a precipitate is formed. An excess of nitric acid is desirable. Some of these crystals of nitrate of urea, removed with a glass rod and placed under the microscope, show flat rhombic or hexagonal plates closely united to one another.

*Clinical Import.* Urea is the most important constituent of the urine; a healthy man excretes from 300 to 500 grains in the 24 hours. In some acute diseases, as pneumonia, typhoid fever, and acute rheumatism, it is greatly increased owing to the excessive tissue-metamorphosis, and may be present in such quantity as to give a precipitate, without previous concentration, when the urine is acidulated with nitric acid. In other diseases, as uræmia and Bright's disease, the quantity of urea is below the average.

*URIC ACID.*—To ascertain if the urine contain uric acid, it is necessary to acidulate about a fluid-ounce of the urine with a fluid-drachm of hydrochloric acid, or strong acetic acid, in a suitable glass-vessel, an ordinary beaker being best, and to set it aside, covered with a glass plate, for 24 or 48 hours. At the end of that time, if uric acid be present, reddish brown crystals will be seen attached to the sides and bottom of the glass, or floating on the surface of the fluid. These crystals have the flat rhombic, oval, or hexagonal shape of uric acid; they are soluble in alkalies, and give with nitric acid and ammonia the murexide test.

A healthy man excretes, on an average, about 7 or 8 grains of uric acid in the 24 hours.

*Clinical Import.* The excretion of uric acid is usually increased *pari passu* with the urea, as in pyrexia, or acute rheumatism, and in chronic liver diseases. An excess of uric acid is observed after an attack of gout; it is often entirely absent from the urine immediately before the paroxysm, and may disappear for days when this disease has become chronic.

*HIPPURIC ACID.*—Hippuric acid exists in small quantity in the urine in health, but the amount is greatly increased in cases of corea. The method of preparing it from human urine is troublesome, and will rarely be required to be used by the clinical student. Two or more pints of perfectly fresh urine must be taken, and milk of lime added till the

fluid becomes alkaline; the mixture is boiled and filtered, the filtrate evaporated over a water bath to a syrupy consistence, and then extracted with alcohol; next the spirituous extract must be filtered, and the filtrate evaporated to a small quantity, over a water bath. To this, when quite cold, hydrochloric acid should be added so long as crystals are formed.

The crystals of hippuric acid obtained in this manner, seen under a microscope, are long and needle-shaped prisms; they are distinguished from those of benzoic acid by their insolubility in ether.

Hippuric acid, when evaporated to dryness with nitric acid, in a porcelain crucible, over a lamp, and then further heated to redness, gives off a gas smelling like oil of bitter almonds. This reaction is common to benzoic and hippuric acids.

When benzoic acid is taken by the mouth, it is converted in the body into hippuric acid, which appears in the urine in quantity equivalent to that of the benzoic acid ingested.

**CHLORIDES.**—Chlorides may be known to be present by the following test. To a fluid-drachm of urine in a test tube, a drop of nitric acid is added, and then a few drops of a solution of nitrate of silver; if a trace of chloride be present, a cloudiness only will be given; but if any quantity, a white precipitate is thrown down, soluble in caustic ammonia and reprecipitated thence by the addition of nitric acid in excess.

The nitric acid is added at first to prevent the precipitation of the phosphates with the chlorides.

By far the greater part of the chlorine in the urine is in combination with sodium.

A rough comparative idea of the quantity of chloride present may be made from day to day, by always taking the same quantity of urine, acidulating it in a test tube with nitric acid, and adding a solution of nitrate of silver until no further precipitate is formed. The test tube must then be set aside for 24 hours and a note then taken of the proportion of the chloride of silver deposit, for comparison with other observations.

On an average, a healthy male adult excretes 250 grains of chloride of sodium in the 24 hours.

*Clinical Import.* The chlorine is diminished or entirely absent during the period of hepatisation in acute pneumonia; it is also diminished in acute rheumatism and many pyrexial diseases, especially when large serous transudation takes place.

**PHOSPHATES.**—The presence of phosphates in the urine may be ascertained by the following test. A fluid is prepared by adding a drop or two of caustic ammonia to a fluid-drachm of a solution of sulphate of magnesia in a test tube; hydrochloric acid is added until the precipitate caused by the ammonia is re-dissolved. Caustic ammonia is again added in excess, until the fluid is strongly ammoniacal. A fluid-drachm of urine is now poured into another test tube, and rendered ammoniacal with caustic ammonia; to this urine some of the prepared solution is added, and a precipitate of the ammoniacomagnesian phosphate occurs at once, if the urine contain the ordinary amount of phosphates; but the

precipitate forms slowly, if the phosphates are present in very small amount.

The normal quantity of phosphoric acid excreted by a male adult in the 24 hours is about 50 grains.

*Clinical Import.*—The amount of phosphoric acid in the urine is increased in diseases of the nervous centres, and after great mental application. Acute febrile diseases cause increase of the phosphoric acid from increased tissue-metamorphosis, while in Bright's disease and some forms of dyspepsia the quantity of the phosphates is diminished.

**SULPHATES.**—The sulphates are at once recognised by the addition to some of the urine, in a test tube, of a drop of hydrochloric acid, and afterwards of a few drops of a solution of chloride of barium; a white precipitate, insoluble in nitric acid, is thrown down.

The quantity of sulphuric acid excreted by a healthy male adult in the 24 hours is about 30 grains.

*Clinical Import.* The quantity of the sulphates is increased by a full animal diet; very little is known for certain of their amount in disease, and that little is at present of not much importance.

The following table of the amount of urinary constituents excreted by a male adult in the 24 hours is compiled from Dr. Parkes' work "On the composition of the Urine."

Quantity .....	40 to 50 fluid-ounces.
Total Solids .....	800 to 1000 grains.
Urea .....	350 to 600 grains.
Uric Acid .....	5 to 15 grains.
Chlorine .....	50 to 150 grains.
Phosphoric Acid....	30 to 60 grains.
Sulphuric Acid....	20 to 60 grains.

**URINARY SEDIMENTS.**—When a urinary deposit is to be examined, about 4 or 5 fluid-ounces of the urine should be collected in a tall narrow cylindrical glass, and set aside for a few hours. Cylindrical glasses have, in the writer's experience, succeeded better than conical vessels, since the sloping sides of the latter tend to cause the sediment to collect on them, without falling to the bottom. This is particularly the case with uric acid and renal casts, especially if they are present in but small quantity.

When the sediment has collected at the bottom, the supernatant urine may be poured off, and a drop of the sediment placed on a glass slide, for examination under the microscope.

In looking for renal casts, it is better to use only the very last drops which fall from the vessel, after the rest of the urine is poured away.

*Directions for the Microscope.*—A drop of the fluid containing the deposit is placed in the centre of the glass slide (which must be absolutely clean), and the drop very gradually covered with a piece of thin glass, (seven-eighths of an inch square is the best size), so as to drive all the air before it, and to prevent any air bubbles being present under the glass. This is best accomplished by the aid of a needle, placing one edge of the thin glass upon the

slide, and resting the other upon the needle, then inclining the needle gradually, until it is horizontal. All superfluous moisture around the glass cover must be carefully removed with a cloth, or with blotting paper. The slide is then ready to be placed under the microscope.

A quarter-inch object glass will be sufficient for the recognition of nearly all the sediments that occur. The tube of the microscope must be moved down until the object glass is about a quarter of an inch distant from the slide; the light from the mirror is now thrown upon the slide at a point immediately under the object glass; the observer should then look through the microscope, placing the instrument with the coarse adjuster in the focus which suits his own eyesight.

Sediments are either organized or unorganized. To the latter belong uric acid, urates, oxalate of lime, phosphates, cystin, &c. To the former, pus, blood, mucus and epithelium, renal casts, fungi, and spermatozoa.

**UNORGANISED SEDIMENTS.**—*Uric Acid.*—Uric acid is only met with as a deposit in very acid urine, and is usually accompanied by a considerable sediment of urates. Owing to its peculiar color, varying from a yellow to a brownish red, it can at once be recognised by the naked eye, never being deposited from the urine in colorless crystals.

When the sediment is examined under the microscope, the crystals are at once known to be uric acid, by their reddish brown color, all other crystalline deposits being transparent and colorless. If, indeed, the student is in doubt as to the nature of a crystal, he will never be very wrong, if he judge it to be uric acid when there is a slight tinge of brown visible. The crystals, themselves, have numerous forms; they occur very commonly in rhomboidal, or long oval, plates with acute angles; these crystals are often united so as to form rosettes, or they may be rectangular, barrel shaped, or in hexagonal plates, with two parallel sides longer than the other four.

If the student be not quite sure of their nature, he should add to the specimen under the microscope, a little liquor potassæ or liquor sodæ, which will dissolve uric acid, if present; when dissolved by the alkali, it can be reprecipitated in hexagonal plates by the addition of hydrochloric or acetic acid.

Very small traces may also be detected by means of the murexid test; a small portion of the suspected sediment is placed in a porcelain dish, and a drop of nitric acid let fall upon it; the dish is then gently heated over a lamp until all the nitric acid is driven off, when, if uric acid be present, a beautiful red staining is seen; after cooling, a drop of caustic ammonia should be allowed to roll over the reddened spot, which then becomes purple; if liquor potassæ be used instead of ammonia, the color will be violet. The test does not, however, distinguish uric acid from its salts.

Usually the uric acid is not free when the urine is voided, but it is precipitated by the increase of acidity which always occurs shortly after emission. This is especially the case in the urine of diabetes,

where the whole of the uric acid present may be set free from this cause.

*Clinical Import.* The presence of free uric acid is no proof that uric acid is being excreted in excess; the only inference to be made, is that the urine is extremely acid. But if free uric acid shows itself immediately after the urine has been passed, it is not improbable that a deposit may be taking place in the pelvis of the kidney, or the bladder; a condition of considerable danger, since it may lay the foundation of a calculus; uric acid, and urate, calculi being the most frequent of all urinary concretions.

**URATES.**—This deposit is the most frequent and least important of all the urinary sediments. Any febrile condition will lead to this deposit; even a greater amount of perspiration than usual, will be followed by urine that becomes turbid on cooling, as a result of a diminished secretion of water, merely. Urine containing an excess of urates is never turbid when fresh passed; it is only when the urine has cooled, that the peculiar muddiness is observed. If the urine be gently warmed, the turbidity immediately disappears. The urates differ in color considerably, according to the amount of coloring matter in the urine, varying from white to pink or red. In young children the 'milky' urine, which alarms mothers, is due to a deposit of peculiarly white urates.

In the urine, uric acid is found combined with three bases; with soda, with ammonia, and with lime. The urate of soda is the most frequent of the three, and is usually seen under the microscope as an amorphous deposit; sometimes it forms round dark bodies with short spikes projecting from them. The urate of ammonia is rarer, and occurs in beautiful globular forms with spikes closely resembling the urate of soda, but of greater length. The urate of lime is very rare, and forms only an amorphous sediment. If any doubt be entertained as to the nature of these salts, it is necessary to add a drop of hydrochloric or strong acetic acid to the specimen, when crystals of uric acid will immediately be formed. These crystals are again dissolved by caustic soda or potash. If further evidence be required, the murexid test with nitric acid and ammonia may be applied.

**OXALATE OF LIME.**—Oxalate of lime occurs as a urinary sediment in colorless octahedral crystals, having the so-called 'envelope' appearance which, when once seen, can hardly be mistaken for anything else. This deposit also occurs in colorless dumb-bells.

Oxalate of lime is insoluble in acetic acid; by this it is distinguished from the phosphates; it is colorless and insoluble in alkalis, and thus differs from uric acid. It is, however, soluble in the mineral acids, as, for example, in hydrochloric acid.

*Clinical Import.* After urates, oxalate of lime is the most common unorganized urinary sediment; it is often seen in the urine of patients convalescent from acute diseases; and many writers state that it may always be found when there is lessened oxidation, as in bronchitis. The occasional presence of a few crystals of oxalate of lime is not of much import-

ance. When the deposit is constant, and in large quantity, the formation of the mulberry calculus may be feared. This sediment is said to be associated with a dyspeptic and hypochondriacal condition, sometimes termed the "oxalic acid diathesis."

**PHOSPHATES.**—The phosphates are only separated from very feebly acid, or alkaline, urine; and they are always deposited when the urine undergoes the alkaline fermentation; they consist of the ammoniaco-magnesian phosphate and the phosphate of lime.

Under the microscope the ammoniaco-magnesian phosphate appears in beautiful right rhombic prisms, which disappear immediately on the addition of acetic acid, and are thus distinguished from the oxalate of lime, with which an inexperienced observer might, perhaps, confound them.

The phosphate of lime chiefly occurs as an amorphous deposit, soluble in acetic acid; it is precipitated by heat in flakes resembling albumen, which are at once, however, dissolved by a drop of acid.

*Clinical Import* The deposit of phosphates indicates an alkaline reaction of the urine, a condition favorable to the formation of phosphatic calculi.

If the least doubt be left upon the observer's mind after the microscopical examination of a sediment, he must use the assistance of reagents in determining its nature. The following scheme will be found useful; a drop of strong acetic acid should be placed on the glass slide, near the thin covering glass, so that the acid may run in between the two pieces of glass, but it should be carefully prevented from wetting the upper surface of the cover, as this will produce an obscurity over the object. Should the deposit be phosphatic, the acid quickly dissolves the crystals, or amorphous sediment; but if the sediment consists of urates, crystals possessing the well-known shape of uric acid are formed. If no effect upon the sediment is produced by acetic acid, it consists of either uric acid, or oxalate of lime. Liquor potassæ added with the same precautions as acetic acid, brings about a solution of the crystals of uric acid, but the alkali has no effect upon oxalate of lime, which will be dissolved by the action of hydrochloric acid.

**CYSTIN.**—Cystin is a rare deposit in the urine; it occurs in colorless hexagonal plates, united by their flat surfaces, and overlapping one another. When dissolved in the urine, cystin may be thrown down by the addition of acetic acid, and the precipitate examined under the microscope. It may be distinguished from uric acid, which sometimes crystallizes in hexagonal plates, by the absence of color in the crystals.

Urine which contains cystin is usually feebly acid, of a yellowish green color, and of a peculiar odour, compared to sweet briar, but which sometimes resembles that of putrid cabbage. The urea and uric acid are diminished in most cases. The ammoniaco-magnesian phosphate often accompanies the crystals of cystin.

Cystin contains a large quantity of sulphur, and Liebig has proposed a test which is founded on this fact. A solution is made by adding, to a small quantity of solution of acetate of lead, liquor potassæ or liquor sodæ until the precipitate first formed is

redissolved; about equal parts of this solution and of urine are boiled, when black sulphide of lead is formed from the combination of the sulphur with the lead. This test is, however, by no means a good one, since many bodies frequently present in the urine, e.g. albumen, contain enough sulphur to give the reaction.

Of the *Clinical Import* nothing is known.

The appearance of cystin in the urine is believed by some to be hereditary and to be connected with calculous disorders. Other observers have found it in the urine of chlorosis.

**LEUCIN AND TYROSIN.**—Leucin and tyrosin are very rare deposits in the urine. Under the microscope leucin appears in dark globular forms, which have been compared to masses of fat cells; tyrosin, however, crystallises in beautiful bundles of delicate needles, sometimes arranged in a stellate form.

These two bodies have been detected in the urine in cases of acute yellow atrophy of the liver, of small pox, and of typhus fever. The clinical value of their presence is, however, unknown.

#### DIET AND THE DIGESTIBILITY OF FOOD.

By Jabez Hogg, Esq., F.R.C.S.

In the treatment of many diseases, attention to diet is of the utmost importance. It is very necessary in disorder of the digestive and urinary functions, in chronic or long-continued diseases of the assimilating or converting organs in which the appetite is impaired or even decreased. The patient should be very particular in the employment of a diet neither improper from the quantity nor quality, as this would retard the best-directed efforts of medical aid.

Several kinds of diet are usually recommended in the various forms of disease, the most important being:—

*Animal Diet.*—This term is applied to a diet composed principally of animal food; but, in speaking of a diet of this kind, it is usual to permit the use of eggs, cheese, new milk, beef tea, mutton broth, and such like articles to be taken with a proportionate amount of animal food. There are but few diseases requiring a diet exclusively of this kind; the most important are—diabetes, serofula, and those cases wherein it is desirable to combine a highly stimulating and nutritious diet.

*Vegetable Diet* is termed spare diet. This is used to indicate the employment of vegetable substances principally, not exclusively. It in general includes the use of fish, with a small quantity of poultry and butter. In full habits this diet is ordered, if apoplexy or gout is threatened; and by its adoption we diminish the quantity of nutritive matter supplied to the system, while we keep the digestive organs actively employed.

*Milk Diet.*—Besides cow's milk, this diet includes the use of farinaceous substances, such as arrowroot, sago, tapioca, rice puddings, and bread. Milk diet is ordered when it is necessary to support the system with the least possible stimulus or



excitement. It is well adapted for inflammatory diseases of the chest, of the stomach, bowels, and bladder. After bleeding from any internal part, when the powers of life have been gradually exhausted, a light diet is very beneficial; it is also considered a preventive and curative of gout. In the diseases of children, especially those of a scrofulous nature, it is highly recommended.

*Low Diet.*—In acute inflammation, in fever after serious accidents, operations, and after childbirth, a low diet is absolutely necessary, consisting principally of slops, such as tea, weak broth, barley-water, and toast-water. Small quantities of milk and farinaceous matters, in the shape of gruel and arrowroot, are sometimes added.

*Full or Common Diet.*—On many occasions, where it is desirable to restore or support the powers of the system, patients are permitted to satisfy their appetites with plain vegetable and animal food. In many indolent diseases, in some affections of the nervous system, as epilepsy, &c, and in convalescence after illness, this kind of diet is frequently of much service.

A physician observes:—“Many of our customs, manners, and habits are prejudicial to health. Some of them are physical, while others are moral in their effects. Nothing more plainly betrays our ignorance of even the principles of health, and at the same time our slavish submission to selfish indulgence, than the custom of *eating suppers*—by which we do not mean the mere eating a slice of bread and cheese, but of making a meal at that time. Instead of allowing the body, with its multifarious powers, to be refreshed by “Nature’s best restorer, balmy sleep,” and the mind to be relieved from care and thought, irritation, and excitement, the stomach is loaded with (probably) a heterogeneous mass of food, and the whole machinery of the inward man is forced into sluggish operation when the vital powers are at the lowest ebb; the brain, feverish and disturbed, sends forth startling visions and horrifying dreams until morning dawns, when the haunted imagination recovers itself, and is conscious of the mental and bodily vigour being rather exhausted, than refreshed by the night’s turmoil. We would not have touched upon this subject, but we are aware that—notwithstanding all the evils which are known to follow in its train—the practice of nightly repletion is still too common.”

It now becomes our duty to inquire into the properties and effects on the stomach, of the articles of food employed to supply the waste of our bodies, and maintain us in health. The suitability of particular kinds of food to the varied constitutions of man is not made that study and science its importance deserves.

*Milk.*—This causes wind and acidity in some stomachs, which effects can be remedied by mixing about half an ounce of lime water to each pint. Milk, when it agrees with a person, is useful in scrofulous affections, and where debility and morbid sensitiveness exist, in early stages of consumption of the body, in cases of enlarged glands, diseased

affection of the joints, and in continued rheumatism of the joints. A milk diet is not sufficient for any one having continued and active exertion, but it is for those who are invalids. Asses’ milk is not so nourishing, but more easily digested than that of the cow. Goats’ milk contains matter of a peculiar taste and odour, which requires an invalid to have good, pure air and some exercise to easily digest.

*Raw Milk* is not commonly used abroad, and we may observe that, when boiled, it proves more agreeable to the stomach. If, after boiling, it be put into bottles, and well corked, or in tins soldered up, it will keep during many months. Milk may also be purchased in small cases prepared for long voyages. This is made by gently simmering the milk until nearly all the water is evaporated; it is then cooled and kept carefully from the the action of the air, remaining in a solid state for use; when required, a piece is put into the cup of tea or coffee. The most certain method for voyagers is to take with them a supply of patent concentrated milk or cream, which prevents disappointment at a time when it is impossible to procure so useful an article in illness, &c. Or an excellent substitute may be secured by laying in a supply of cocoa and chocolate, having the milk and sugar ready combined with them.

*Skimmed Milk* is more easily digested, and not much less nutritive, than that in the state as fresh drawn from the cow.

The article called *Sugar of milk* may be purchased at any druggist’s shop, and is occasionally used instead of milk.

*Butter* always irritates the digestive organs of those suffering from indigestion, and especially when on toast, or in a melted state. Butter is best when fresh, well made, and from a cow fed on grass. Salt butter is never so good as fresh, and yet a little salt on fresh butter facilitates its digestion. The utility of butter to the invalid can only consist in having a solvent effect on the bowels. It is generally thought better to prevent children indulging in this oleaginous matter, by placing before them plain palatable food, for which they have some liking, as milk and bread, oatmeal porridge, etc.

*Cheese*, when toasted, is more easily digested than when not so; the richer, and also the more mature it is, the better. Decayed cheese, in some cases, stimulates and assists a weak stomach in the digestion of food. Good ripe cheese contains a large amount of nourishment, and is, with a little home brewed beer, a very wholesome meal. *Cream Cheese*, when fresh and unteinted, is as digestive as ordinary ripe cheese.

*Whey* is an excellent drink in all febrile disorders, at the same time it is nutritive and diluent to the body. *Wine Whey*, taken warm, promotes the action of the skin, and is a valuable domestic remedy in *colds* and *influenza*; *Tamarind Whey* is preferred by some people; it is prepared by boiling two ounces of tamarinds into two pints



of milk, and then straining it through a sieve. Cream of Tartar also makes an excellent whey.

*Eggs.*—The yolk is best suited to a very delicate stomach when lightly boiled, but the white, even in a pudding, may prove unpleasant to it. The entire of a raw egg is one of the most easily digested articles of diet known. Eggs lightly poached are preferable to boiled ones, while those hard boiled are the worst to digest; still to persons undergoing great exertion in the open air, a few hard-boiled eggs prove an excellent substitute in the absence of a regular meal; adding a little salt assists digestion. Eggs ought to be used very fresh, as they speedily, from their nature, undergo decomposition. Immersed in vinegar and water or quick lime they will keep for some time. The eggs of the duck and goose are less digestible than those of the hen and wild birds.

*Eat* is not so digestive as lean, nor does it possess nutritive properties; it is called a calorifiant, that is, maintains the animal heat; thus we find the inhabitants of cold climates indulge most enormously in it, while in warm climates it is neither relished nor does nature supply it. It is useful as a diluent of the other portion of the food.

*Bread* baked in small loaves as toasted before a hot fire, and not eaten new, being freed from the effects of fermentation, is the most easily digested. Bread containing bran is occasionally useful for irritating the stomach and bowels, and thus preventing constipation; but, if continued, the coarse particles are apt to lodge in the intestines, which is followed by severe derangement, requiring medicine for their removal. To those much troubled with indigestion, fresh biscuits preserved from the air or damp are the most suitable, especially those made for use at sea.

*Toast.*—In the act of toasting bread we wish to get out the water, which makes the bread cold, waxy, and heavy of digestion. Perhaps we shall be best understood if we first explain what makes bad toast of a slice of bread, or rather what makes it no toast at all, but merely a piece of bread with two burnt surfaces, more wet and waxy in the heart than ever, and which not a particle of butter will enter, but only remain upon the surface, and if vexed with additional fire, turns to a rancid oil of the most unwholesome description. If the slice of bread is brought into close contact with a strong fire, the surface becomes covered with, or rather converted into, charcoal before the heat produces any effect upon the interior of the slice. This being done, the other side is turned, and converted into charcoal in the same manner. Charcoal, as everybody knows, is one of the worst conductors of heat. It is of no consequence whether the said charcoal be formed from wood, flour, or any other substance, for its qualities are in every case the same. Now, when the surfaces of the slice of bread are charred over in this manner, there is an end of toasting, as no action of heat can be communicated to the interior, and not one drop of water can be evaporated. In this state the slice of bread may be wholly burnt to charcoal, but until it is altogether so burnt, the unburnt part

will become always more wet and unwholesome. There is an illustration of this in putting a potato in the middle of a strong fire in order to be roasted. If the fire is but hot enough a potato the size of one's fist may be burned down to a cone not bigger than a marble, and yet that cone will remain hard and scarcely warmed.

Chesnut-brown will be far too deep a colour for good toast; the nearer you can keep it to a straw-colour the more delicious to the taste, and the more wholesome it will be. If you would have a slice of bread so toasted as to be pleasant to the palate and wholesome to the stomach, never let one particle of the surface be charred. To effect that is very obvious. It consists in keeping the bread at the proper distance from the fire, and exposing it to a proper heat for a due length of time. By this means, the whole of the water may be evaporated out of it, and it may be changed from dough—which has always a tendency to undergo acetous fermentation, whether in the stomach or out of it—to the pure farina of wheat, which is in itself one of the most wholesome species of food, not only for the strong and healthy, but for the delicate and diseased. As it is turned to farina, it is desintegrated, the tough and gluey nature is gone, every part can be penetrated, it is equally warm all over, and not so hot as to turn the butter into oil, which, even in the case of the best butter, is invariably turning a wholesome substance into a poison. The properly toasted slice of bread absorbs the butter, but does not convert it into oil; and both butter and farina are in a state of very minute division, the one serving to expose the other to the free action of the gastric fluid in the stomach; so that when a slice of toast is rightly prepared, there is not a lighter article in the whole vocabulary of cookery.

*Yeast Dumplings*,—are only good for those with strong digestion, and who have laborious out-of-door employment.

*Vermicelli* and *Maccaroni* are made from a hard, small grained wheat; the flour is made into dough, and dried until hard; whether simply stewed, taken with the gravy of meat, or used as a vegetable, they seldom disagree even with a weak stomach. If boiled until soft, and eaten with French mustard or jam, it makes a soluble and wholesome dish, which may even be taken by invalids.

*Puddings* are usually better than *Pies* for those affected with indigestion, especially if made with milk and eggs, instead of butter, lard, suet, or treacle. Baked puddings are not so good as boiled, and those done under meat are objectionable for weak stomach. The simplest form of constituting puddings is that of flour, eggs, and milk. Pancakes fried in fat are not good.

(To be continued.)

REMARKS ON THE TREATMENT OF VENEREAL WARTS AND CONDYLOMATA.

By Wm. BERRY, M.R.C.S. Eng., L.R.C.P. & S. Ed.

The obstinacy to treatment of warts or vegetation of venereal origin situate on or near to the organ

of generation is sometimes very great, for in some cases they will, in spite of active treatment, reappear and spread again and again.

The most persistent of this class of growths are those which are small, have a well-defined and broad base, and are covered with a thin cuticle, and thus resemble very closely enlarged papillæ met with in other parts of the body. These warts will sometimes resist the most active agents, such as strong nitric acid, and even removal with scissors will fail to eradicate them, as they reappear in greater numbers with surprising rapidity.

In two cases under my care lately, the daily application of a strong solution of sulphate of copper, the application of fuming nitric acid every second day, and removal with the scissors failed to effect a cure. The saturated solution of sulphate of copper appeared to stimulate them, and, as the nurse remarked, caused them to grow more rapidly.

In these two cases it was often remarkable to see the reappearance of these growths after the application of strong nitric acid, for no sooner was the yellowish slough removed than they appeared as large as ever; on one occasion the acid was applied after their removal with scissors.

Almost despairing in being able to rid the patients of these pests, I resolved to try the acid nitrate of mercury (liquor acidus hydrargyri nitratis), though with little faith in its efficacy, after having failed with nitric acid.

In both cases (females) the warts grew on the perinæum, around the arms, and on the skin and mucous membrane of the labia majora. I oiled the parts around and applied the acid nitrate of mercury freely, by means of a firm pledget of lint, intending to do so again daily if required. Next morning, however, to my surprise, the warts had become much shrunken and appeared to be covered with a yellowish white slough, the patients complained of feeling very sore, and had been painted since the application. Poultices of linseed meal were now applied, and when the parts were cleaned the warts had almost completely disappeared (a second application removing them), and the skin where they had been was quite healthy.

In some cases, where the warts are one large granulating mass, giving forth an offensive discharge, removal with the *écraseur* will be required; but in those cases where they cover a large surface the application of the acid nitrate of mercury will be found to be the best remedy.

What part the mercury plays in its caustic or escharotic properties I am unable to say, but certain it is that the remedy is superior to strong nitric acid.

With regard to the treatment of condylomata, I only wish to add that, besides the cleansing with water, keeping the surfaces dry, and applying calomel powder, the application of strong nitric acid once or twice to the surfaces will greatly assist in their cure, especially in those cases where they are numerous and cover a large surface, resembling very closely buttons set in close approximation.

4. Workhouse Hospital, Manchester.

#### HYPODERMIC INJECTION OF ERGOT IN VARICOCELE.

In a case of varicocele which had existed for a long time, Dr. Bertarelli, of Rome, injected a solution of ergotine under the skin of the scrotum. The solution consisted of ergotine, 1 gramme; water, with a little alcohol, 2 grammes. The patient was ordered to maintain absolute repose and to make local application of cold compresses. The next day the varicosities had disappeared. The success was complete after another injection, which was attended by but slight local reaction.

Dr. Cittaglia had cured another case of varicocele by the same treatment. By the eighteenth day nearly all the varicosities had disappeared; and there was nothing but a slight induration of the corresponding testicle to be observed.—*Alm. di Terapia*, 1874, *Lo Sperimentale*, March, 1874.

A man was recently examined in this city who could expand his chest from 32 to 40 inches. As several members of his family had died of consumption, he had for some years past cultivated the habit of expanding his chest to the utmost, in the hope of thereby diminishing his liability to have the same disease.—*N. Y. Medical Record*, May 15.

## THE CANADA MEDICAL RECORD

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THE CANADIAN MEDICAL ASSOCIATION.

On Wednesday, the 5th of August, this Association will assemble at Niagara Falls, and within sound of the roar of that mighty cataract, will, we have no doubt, have a profitable and a pleasant time. From what we can gather we believe that the attendance will be very large, and thus demonstrate to those who have predicted its death—that it is full of life and vigor. The committee of arrangements, with its active chairman, Dr. Canniff of Toronto, has been at work, and have completed those very essential details which tend to make such an occasion pleasant, and one ever to be remembered with satisfaction. We believe that some, at all events, of those who were named last year at St. Johns to read papers at this meeting, will be on hand, and do their best to perform the task which was assigned them.

According to a resolution passed at the meeting held in Montreal, in 1872, the Medical Bill, which occupied so much time in the early history of the Association, should again be brought forward for discussion. We do not know whether it is intended to again seriously take this Bill into consideration. We hope, however, that at least an opportunity will be given our Ontario friends to say whether they are yet willing to assist in having a Dominion Act passed. As a Dominion we are singularly placed with regard to the practice of medicine. Provincial barriers meet our brethren, which certainly should not exist. If the profession would only bury sectional jealousies, we might obtain—what we believe we must obtain before the profession in Canada can assume its rightful exalted condition—viz., a central examining board. Let us have one common portal by which to enter the domain of medicine. There is nothing which would so tend to make our profession esteemed—nothing which would make it so conscious of its own powers.

There is some little talk, as to whom should be president for the ensuing year. If the Association should decide that the office should not be held more than one year by the same person, we think that Ontario should again have the honour conferred upon it, of having the President from that Province. We do not wish to say upon whom the honour should be bestowed; but we think that the city of Toronto has some members of the association, who, from the active part they have taken in its welfare ever since its organization and from the high position which they hold in the profession, are worthy of the honour. We cannot close without saying that in our opinion the Association did itself honor last year at St. Johns in electing as its President, Dr. William Marsden, of Quebec, one of the most active of those who in future time will be honored as its founder in 1867—in the good old city of Quebec. He has ever been zealous in its welfare, and has done much to ensure its present prosperous condition.

TRI-ANNUAL MEETING OF THE COLLEGE OF PHYSICIANS AND SURGEONS OF LOWER CANADA.

The tri-annual meeting of this body was held at Sherbrooke, P. Q., on Wednesday the 8th July. The following members were present,

Drs. Scott, Howard, Peltier, Rottot, Robillard, Millette, Francis W. Campbell, Hingston, Brigham, Gibson, Duchesneau, Russell, Rinfret, Tessier, Belleau, Marmette, Tetu, Pelletier, de St. George, Gilbert, Hamilton, Worthington and George E. Fenwick.

Dr. Scott, Vice-President, occupied the chair; and opened the proceedings with a few remarks. He stated that they had as yet been unable to have the books of the Treasurer audited, but promised that they would be by the time of the half-yearly meeting of the Governors in October at Quebec. The following gentlemen were elected members of the College, Drs. Reddy, Gardner, Trenholme and Kennedy of Montreal, and Drs. Millette, de St. George, F. X. Perrault, Scholfield.

Twenty-seven proxies were handed in, making the total number of votes represented fifty.

Mr. Nathan Mercer, President of the Pharmaceutical Association of the Province of Quebec, was present. He submitted to the College a draft of a Bill which they were desirous of having passed by the Quebec Legislature, and requested the co-operation of the College. The committee to which had been committed this bill for its examination, reported to the College in its favor, and suggesting one or two minor alterations. Some discussion ensued, but eventually it was carried unanimously, that the report of the committee should be received and adopted.

The election of Governors to serve for the next three years then took place, and resulted as follows:—

*For the City of Montreal.*—Drs. Scott, Howard, Peltier, Rottot, Godfrey, Hingston, Robillard, and G. E. Fenwick.

*For the District of Montreal.*—Drs. Chamberlin, Weillbrenner, Brigham, Gibson, Church, Duchesneau, and F. X. Perrault.

*For the City of Quebec.*—Drs. J. E. J. Landry, R. H. Russell, Jackson, Tessier, Rinfret, Robitaille, Rousseau, and Belleau.

*For the District of Quebec.*—Dr. Michaud, L. J. E. Desjardins, Marmette, Dubé, Tetu, P. Pelletier and St. Georges.

*For the District of St. Francis.*—Drs. Worthington, Gilbert and Hamilton.

*For the District of Three Rivers.*—Drs. J. J. Ross, A. G. Fenwick and Landry.

The Governors elect then proceeded to

those by ballot the officers for the ensuing term of three years, with the following result:

President, R. H. Russell, M.D., Quebec;  
Vice-Presidents, Drs. R. P. Howard and Mar-  
mette.

Secretary for Montreal, H. Peltier, M.D.

Secretary for Quebec, A. G. Belleau, M.D.

Registrar and Treasurer.—E. Robillard, M.D.

It was decided that the next tri-annual meet-  
ing should be held in the town of Three Rivers.

Previous to the members taking their de-  
parture, they were entertained by the Govern-  
ors of the College for the district of St. Francis,  
at dinner at the Magog House. A very pleasant  
time was passed.

#### TO CORRESPONDENTS.

*Dr. F., St. Paul's Bay.* The question you raise  
as to the advisability of a legal medical tariff is  
one which is extremely difficult of accomplish-  
ment, although we think that it would be a very  
great boon to the profession. We fear, how-  
ever, that the jealousy which so many medical  
men have of their confreres will prevent such a  
desideratum being arrived at in our day. Your  
quiet little place seems anxious to emulate more  
pretentious localities, for the grievance you  
complain of, viz., having in a suit to submit your  
account to the approval in court of another  
medical man, who in all probability will state  
it is too high, is one which is universal. It is  
a grievance which has in many instances pre-  
vented medical men from suing for services  
rendered, and which are justly entitled to re-  
muneration. They preferred to loose all, than  
run the gauntlet of the "glorious uncertainty  
of the law." You mention that within your  
knowledge a physician lately in evidence be-  
fore a court of justice, stated that he considered  
three dollars ample remuneration for full twenty-  
four hours professional service, without  
regard to distance travelled. Such a statement  
is extraordinary. Perhaps, however, the phy-  
sician knew the value of his services, and rat-  
ed them accordingly. It is a shame, however,  
that such a man should ever be called upon to  
judge the value of another man's services.

*Dr. M.*—The patient being under the care of  
another medical man, under no circumstances  
should you visit the patient without his know-  
ledge if "even only to express an opinion." Act  
as you would desire others should act toward  
you. If you follow this rule, we don't think you  
will go astray.

*Dr. McM., Rigaud.*—Charlatans are numerous  
everywhere throughout the country. We hope  
the College of Physicians and Surgeons at its  
next semi-annual meeting will decide to act  
promptly and decisively with reference to this  
matter. The claims of its licentiates have been  
long enough neglected. It is time that the Col-  
lege carried out some of the many promises  
which were made at its organization some  
twenty-seven years ago.

*Dr. P., Brantford.*—We hope you note the day  
of meeting of the Canadian Medical Association  
at Niagara Falls. The date previously an-  
nounced in the Record was wrong. The  
time of meeting is August 5th.

#### TO OUR SUBSCRIBERS.

With the present number Volume 2 of the  
Canada Medical Record is brought to a close.  
We are very thankful for the kind encourage-  
ment we have received from every portion of  
the Dominion, and can only promise that we  
will try to sustain the reputation which it has  
already established—of a thoroughly *practical*  
medical journal. Our circulation has steadily  
increased, and we to-day have on our books  
two hundred and sixty-four more subscribers  
than we had when we commenced this vol-  
ume. This is the pleasant side of the story.  
We have, however, we regret to say a few who  
have taken the journal for two years, and have  
never paid anything for it. We know how much  
they like the *Record*, how anxiously they have  
looked for it each month, and how greatly they  
have been benefited from its perusal. We are  
sorry we will in the future not be able to sup-  
ply them at the same rate. All such will after  
this issue be struck from our list, and their ac-  
counts placed for collection. We invite atten-  
tion to a Business notice in another column.  
Each subscriber will at a glance be able to un-  
derstand what category he comes under.

#### BUSINESS NOTICE TO SUBSCRIBERS.

In the *June* number of the *Record*, we en-  
closed accounts to a number of our subscribers.  
A great many have promptly replied. Others  
have not done so. *All who received accounts  
in the June number, who do not remit previous to  
the issue of the August number, will be struck off  
our list.*

In the present issue we enclose accounts to the  
remainder of our subscribers. *Those who owe  
for two years and do not remit before the issue*

of the August number will be struck of the list.

Those who wish to continue the *Record* will please take notice of the above and govern themselves accordingly.

#### A NEW INSTRUMENT.

At the meeting of the American Medical Association, held at Detroit in June last, one of the delegates brought before a full meeting a new instrument which he has invented, and which he styles the "*Compound Back-action Auro-recto Micro-Spectroscopic Speculum.*" He insisted and attempted to prove that by its use a diagnosis of piles, ulcer of the stomach, and congestion of the brain could be made out in one sitting or lying, as the case might be. He attempted by a sketch to show the passage of light from the anal to the anal speculum, but he experienced considerable difficulty in making his hearers understand how the light could be made to penetrate the brain of an ordinary patient, and how, in case the colon was impacted the beam of light could be made to reach the diaphragm. The description and the exhibition of the drawing is said to have caused infinite amusement.

#### THE VALUE OF OATMEAL AS INFANTS' FOOD.

In a communication to the Société Médicale des Hôpitaux, MM. Dujardin-Beaumetz and Hardy make known the results of the employment of oatmeal on the alimentation and hygiene of infants. According to them, oatmeal is the aliment which, by reason of its plastic and respiratory elements, makes the nearest approach to human milk. It also is one of those which contains most iron and salts, and especially the phosphate of lime, so necessary for infants. It also has the property of preventing and arresting the diarrhoeas which are so frequent and so dangerous at this age. According to the trials made by Mr. Marie, infants from four to eleven months of age fed exclusively upon Scotch oatmeal and cow's milk thrive very nearly as well as do children of the same age suckled by a good nurse.

#### BURGLARS BEWARE!

A "SKELETON IN THE CLOSET" is not generally considered a pleasant thing to have, but a recent occurrence in Greensburg, U. S., shows that it may sometimes answer a good purpose. We learn from the *Philadelphia Medical Times* that a burglar broke into a physician's office in that town, and opening a closet (while his companion with a dark lantern was in another part of the room); got his

hands between the jaws of a skeleton which, being adjusted with a coil spring and kept open with a thread, closed suddenly on the intruding hand by the breaking of the thread. Startled at being thus seized, he uttered a faint shriek, and when his companion turned the lantern towards him and he beheld himself in the grim and ghastly jaws of Death himself, he became so overpowered by fear that he fainted and fell insensible to the floor, pulling the skeleton down upon him, and making so much noise that his companion fled immediately. The doctor, alarmed at the noise and confusion, hastened into the room, and secured the terror-stricken burglar, still held by the skeleton.

#### PERSONAL.

Mr. Erichsen, the world renowned Surgeon, sails on the 30th July for Canada, as he will visit Montreal we would suggest some means whereby he might be enabled to meet the profession.

Dr. R. A. Stevenson (M.D., McGill College 1871), passed through Montreal early in July *en route* for London, England, where he intends to pass several months in attendance on the hospitals. Dr. Stevenson has been practising in Strathroy, Ont. Previous to his departure he was entertained at supper, and presented with a purse of one hundred and fifty dollars.

Dr. McNaughton, President of the Albany Medical College, died suddenly in Paris on the 1st of June. We recently alluded to this gentleman as the oldest living medical teacher.

Dr. Richardson, Toronto; Dr. Casgrain, Windsor; Dr. C. B. Hall, Toronto; Dr. Robert Lambert, Windsor; Dr. A. A. Andrews, Windsor; Dr. E. Nesbitt, Sandwich; Dr. George McMicking, Goderich; Dr. F. B. McCormick, Ripon, and Dr. F. F. Bell, Amherstburg, attended the meeting of the American Medical Association, which was held at Detroit, Michigan, on the 2nd of June, and were received with marked attention. Dr. Richardson, of Toronto, acted as the spokesman of the delegation.

Dr. J. G. Kittson (M.D. McGill College, 1869), of Berthier en haut, has been appointed surgeon to the North-west mounted police, at a salary of \$1,400 a year.

Dr. Nesbitt, of Toronto, is said to have received the appointment of assistant surgeon to the North-west mounted police.

Dr. Donald A. McCrimmon, (M.D. McGill College, 1869,) has settled at Lucknow, Ont., where he is now doing a very extensive practice. He is also proprietor of the Lucknow Medical Hall, which does a large business.

3.

Rob. Nesbitt

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