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Original Articles.

No paper published or to be published elsewhere as original, will be accepted in this department.

*PUERPERAL ECLAMPSIA.

By Dr. C. J. O. HASTINGS, Toronto.

Mr. President and Gentlemen,—I am not presuming for a moment to present anything new to you to-night. The few crude notes which I have in my hands are certainly not worthy of the dignity of being called a paper. I simply propose to open a discussion on what, to my mind, is the most serious complication of labour or pregnancy, in order that we may exchange ideas in regard to its etiology and treatment, for to wrestle with death in the lying-in chamber is perhaps the most trying ordeal we are called upon to pass through.

Etiology.—The microbic origin of the condition is not by any means satisfactorily established, though it has several advocates. Blanc inoculated a pregnant rabbit with cultures which he had made of a short bacillis which he had taken from the blood and urine of a pregnant woman suffering from albuminuria. She died in twelve hours in severe convulsions. I think, however, with our present knowledge of the subject, we will all agree that the seizures are of a toxæmic origin, or probably I had better say neuro-toxæmic.

What role albuminuria plays in these cases I am not prepared to say, but we must accept the presence of albumen as a valuable danger-signal indicating a probable defective elimination of toxines by the kidneys. While the kidneys play the most active part in the elimination of toxines from the system, yet we can't overlook the part played by the liver and bowels. What is the cause of albuminuria in pregnancy? It can hardly be mechanical, or, if so, why do we not have it in the case of all abdominal tumors? It can

*Read at Meeting of Toronto Medical Society.

hardly be due to structural renal changes, as the condition usually passes off immediately, or very soon after delivery. It seems to me that it is more likely to be hæmatogenic in origin, the blood of the pregnant woman being so changed as to probably permit a portion of the albumen to dialyse through the walls of the vessels.

From the frequent association of puerperal eclampsia and albuminuria we must necessarily conclude that insufficiency on the part of the kidneys plays an active part. There can be little doubt that the supersensitive condition of the nervous system of the pregnant woman plays an active part in the production or exciting the eclampsia.

Why is it more frequent in primiparæ, in illegitimate pregnancies, and in twin pregnancy? In the first two I think the over-anxious, worried condition of the patient explains, no doubt, the greater frequency. As we learn more of the toxæmia of pregnancy we will become more conversant with the etiology and treatment of puerperal eclampsia. In the pregnant woman we have two distinct and separate organisms, throwing almost double work on the excretory functions of the mother. The excretory functions of the pregnant woman are not as active as in the non-pregnant condition, while the amount of toxines is very much increased. In all toxæmic conditions there is more or less congestion of the kidneys. Probably this explains the albuminuria of pregnancy, and the albumen in the urine is the first indication we have that our patient is suffering from an attack, more or less severe, of toxæmia. These toxines, if not rapidly eliminated by coming in contact with supersensitive nerve centres, are very likely to produce eclampsia.

Treatment.—This is simply the treatment of toxæmia; and this is, or should be, for the most part, preventive. The symptoms of an impending attack of eclampsia are identical with those of toxic poison, viz., frontal headache, dizziness, derangement of vision, loss of memory, etc. The clothing should be warm and loose so as not to interfere in any way with the circulation. The urine should be examined at least once a month, especially in primipara, and this examination should be both chemical and microscopical. A careful watchfulness should be exercised over the functions of the kidneys, liver, and bowels and skin. Should evidences of toxæmia present themselves, our actions should be prompt in stimulating all the eliminative organs of the body. Free purgation with hepatic stimulants, etc., hot baths before retiring, and milk diet should form the main points in the treatment.

Lastly, we come to the most dreaded of all, that is, the eclamptic seizure. Morphia, chloroform, chloral, veratrum, pilocarpine, etc., are our standard remedies. Bleeding is of great value. Emptying of the uterus, of course, is a desideratum. Intro-venis injection of normal salt has been given with good effect.

It seems to me, Mr. President, we scarcely realize the extreme responsibilities resting upon us till we are brought face to face with them in the eclamptic seizure. It then, in all probability, means the loss of a precious life—a life as precious in some homes as our wives or our mothers would mean in ours.

CHRONIC CYSTITIS, ITS CAUSES, DIAGNOSIS AND TREATMENT.*

By B. HAWKE, Stratford.

MR. PRESIDENT AND GENTLEMEN,—The subject I have chosen for this paper is one which every medical man meets in his practice, and the medical treatment, at least in my experience, is so very unsatisfactory, hence the reason I have selected Chronic Cystitis, hoping the discussion it may induce may be beneficial to us all.

Very little is known as to its pathology, and it may be termed in general "a purulent inflammation of the bladder." At first we have the pathological changes that occur in any inflamed mucous membrane, with which we are all familiar, and as the disease progresses the inflammatory processes penetrate between the epithelial layers and invade the muscular fibres, and as a result the wall of the bladder suppurates. The mucous membrane frequently presents a ribbed appearance, due to swollen muscular fibres, and small sacs are thereby formed in which urine is retained, and as a result there is constant irritation produced by ammoniacal decomposition.

The predisposing causes of cystitis are, according to Dennis, any pathological changes in the genito-urinary system, which tend to induce congestion of the bladder and a weakening of its power to resist the invasion of pyogenic micro-organisms.

There must be microbic infection, and we are told by Melchior that a microbe of itself will not cause cystitis, except where there is some previous change, as a result of which it can find a suitable medium for growth and development. Then any condition producing ammoniacal decomposition of the urine, in which microbes flourish, may be classed among its causes. I do not wish to be understood as saying that you must have ammoniacal urine before you can have cystitis, for such is not the case, for there is what is known as acid cystitis, but in the majority of cases you do have.

Some of the conditions favoring these changes are urethral stricture and enlarged prostate, whereby the urine becomes dammed back and the bladder is never completely emptied after micturition, and is consequently overstrained and the residual urine decomposes and irritates as a result, and also produces a good medium for microbic activity. As a rule cystitis is secondary to some disease of the genito-urinary tract, and frequently results from an extension of an inflammatory process from the urethra, ureter and kidneys. It very often follows an acute attack, and the presence of a foreign body, such as a calculus, or a new formation is very often a cause. Stone in the bladder incites cystitis by lacerating the mucous membrane or by acting in a mechanical way by obstructing the internal urethral outlet.

Some authorities claim that cystitis exists before the calculus reaches the bladder, *i.e.*, in cases of encysted stone, and that the stone is caught and held in the irregular succulated mucous membrane, which has resulted from a pre-existing cystitis. The use of dirty catheters, sounds and traumatism, while some constitutional diseases, such as syphilis and tuberculosis, are causes. Again paraplegia, when it involves the spinal centres controlling the bladder, whereby that organ loses its elasticity and becomes over-distended, and, as a result, retention and incontinence; then certain drugs, as cantharides and

*Read at the May meeting of the Huron Medical Association.

turpentine, have an irritating effect upon the mucous membrane, and in both cases cystitis may result.

SYMPTOMS—Frequent micturition, pain during micturition, especially as the last few drops are voided, and also pain over the region of the bladder, together with pus in the urine are the most noticeable features. The irritation in the bladder may be so great that it will only contain a small amount of urine at a time, and as a result very frequent micturition pus develops rapidly and the urine assumes a milky appearance, and as the urine becomes alkaline the pus assumes a gelatinous consistency and adheres to the wall of the bladder and the vessel in which the urine is passed. Blood is a very frequent symptom, especially in cases where there has been ulceration, and in such cases you will find albumen. In cases where there is a calculus the blood is usually increased after motion or much exercise, and when there is no accompanying disease of the kidneys the albumen found in the urine is due to blood. Then there are constitutional symptoms, pallor, loss of flesh and increasing general debility.

The diagnosis of cystitis is not always easy, for other diseases of the urinary tract may produce symptoms similar to some of those of cystitis. Pus in the urine is undoubtedly an important system, but it is necessary to determine what part of the urinary tract it comes from, and this can generally be accomplished by what is known as the "Three glass test." In this you take, for example, three test tubes, and into these you have your patient pass the urine in separate portions. This is only applicable, of course, in male patients. The first glass contains the washings of the urethra, the second shows the general condition of the urine, and the third usually contains the urine that comes from the lower part of the bladder, where there has been an accumulation of pus. Then, in a case of purulent urethritis, the first tube will contain pus and the next two will not. In cystitis pus is found in them all, and usually more plentiful in the last. If from the kidneys, it is more uniformly mixed and not so abundant, except in cases of pyelitis, and then you have the accompanying symptoms of the latter. Pain also occurs during micturition in urethritis and prostatitis, and sometimes in disease of the kidneys, and in all of these you may have pus, but the locality of the pain is the important point. In cystitis the pain is felt above the pubes, and when accompanied by stone pain is also felt at the meatus, due to the stone obstructing the internal outlet. In urethritis the pain is felt in the urethra, and is sharp and stinging in character. In prostatitis it is more deeply seated, almost in the perineum. If you have a case of cystitis, and you suspect it is tubercular, you can almost determine to a certainty that if you take a sample of urine procured under aseptic precautions and inoculate it into ordinary nutritive media and get no culture, it is in all probability tubercular; then, by the use of the sound you will find the bladder to be diminished in size and very tender to the touch.

TREATMENT.—In the treatment, first remove the exciting cause if possible; and second, to secure absolute rest; third, to render the walls of the bladder and the urine unsuitable ground for microbic development. If due to stricture this should first be treated by dilatation or urethrotomy, and if due to calculus this should be removed by lithotrity or lithotomy. With regard to rest the patient should be kept in bed, and as much as possible with the thighs slightly flexed on the abdomen, so as to relieve the pressure of the abdominal muscles on the bladder; and the bowels should be kept open either by laxatives or by an enema. This will have a tendency to relieve the pain, but in the majority of cases sedatives in the shape of opium will have to be used, and this is most effectual when administered in suppository.

Next, the urine and walls of the bladder should be looked after. Since the decomposing of urea produces ammoniacal urine, the excretion of that should be reduced as much as possible, and this may be accomplished by rest and attention to diet. Highly-seasoned food and meats should be avoided, so also alcoholics, and as near as possible a milk diet adhered to. Mineral waters, such as St. Leon, Sprudel and Appolinaris are excellent diluents, and may be used to advantage. Saline diuretics, such as the acetate or citrate of potash, together with buchu, tritici repens, hyoscyamus, balsam copaiba, etc., tend to relieve the irritation. Salol, boric acid and benzoic acid are of great service in rendering the urine antiseptic. But these measures, if of any use, are only palliative, and in conjunction local treatment is of great service. This is done by intravesical injections by means of a soft rubber catheter, and no medicated solution should be introduced until the bladder is thoroughly cleared of mucous by repeated injections of warm sterilized water until the water returns clear. Care should be exercised in doing this, and not distend the bladder to such an extent as to cause an urgent desire to urinate. From an ounce to an ounce and a half is usually sufficient, and frequently that amount is excessive. By using small quantities there is not so much pain and the effect more soothing. After it has been thoroughly washed it may be irrigated in the same manner with a medicated solution. The ones mostly used are solutions of boracic acid, salicylic acid, creoline, carbolic acid, corrosive sublimate, pot. permanganate and nitrate of silver. Of all these the last mentioned, in strength of from one-half to two per cent., is probably the best, as it is more penetrating and therefore of more use as a bactericide. This treatment should be persevered in for some time, and along with it supporting treatment, according to the constitutional tendency of the patient; and then, if you find no improvement, the symptoms not alleviated and your patient's strength failing, your only chance of success is by doing a cystotomy, either suprapubic or lateral, thereby giving the bladder perfect rest and free drainage.

About two and a half years ago I was consulted by a young man, seventeen years of age, who had been going the rounds seeking relief. The history of the case, as near as I can remember, was something like this. About five months previous to my seeing him he noticed that he had to urinate too frequently, and that he had pain when doing so. Urination increased in frequency and also the pain. He was losing weight and was very anæmic. His previous history was good, was never sick before and never used tobacco or intoxicants. The family history was good. When I saw him he had to urinate about every half hour, and the urine was loaded with pus. I tried to ascertain the cause, but could not, unless it was due to the saddle of a bicycle irritating the posterior urethra. I followed the treatment which I have outlined, and persevered faithfully for several weeks without improvement, and then decided to operate. With the assistance of Drs. Robertson and D. M. Fraser I did a suprapubic cystotomy, cleaned out the bladder and drained for two weeks, when I removed the tube and irrigated the bladder through a soft catheter. The irritation soon ceased and the urine became clear. The wound healed in about six weeks, and the patient made a rapid and complete recovery. It is now over two years since the operation, and he has not required medical attendance since.

Clinical Reports.

A CASE OF RICKETS.

By Dr. A A. SMALL, Toronto.

The little patient which I wish to present to-night is two years and four months old. For four months he was fed at the breast; for the next two months he was fed from the bottle on milk and water. This not seeming to agree he was given Robinson's patent barley food which consists of from seventy-five to eighty per cent. of unchanged starch, and a very low percentage of fat. When twelve months old he shared his meals with his parents, and being very fond of tea it was given to him with a liberal hand. His teeth did not appear until the tenth month. There are no points of interest in his parental history. The child's head is 19¼ inches in circumference, the average for his age being 18.9 inches. The anterior fontanelle is unduly open. There is marked exaggeration of the frontal parietal eminences. There is well marked irritability of the facial nerve. There is an attempt at a rachitic rosary, there being one or two nodes on each side. The abdomen is very much distended and tympanitic. The spleen and liver are not enlarged. There is a slight posterior curve of the spine, extending from the mid-dorsal to the sacral region. There is a slight outward curve of the tibiæ. The child cannot talk, and is totally unable to stand without aid. The mother gives a history of extreme restlessness at night and of sweating of the head and face. I wished to present the case as it seems to me to be of special interest, owing to the prominence of the muscular weakness of the lower limbs, the almost typical rickety head, and, on the other hand, the comparatively slight deformity of the extremities.

SOME CASES OF SEPSIS AFTER LABOR.*

By DR. THOS. MACMAHON, Toronto.

CASE I.—Mrs. C. Was septic at her last miscarriage. Was seen for the present miscarriage February 20th. Cleaned out the uterus under chloroform the next day, temperature being 102. Took severe chill the same p.m. Temperature 104⅘. Washed out the uterus with bichloride. On the 22nd had three frightful chills. Temperature went to 105, and the pulse very rapid. On 23rd, temperature fell to normal, and a good recovery followed.

CASE II.—I. B., aged 16, pregnant to her own brother; occipito-posterior for position. Forceps delivery with much difficulty. No perineal tear, but extensive vaginal rent. Delivered February 21st, after patient No. I. On the 22nd doing nicely. Not seen on the 23rd. On the 24th the temperature

* Reported at the Toronto Medical Society.

was 99½. The urine had been dribbling away. Washed out the uterus. Discharge lessened in quantity and somewhat malodorus. On the 25th the temperature was 102½, and went as high as 104⅜ during the next two or three days. There was little or no discharge of lochia, but the urine and vaginal discharge smelled very badly. Frequent chills. Intra-uterine douches, used frequently, of carbolic, bichloride and formalin. But these did not lessen the foul smell nor reduce the temperature. In sixteen days there was a discharge of laudable pus. The temperature dropped, the urine became less offensive, and recovery followed. Anæmia and debility persisted for some time.

CASE III.—Mrs. F. had been treated for gonorrhœa during pregnancy. Discharge stopped two months before parturition. Confined on March 11th. Easy delivery. Slight tear of the fourchette. One vaginal examination only. Did well until the third day, when temperature was 100. On the 15th temperature ran up to 102½. No chills. Lochia lessened in amount, but not foul. No tenderness over the uterus. On the 16th temperature 104, pulse 126. Cauterized the torn surface and washed out the uterus with 1-500 bichloride and packed with gauze. Some improvement on the 17th. Discharge, not blood, but thin and foul-looking, but with little malodor. Washed out daily and packed for four or five days. On the ninth day the discharge looked thick like laudable pus, and the temperature was normal. Vaginal bichloride douches were given every three hours while the temperature was up. Good recovery.

CASE IV.—Mrs. P., accouchement on March 22nd. Had sepsis after her last labor, from which she nearly died. Face puffy. Child born before my arrival. Bleeding very free. Washed out with bichloride. On the 23rd no symptoms. On the 24th the temperature was up slightly, but the discharge was normal, and there was no tenderness. On the 28th the temperature was 105, pulse 144. Discharge free and of normal appearance. No odor. Washed out with 1-500 bichloride and packed with gauze. A chill followed. In the afternoon there was considerable hæmorrhage which stopped after treatment. The temperature dropped to normal and so remained. The urine was slightly albuminous. The question was what caused the hæmorrhage.

The essayist wondered if he carried the infection. He did not think so, and gave reasons. During the series he attended a forceps case in which no bad symptoms appeared.

Reports of Societies

TORONTO MEDICAL SOCIETY.

The regular meeting was held on the 7th of April, 1898.

Dr. MacMahon occupied the chair.

The minutes of the last meeting were read and adopted.

Dr. A. A. Small presented a child with rickets.

Drs. Nevitt and Large reported a case of purulent arthritis of the knee, complicated by a pyonephrosis. Eleven years ago the patient injured the knee, and an abscess formed in the lower end of the femur. A very large sequestrum was removed. Healing took place, but the leg was never strong. As the result of a second injury recently the trouble re-lighted up and the patient was admitted to the General Hospital, Toronto. The lower end of the femur was found to be one suppurating mass. On account of the presence of albumen and pus in the urine, Schleich's solution was used while the abscess was freely opened and drained. Upon removal to the ward a large tumor was noticed in the left side. This was opened under a local anæsthetic. Patient died. The left kidney was enormously enlarged and riddled with pus cavities. The right one was also about twice the normal size and inflamed. The knee condition was considered antedated, and was accountable for the nephritic condition. The liver was much enlarged, and was probably fatty; it did not give amyloid reaction. The spleen was large and congested. There was also a peculiar and considerable enlargement of the solitary glands of the large intestine.

Dr. Nevitt presented a carcinoma of the pylorus removed *post mortem* from a patient upon whom he had done a gastro-enterostomy with a Murphy button. The man was aged 50. He had complained of dyspepsia for some time, but did not take to bed until two weeks before death. After the operation he lived about one month.

Dr. Webster presented a carcinoma of the stomach near the pylorus. The mesenteric glands were involved. A second growth about as large as an egg was to be seen on the posterior wall. The symptoms lasted twenty-three days. A mass, like two fingers could be felt just below the ensiform cartilage.

Dr. Greig asked the preceding speaker how he distinguished the mass referred to from the left lobe of the liver.

Dr. McKeown reported a case where hæmatemesis, emaciation, and absence of hydrochloric acid led him to suspect carcinoma before the tumor appeared. Later phenomena proved his diagnosis correct.

Dr. Parsons spoke of the value of inflation of the stomach for ascertaining the amount of dilatation. This process often enabled one to palpate an otherwise impalpable tumor. He said that the symptoms of carcinoma were almost entirely those of mechanical obstruction. It was remarkable in carcinoma of the stomach how rarely indigestion was present for a great length of time.

Dr. C. J. Hastings had found in his practice that indigestion was a marked symptom for a long time in this disease. He thought the irritation of prolonged indigestion was one of the causes of cancer of the stomach.

Dr. Carveth's experience agreed with that of Dr. Hastings.

Dr. Webster had found in his cases that where there was involvement of the pylorus by the growth indigestion was present. If the cancer was in other parts of the stomach this symptom was absent.

Dr. Webster presented an aortic aneurism, and related briefly the

history of the case. He attributed its cause to a strain during a tug of war.

Dr. T. F. MacMahon then reported a number of cases under the heading of "Obstetrical Worries." See page 182.

Dr. Carveth said he had heard of a number of cases lately. He emphasized the importance of examination of the urine. There was more danger of sepsis if the kidneys were not functioning well. There were many cases of auto-infection, he believed, in which the medical man unjustly blamed himself.

Dr. Greig, referring to the bowel lesions in the case of pyonephrosis reported by Dr. Nevitt, said enlargement of Pytre's patches had been noted in nephritis and also in serious septic cases.

Dr. Parsons also referred to the enlargement of these glands in septic conditions. He asked if it was possible that this might have been a case complicated with intestinal lymphatic leukæmia. He thought sections through the enlargements would be of interest.

Drs. C. J. Hastings, Webster and Greig briefly discussed Dr. MacMahon's cases.

Dr. MacMahon closed the discussion.

The Society then adjourned.

TORONTO CLINICAL SOCIETY.

A meeting was held on April 15th.

Dr. Albert A. Macdonald, President of the Society, was the chairman.

The minutes of the March meeting were read and adopted.

The following fellows were present: Dr. Nichol, of Baden; George Elliot, William Thistle, William Aikens, Charles Trow, Graham Chambers, Elliott Brown, Geoffrey Boyd, Herbert Hamilton, Frederick Fenton, William Oldright, J. Algernon Temple, Herbert Bruce, William Pepler, F. LeM. Grasett, Albert A. Macdonald, and George Bingham.

Dr. Bruce read a paper on "The Surgical Treatment of Osseus Ankylosis of the Temporo-Maxillary Articulation."

Four years ago the patient fell down stairs, striking her chin forcibly on the lower step. Dr. Stevenson, who saw her immediately afterward, says there was no dislocation of the jaw, but that the alveolar process of the upper and lower jaw in part was broken, causing part of the teeth of both jaws to be loosened. Some of the teeth penetrated the lower lip, the scars of which remain. She could remove the jaw freely after the injury, and continued to do so for about a year. The movement gradually diminished until one and a half years after the injury the jaw became fixed. Then a wedge-shaped screw gag was used on eight or nine occasions under chloroform. This was followed by temporary movement. Soon, however, all movement was lost and the jaw became absolutely fixed. On examination, August 9th, 1897, the jaw was quite fixed, neither lateral nor up and down movements being possible, and was said to have been in this condition for two and a half years. The jaw was displaced laterally to the right side about one-sixteenth of an inch, indicated by noting the relation of the middle line for the two jaws, as shown by the incisor teeth. From this I concluded that the disease involved the right joint and advised excision of the condyle. On September 9th the transverse incision was made three-quarters of an inch long, one quarter of an inch below the zygoma, beginning just in front of the ear. The parotid fascia was divided along the zygoma, the parotid gland displaced downwards, the joint exposed, the neck of the condyle was chiselled through and an attempt made to separate the jaws. This was found impossible. The coronoid process seemed to be held firmly to the skull. As the

patient was taking the chloroform badly, it was thought wise to postpone division of the coronoid until a future time. Subsequent to this operation there was slight paresis of the orbicularis palpebrarium. November 12th the jaws could be separated to a slight extent, probably one-sixteenth of an inch. November 16th an incision was made through the cicatrix of the former wound, and extended forward about one-half an inch. The neck of the condyle was exposed and a copper spatula placed beneath it to protect the internal maxillary artery. Entered the saw in the groove made at the first operation, and went through the periosteum on the external surface which had not been completely divided. Now it was found impossible to open the jaw, so the saw cut was extended partly through the base of the coronoid process, completing the division by means of the chisel. The jaws could not be separated until the chisel broke completely through the coronoid process. Then the jaw was easily opened to the extent of an inch. The temporal muscle was separated from the coronoid process, and the latter removed with a small section of the ascending ramus. Then the condyle was chiselled from the glenoid cavity to which it was united by bone. The ascending ramus was trimmed with bone forceps. Then the index finger could be placed between the ascending ramus and the skull. On account of some oozing from the divided bones, the cavity was packed with iodoform gauze. The wound was closed with horsehair, except at the posterior part where the gauze was brought out. Gauze was removed the next day and wound healed by first intention. There was considerable swelling of the cheek for some weeks, which seemed to be due to obstruction of Stenson's duct. There was also some paresis of the orbicularis palpebrarum, but that has now entirely recovered. The teeth can now be separated in front to the extent of three-eighths of an inch. I think the inability to open the mouth wider is due to the shortening of the masseter and temporal muscles of the other side, for the jaws can be separated an inch under chloroform. The patient is able to eat meat and other solids, and seems to masticate well. The operation was in the main after that of Bottini, done originally in 1872. This is, I think, the best operation of those cases of bony ankylosis of the temporo-maxillary joint without involvement of the soft parts. When the jaws are fixed by cicatricial contraction in the soft parts, due to noma, lupoid ulceration or burn, the section of bone must be in front of the cicatrix, and for these cases Esmarch's operation, that is, the removal of a wedge near the body of the jaw, should be done.

It is not always easy to discover which side the ankylosis exists. The history may help. Then the jaw should be examined, and there must be lateral displacement, as there was in this case, due to loss of cartilage in the process which destroys the jaw. Cabot mentions another method of determining this. If the fingers are pressed in on the teeth on each side, and at the same time the patient makes vigorous attempts at mastication, a spring of the bone on the free side will be noticed in quite distinct contrast to the fixity on the ankylosed side. In looking over the literature of the subject, sixty-seven operations on cases of bony ankylosis of the temporo-maxillary articulation have been reported. Of these forty-seven were done by Bottini's method, and this would seem to indicate that surgical opinion favored the operation being done close to the zygoma.

Dr. Bruce then presented the patient for examination.

Dr. Grasett said that this was the first case of the sort he had ever seen. He thought the result was very satisfactory.

Dr. Peters said that he had seen the case at both operations, at which time there was very little movement. His recollection was that the coronoid was not ankylosed by bone to the skull. The first week after the second operation the patient would voluntarily open the mouth so that there was a distance of an inch between the jaws. Probably a larger portion of the bone might have been removed, but if a great deal more had been removed the chin would have been drawn too much to the one side of the mid line of the face. Rather than have this, he thought it preferable to sacrifice one-quarter of an inch in the distance the jaws could be separated. He considered the result a very good one.

Dr. William Oldright drew attention to the comparative smallness of the teeth in the lower jaw. He had seen one case similar to the one presented, in which an attempt was made at breaking down the ankylosis by means of gags.

Dr. Pepler thought more of the bone might have been removed.

Dr. Boyd briefly discussed the case.

Dr. Bruce closed the discussion.

Dr. J. A. Temple presented (1) two ovaries showing cystic degeneration which he had removed from a woman who had a fibroid of the uterus; (2) a non-adhesive pus tube which he had removed from a farmer's wife. There had been no symptoms; (3) a cystic ovary from a woman who had suffered from retroflexion of the uterus and prolapse of the ovary; (4) a fibroid tumor of the uterus which was causing great pain.

Dr. Grasett referred to the second case which he had seen.

Dr. Fenton discussed the last which had been under his care.

Dr. Pepler discussed the diagnosis of pus tubes.

Dr. Oldright reminded the Society of a pair of pus tubes he had removed intact and presented at the Society last year.

Dr. Macdonald reported a case of amputation of the cervix uteri for carcinoma. The patient was a delicate woman, aged 45, who had a number of children, and had miscarried several times. When he saw her first, two weeks ago, the question was whether he should remove the whole uterus in which the mortality by the vaginal route is about fifteen or twenty per cent., the mortality of amputating the cervix only being two per cent., and the result about as good as the more serious procedure. He decided to amputate the cervix. He thought it would add two or three years to the patient's life.

Dr. W. H. B. Aikins discussed the case.

The nominations for the ensuing year resulted as follows: President, Dr. F. LeM. Grasett; Vice-Presidents, Dr. Geo. Bingham and Dr. W. H. B. Aikins; Corresponding Secretary, Dr. Herbert Bruce; Recording Secretary, Dr. J. N. E. Brown; Treasurer, Dr. W. H. Pepler; Council, W. B. Thistle, G. Boyd, H. Hamilton, G. Chambers and F. Fenton.

The Society then adjourned for luncheon.

THE HURON MEDICAL ASSOCIATION.

Reported by ALFRED WATSON,
Trinity Medical College.

The regular meeting of this Association was held in Clinton on May 4th. The following gentlemen were present: Dr. A. Bethune, Seaforth; Dr. B. Hawke, Stratford; Dr. A. B. Hunter, Goderich; Dr. W. Gunn, Clinton; Dr. J. W. Shaw, Clinton: Dr. A. Taylor, Goderich; Dr. J. L. Turnbull, Clinton; Dr. T. Agnew, Londesboro'; Dr. F. J. Burrows, Seaforth.

In the absence of Dr. Stansbury, Dr. Bethune was appointed to the chair.

An invitation, extended by Dr. Brown, secretary of the Ontario

Medical Association, to Huron Medical Association to attend the meeting in June 1st and 2nd, was read.

Dr. B. Hawke, of Brantford, then read a paper on "Cystitis. (See p. 179

Dr. Turnbull discussed the paper briefly, and agreed in the main with the ideas presented in the paper.

Dr. Gunn, of Clinton, congratulated Dr. Hawke on his well-prepared paper. He had found in treating cystitis good results from the use of Skene's mixture, which contain benzoic acid with pot. bicarb., this having a tendency to render the urine acid. As regards local treatment, washing of the bladder thoroughly and getting rid of the pus were to be aimed at.

Dr. Taylor had been treating a patient suffering from irritation of the bladder, with great pain near the meatus, causing patient to urinate very often, by keeping the patient in bed and directing treatment for an irritable bladder, by administering alkaline and hyoscyamus. It was dicovered at a later examination that the woman had a floating kidney. Dr. Taylor referred to a case of incontinence in an old man with paralysis of the bladder wall.

Dr. Shaw, during his practice, had found iodoform suspended in glycerine as a very beneficial injection in cases of cystitis.

Dr. Hunter had used iodoform as an injection on Dr. Shaw's recommendation, and had found it very useful.

Dr. Bethune concluded the discussion by alluding to the causation of the trouble and the treatment recommended. Skene's mixture he had used after injections of boracic and carbolic. He also uses tr. nucis vomicæ internally, which aids in expelling the urine.

Dr. Taylor, of Goderich, reported a case in practice. The patient had been pregnant seven months, and on examining urine he found much albumen. He put the patient on a milk diet, called later and found labor had commenced. The os was undilated and patient was suffering great pain. But the most important symptom was that the patient had grown blind. But there were no convulsions. He introduced index and middle fingers into the external os; then finally into the internal os, but with much difficulty, owing to the contraction. Administered chloroform and gave morphine, then held a consultation, and after waiting seven or eight hours he succeeding in getting into the uterus, performed version and delivered the child. Afterwards he had to introduce both fingers and remove the placenta, which was a difficult task on account of the spasms, the uterus being so much contracted. The patient recovered, but had another similar attack later on. Dr. Taylor was not sure whether the case was one of puerperal eclampsis or not. Keeping in mind the pathology of the disease, treatment should be directed both to kidneys and the the intestines.

Dr. Agnew referred to the old practice of bleeding.

Dr. Bethune said it depended on circumstances whether one should bring on labor or not. He described a case of a woman, weighing 200 pounds, who was six months pregnant, in which bleeding had been resorted to and had proven to be very successful. The child he delivered three days later. Recommended giving chloral by the mouth; but in patients that were strong physically, he highly recommended premature labor to be brought on, especially when patient had convulsions.

Dr. Gunn referred to two cases in which he had brought on premature labor, but they proved fatal..

Dr. Alexande- Bethune reported the following cases in practice: No. 1. —Some time ago I was called to visit Mrs. V., aged 33, in labor with her fourth child. All the previous labors had been difficult, the first child being born alive, the others still-born. I found the labor progressing slowly and the os uteri slightly dilated and

pressing closely up to the meatus urinarius. There was complete retroversion of the uterus, the fundus uteri was lying against the rectum, and every pain seemed to force the child backwards and downwards, instead of upwards and forwards. After several hours, the os being dilated enough to insert the forceps, I applied them, but could not manage to deliver, as the child's head always caught on the bones of the symphysis pubis, which prevented delivery. I then placed the patient in the knee-chest position, and by inserting my fingers into the rectum and pressing upwards when the pain came on, the uterus returned with a sudden jerk to its normal position, and the child was then almost instantly delivered; it was still-born. The patient made a good recovery, and by keeping in bed for six weeks the uterus remained in *situ*, and since then she has had a daughter, who is living and well. This case is rather unique, as cases of pregnancy where there is retroversion or retroflexion, abortion generally takes place about the fourth or fifth month.

No. 2.—Last week Mr. S., aged 67, consulted me with regard to a bleeding from the mouth, which came on every two or three days and continued for an hour or two, and then stopped after using an alum wash for some time. His mouth and throat were very sore, and the tongue was greatly swollen and painful. The palate and fauces were of a dark bluish-red color, and presented every appearance of chronic inflammation. When the tongue depressor was used, the blood began to ooze from several small pin-like points on the tongue, and kept oozing until a gargle of tinct. ferri perchlor. was used, when the bleeding stopped for the time. Now, this patient has always been temperate and well nourished, of stout build and florid complexion, the veins of the face being very prominent, and the red color of the blood showing through them. He has also been threatened with slight paralytic symptoms, dull pain in the hand and tremulousness of the arms. His bowels are regular and urine normal. I really do not exactly know what to term this disease. Some writers describe such symptoms under the head of glossitis, and as the blood seems to ooze mostly from the tongue, it resembles chronic superficial glossitis more than any other disease I know. It might also be classed under the head of hæmophilia. There is nothing in his family history to attribute any hereditary tendency towards a hæmorrhagic diathesis. My treatment at present is to regulate bowels and stomach, and I am giving him tinct. ferri mur. ergot and strychnine three times a day; also a wash containing boracic acid and carbolic acid, to be used two or three times a day. However, the prognosis in such a case, considering the age, etc., of the patient, is rather unfavorable.

Dr. Gunn presented two specimens of pathological urine.

Dr. John Shaw moved that there be a union of the Perth and Huron Counties associations, and that the next meeting be held in Stratford. The President suggested that the motion be laid over until the next meeting.

TRINITY MEDICAL ALUMNI ASSOCIATION.

The annual meeting of this vigorous Society was held in the Normal School, Toronto, April 6th, 1898. There was a large attendance.

Dr. Elias Clouse, President, occupied the chair.

Dr. Vaux read his thesis which was granted first place in the competition. The subject was "Indol, Indican, and Indigo Blue." Indol, he said, was a compound word derived from the root of the word indigo, with the addition of the suffix ol. Indol is the mother substance of indigo blue. It is a substance formed within the body, which, when oxidized,

forms indican. It is held in solution in the urine, is colorless, and on further oxidation yields a substance which will sublime into needle-shaped crystals. It is soluble in alcohol and in water. It forms indigo blue; isomeric with the ordinary indigo blue. Indol is formed in the body as an end product of albuminoid decomposition and is one of the fatty acid series. It may be traced from the nitrogenous elements of the food and body tissues. It has been formed from indigo by the addition of zinc dust and hydrochloric acid. It may be formed by heating albumen in air-tight tubes. It is not found in the stomach, except in rare cases, when H_2S is also found and the colon bacillus. It is formed in the large intestine by the influence of the same bacillus. There is no doubt that in many cases of gastro-enteric affections, where hydrochloric acid is absent, there is indicanuria. Indol is not normally formed in the small gut, but when obstruction occurs indican may be found within twelve hours. This is an important point in the diagnosis of intestinal obstruction. A second source of indol is from degenerated proteid tissue. It may result from the action of carcinoma, tuberculosis or syphilis, increasing in quantity as the degeneration goes on and its absorption into the blood takes place. So also in suppurative change. In twelve cases of empyema under the essayist's observation, ten gave a marked deposit. It was also found in cases of pyonephrosis, sub-diaphragmatic abscess, bromchrectasis and abscess of the lung. So where there was doubt as to nature of a collection of blood in the body cavity, the presence of indicanuria was almost proof positive of the existence of pus; e.g., the diagnosis of pyo from-hydro-nephrosis, gallstones from empyema of the gall bladder, etc.

The essayist then described the qualitative and quantitative tests for indican. He then referred to the significance of indigo blue and its relation to lardaceous degeneration; and concluded that the basis of this form of degeneration was either indol or one of its oxidation products.

Dr. F. LeM. Grasett gave an address on some surgical affections of the rectum. He said he thought the rectum was a little neglected; it was cast into shadow by the appendix, gall bladder, etc. This was because they were newer and fresher subjects. The Doctor spoke first on Piles. When this affection became attended with persistent discomfort, surgical aid was called for. If the trouble was not persistent, he would be in favor of temporizing. For the treatment of the swollen, tender external hæmorrhoid he had found the best results from incision and washing out the sac. He had often treated cases of this sort in that way in his office. The tags of hypertrophied tissue he usually snipped off as a matter of routine, and (what he considered as important) stitched the edges. These external piles were often the cause of severe hæmorrhage; it would hardly be suspected that such a simple condition could be responsible for so much bleeding. He related a case of the sort. The speaker then referred to a severe case of internal piles, where, upon examination, a torn artery was seen. His favorite plan of dealing with internal hæmorrhoids was by ligature. This, he had found, answered in every case, and was better, he considered, than removing the pile-bearing area.

Dr. Grasett then took up the subject of stricture. Symptoms of bloody discharge, alteration in the character of the stool, alternating diarrhœa and constipation should lead one to suspect stricture. The rectum should be examined with the patient by the finger, not only in the lithotomy and prime position, but also in the upright. He does not approve of the introduction of the whole hand into the rectum, as there is danger of tearing it. Treatment of simple stricture

by dilatation is the means he usually employs.

After referring to the specific and malignant varieties of stricture the essayist called attention to the value of inguinal colotomy, and described the simple modern procedure any careful man could perform.

Dr. Henry Howitt, of Guelph, read a paper on some points in abdominal surgery relating to intestinal obstruction. The essayist holds that notwithstanding the perfection to which abdominal surgery has reached, there were some three or four points connected with the technique of abdominal operations not generally known to the profession. Some writers had mentioned one or more, but did not emphasize their importance. In the majority of cases of obstruction the situation of the trouble is low in the bowel, and consequently before reversed peristalsis leads to vomiting, a considerable accumulation of fœcal matter takes place. The arrested fœcal current soon leads to the rapid formation of gas. This distends the intestines and by causing tension on the coats destroys the function of the bowel. When the obstruction is at the sigmoid flexure the gas does not form so rapidly. It was surprising how long a patient could live under these conditions. The higher the constriction the more acute the symptoms and the less the amount of abdominal distension. It was to be remembered that the flatus not only increases the calibre, but also the length of the gut. This latter condition tended to the production of flexures. These took place most often at the splenic flexure and in the sigmoid. The tympanites causes the intra-abdominal tension to be so great as to arrest the peristaltic movements of the gut—not paralysis. Paralysis of the bowel is a very rare complication. When operative interference is called for in this condition, Dr. Howitt recommends that the stomach should be emptied with a syphon tube. Usually a good deal of gas was gotten rid of in this way, and an improvement of the action of the heart and lungs took place, and consequently lessened the danger from the anæsthetic. The incision in most cases in the median line through the abdominal wall should be extensive, to permit the operator to reach any part of the cavity. Where this is done there is less trauma to the already injured peritoneum and intestines than when one manipulates through a small opening. The third point the essayist dwelt upon was the evisceration of the intestines. Experience would convince the operator that in these cases it was extremely difficult to pass the hand into the abdomen without doing this. Beside with the application of warm, moist, aseptic towels gentle pressure may be made to assist in the expulsion of the gas. A portion of a coil is exposed, the patient is turned on one side and pressure made over the abdomen to force its contents into the external coils, and the next step taken.

Empty the distended intestine by one or more incisions with a keen knife, opening opposite the mesenteric attachment. A transverse cut is better than a longitudinal. Care should be taken to avoid vessels. The size of the opening should depend upon the amount of dilatation of the bowel. When the distension subsides these incisions dwindle in size and become mere punctures and can be readily closed with a few sutures. It is not desirable to proceed with the operation of closing the abdomen as long as any tension exists in any portion of the canal. If this is not attended to the danger of recurrence is greater. The above procedures allow for the restoration of the circulation in the intestines, renders their function possible, giving the over-distended muscular coat time to regain its tonicity, and, what is of great importance, removes millions of pathological germs.

Another point the essayist called

attention to was the making a second incision as far as possible from the original one, in which to place the drainage tube.

By observing these procedures the essayist said he had on several occasions saved life.

He had three successful operations for intussusception in children, the eldest of whom was six months old.

Besides these cases, he had during the past five years resorted to these measures on seven different occasions on persons ranging in age from 16 to 67. In six the operation was for intestinal obstruction; the last was for suppurative peritonitis for a gangrenous appendix. All recovered but the last. Four were done at night by the light of a coal-oil lamp and in unsanitary surroundings. The history of some of these cases was then outlined.

Dr. G. A. Bingham and Dr. J. A. Temple discussed the paper.

AFTERNOON SESSION.

Dr. Leroy Milton Yale, of New York, then presented a paper on "The Care and Modification of Milk for Infants."

Dr. Yale began his paper by a reference to the great importance good milk bore to the health of the infant population, particularly in cities. The first requirement was that the milk should be clean in every way. Care should be taken to have it escape contaminaton from dust, dirt, and pathogenic organisms. The second requirement is to secure the best possible handling of the milk. The third requisite is that it shall be of constant nutritive value, that there shall be a uniform amount of fat with a proper proportion of nitrogenous elements. A number of medical men in New York City, feeling the extreme need of a scientifically pure and good supply of milk, had arranged with a dairyman, who agreed, in consideration of their patronage, to conduct his establishment according to their ideas. The herd is selected and all diseased cows are eliminated from it. The tuberculin test is made use of to discover the presence of tubercle. The stable is clean, dry and constructed with a view to being kept clean. The excreta is removed seven times in twenty-four hours. The cows are taken to an adjacent shed while being milked. The stable and shed are well lighted. The floors are of hard pine and are frequently flushed with water. All the fodder is kept in a separate barn. It consists of clover, timothy, ensilage, etc. The cows are given pure spring water to drink. The cattle are groomed once a day, and retouched an hour before milking, their bellies being brushed off. They are allowed out from two to seven hours daily. The workmen are skilled, clean, and temperate. They are examined once or twice a month, and the physician reports to the Board. Especial pains are taken to see that no attendant is the subject of gonorrhœa or tuberculosis. The milk pails are sterilized. After the milking the milk is sent at once to the second storey, where it is strained and filtered and then brought into contact with sterilized cooling coils through which spring water passes. It is then put into sterilized bottles. The milk is tested often to see that its high standard quality is maintained.

The essayist then drew attention to various means of securing milk and means of testing the same where these precautions were not carried out. He showed instruments for estimating in a rough way the quality of milk.

Dr. Chas. G. Stockton read a paper on "The Nature of those Joint Affections usually called Chronic Rheumatism." Dr. Stockton first criticised the present classification of arthropathies. It was a question to what extent arthrites were dyscrasic, toxic or infective.

He holds that chronic rheumatism is a term used to designate a number of affections differing widely in their

etiology. The term rheumatoid arthritis, may possibly have a justification in fact, but such a condition is rarely seen.

In the evening a sumptuous banquet was held at the Rossin House.

In opening the toast list, Dr. Clouse, the President, took occasion to deprecate the existence of lodge and contract practice, and the increased number of free dispensaries. He strongly opposed the idea that medical legislation was class legislation in the usual sense. The general public had made of them (the doctors) a special class. There was no man who devoted so much of his time and attention to the public as the medical man.

To the toast "Our Guests," Dr. Milton Yale, of New York; Dr. Stockton, of Buffalo, and Dr. Charles O'Reilly, Superintendent of Toronto General Hospital, responded. "Old Trinity" brought up Dean Geikie. Dr. G. Bingham responded for the graduates, and Dr. Shoemaker for the graduating class.

E. E. Shepherd, Esq., made a highly patriotic speech in replying to "Canada." He took occasion to say that one of the most interesting facts he was noting to-day was the re-discovery of Canada by the Canadians.

One of the main features of the evening was the presentation to Dr. Vaux of a gold medal, for presenting the best medical thesis. A good many alumni had competed for it.

In a bright speech, Dr. Vaux recommended the formation of an endowment fund to be applied to the carrying on of research work in medicine.

The following officers were elected for the ensuing year: President, H. Howitt, Guelph; Vice-President for Toronto, H. B. Anderson; Vice-President for Eastern Ontario, J. Shaw, Keene; Vice-President for Western Ontario, John Shaw, Clinton; Secretary, H. A. Parsons, Toronto; Assistant Secretary, D. G. Wishart, Toronto; Treasurer, Geo. Elliott, Toronto; Auditor, Norman Anderson, Toronto.

Special Selections

ANÆSTHETICS.

The London *Lancet* of December 25th, 1897, after drawing attention to the fact that the year which has just come to a close is the fiftieth anniversary of the introduction of chloroform as an anæsthetic, reminds us that the occasion was duly honored by the Society of Anæsthetists with a conversazione at which an interesting oration on the progress of our knowledge of anæsthetics was delivered by the President, Dr. Dudley Buxton. Professor Simpson gave an address in Edinburgh, in commemoration of the first use of chloroform in midwifery by Sir James Y. Simpson. In Tokyo, also, the jubilee of anæsthetics was marked by a special meeting and an address by S. Sato, while Ishiguro spoke of the history of the uses of anæsthetics in Japan.

Many valuable voluminous papers on anæsthetics have appeared during the year, notably one in which Hill carried further his research published in 1897, in the *Journal of Physiology* for May, p. 323. He pointed out that the circulation of the blood depends upon the vasomotor mechanism being intact. The abdominal wall is able to support the veins, and so prevents their distension under the hydrostatic pressure of gravity. Muscular contraction during expiration compresses the hepatic and other veins, helping to fill the right heart. When the vasomotor tonus is maintained, the splanchnic area abrogates the effects of gravity. In vasomotor paralysis gravity at once causes accu-

mulation of blood in the abdominal vessels. This leads to anæmia of the brain, and the respiratory centre is driven to greater activity. Powerful muscular movements take place, and blood again enters the right heart. Contraction of the abdominal muscles limits the outflow from the splanchnic vessels. When both the vasomotor tonus and the respiratory pump are paralyzed the circulation cannot be maintained in the "feet-down" position. Chloroform paralyzes both these factors of the circulation. No amount of compression of the abdominal veins will produce paralytic distention of the heart. Both chloroform and asphyxia will do so. Hill finds that such a condition is at once relieved by dropping the patient into the "feet-down" position, as the blood at once flows from the right heart by the force of gravity. The teaching of physiology thus has a practical value, and tells us that vasomotor paralysis is a danger to be looked for and provided against as well as the always accepted danger from respiratory paralysis—a condition which Hill finds may arise both from anæmia of the brain centers as well as from accumulation of the drug. In the former case the failure of respiration is secondary to the primary cardiac failure.

Wood and Carter undertook a research upon somewhat similar lines and come to rather different conclusions. The fall of arterial pressure, unless very profound, they think does not affect the respiratory center. They admit that if the fall is extreme the respiration will fail, but not otherwise. At first excessive fall of pressure stimulates the vasomotor center. The circulation recovers itself more slowly after ether than after chloroform. Ether, as well as chloroform, may cause death some hours after the administration has been discontinued, and even after consciousness is present. They regard the effect of chloroform as being more a drug effect than the result of vasomotor influence; and they further think that the after-depression of ether is more severe than that of chloroform. It seems probable, however, that these findings are the result of a faliacy, for they worked with excessive doses of ether when compared with those of chloroform. Hare contends that chloroform kills by vasomotor paralysis. He advocates the use of atropine, bandaging the extremities, compression of the abdomen, and inversion in the event of syncope. Schleich, if we are to accept the evidence of Maduro, has suggested a new and valuable method. His theory is that the anæsthetic should have a boiling point as near the body temperature as possible. He has, accordingly made three mixtures which have boiling points respectively of 38° C., 40° C., and 42° C., by combining chloroform, ether, and petroleum ether (benzine). The first mixture when inhaled causes a light and transient sleep; the second and third greater and greater depths of anæsthesia. The patients are said to be spared all or most of the after-effects of narcosis. No doubt so careful an observer as Schleich has made sure of his ground before he has allowed publication. Meyer (New York) also has employed the method of Schleich for general anæsthesia, and speaks of its value. It obviates cyanosis, bronchial troubles, and, it is said, does not affect the heart as much as chloroform.

An attempt has been made to trace a casual relation between the temperature, the dampness of the atmosphere, and the death-rate under anæsthetic, but it must be confessed that the views enunciated are more theory than proved fact. The subject of anæsthetics in obstetric practice has received considerable attention, several papers having been read. Ballantyne draws attention to the fact that the physiological condition of parturition is one marked by hypertrophy of the heart, while the constant contraction of the abdominal

and other muscles during labor helps to maintain the circulation. Blood-pressure is thus kept up and even increased, and the respiration is excited. The results of Doenkoff, working with Schatz's tokodynamometer show that although deep chloroformization does lessen the uterine contractions, ordinary narcosis has no effect whatever in that way.

Waller has carried further his important research work commenced some time back, and dealing with the behavior of a detached nerve when exposed to the vapors of various anæsthetics. Prolonged series of action-currents caused by tetanization at regular intervals exhibit no diminution—*i.e.*, nerve is practically inexhaustible. When the nerve is exposed to the anæsthetics, ether or chloroform, the active currents are temporarily suppressed—*i.e.*, the anæsthetics temporarily abolish excitability. Chloroform causes more prolonged suppression than ether, and the suppression is finally absolute—*i.e.*, no recovery takes place. Waller has come to the conclusion that the relation of safety of these two anæsthetics is as one to seven—*i.e.*, chloroform is seven times more deadly to nerve-tissue than is ether. The clinical evidence upon this point is usually taken to show that for every one death under ether thirteen under chloroform take place. There seems no reason, however, to regard these figures as necessary discrepancies, since, in the first place the clinical statistics are far from being exact, while there must be obvious differences between the behavior of detached nerve and the nervous system as a whole. Waller's conclusions led him to what he regards as "the chloroform paradox." If, he says, chloroform is a dangerous agent it should only be used in exceptional cases, but if it is as safe as ether, which he denies, any deaths which take place under it ought not to occur, and the persons who are responsible for them must be held to be guilty of culpable carelessness. Waller further examined other bodies with regard to their action upon nerve: Four per cent. carbon dioxide increased nerve excitability; in larger quantity it caused its diminution or abolition followed by augmentation—*i.e.*, it behaves like ether. Oxygen, nitrogen, hydrogen, nitrous oxide and carbon monoxide have no effect upon the nerve currents. In reference to the action of carbon dioxide, Waller points out that the danger of asphyxial states during the giving of chloroform lies not in the presence of an accumulation of carbon dioxide, but in the accumulation of the chloroform itself.

L. Guthrie, reviewing the subject of "Chloroform Narcosis in Children," finds that children, as far as his experience goes, are affected in precisely the same way as adults, and are therefore quite as liable to the accidents associated with chloroform. Deaths of very young children are perhaps less common than is the case with adults, but it is so simply because children are more easily brought round after overdosage than adults. Their chest-walls are more resilient and their hearts are not, as a rule, affected by fatty or other degeneration, and hence they respond more effectually to artificial respiration. He gives his experience upon various points. He has never succeeded in chloroforming a sleeping child without awakening it—an important point in medico-legal practice, and one illustrated by a recent case of burglary, when several persons were stated to have been successfully chloroformed during sleep by the burglar. The conjunctival reflex is not, Guthrie thinks, reliable as a sign of anæsthesia in children. Nor does he accept the eye movements as a guide. A moderately contracted pupil, slowly rolling eyeballs, full, deep, regular, somewhat stertorous respiration, slight congestion of the face and lips, regular slow pulse, and no change of these during the progress of the operation are, he thinks, the only reliable signs

upon which it is safe to rely. Guthrie also insists that the degree of anæsthesia should be varied, accordingly as the different steps of the operation are more or less likely to produce shock.

At a meeting of the Harveian Society (April 29th, 1897) the subject of giving anæsthetics to children was dealt with, and several speakers referred to the difficulty of judging when a young child was anæsthetized. It was pointed out that this drawback did not exist in the case of ether, and its use for young children was recommended. Pollock and Warrington Haward urged the use of ether for children many years ago, and their experience is confirmed by later workers. The employment of the A. C. E. mixture has again been advanced as a useful method in the case of children, and others advocate it both for adults and children, as a means of inducing anæsthesia, while that condition is maintained by the inhalation of ether well diluted with air. Clement Lucas drew attention to the possible source of infection arising from patients inhaling anæsthetics from a dirty face-piece. He believed that pneumonia occurred from this cause. The challenge thus given was taken up by several anæsthetists, who discussed the subject at a meeting of their society in March. It was pointed out that pneumonia was a not uncommon complication of surgical procedure in the days before anæsthetics came into use. At the present time such cases were very rare and were probably not traceable to the anæsthetic at all. Silk points aut that in the years 1894 and 1895, out of five thousand cases published in hospital reports only thirteen cases of pneumonia are noted. All these, except one were of septic origin. Prescott, of Boston, had met with three cases of pneumonia out of forty thousand etherizations. Further, both ether and chloroform are destructive to bacillary life. Again, nitrous oxide gas, which is the most commonly given anæsthetic, is never the cause of this disease.

With regard to the question of pneumonia following the use of ether, Whitney has found that the pneumonia which occurs is not a peculiar form of the disease; the ordinary pathogenic organisms are present, and the disease follows the normal course. Sternberg holds that pneumococcus is normally found in the mouth. Whitney further suggests that the prolonged use of ether may lower the vitality of the epithelium and enable the organism to exert a specific action. As a prevention he advises that the mouth, nose and pharynx of the patient should all be carefully sterilized before the anæsthetic is given.

It is of no small interest to find that two observers, Lemoine and Gallois, have employed ether both internally and hypodermically for the treatment of uremia and nephritis, and have met with success. If their results should be confirmed it may prove that the action of ether is, after all, not so deleterious as has been held by some.

Von Leber has examined the condition of the blood after ether has been inhaled, with the following results: In 101 cases the blood was examined, and the hemoglobin was, in the majority of instances, unaltered; the corpuscles were found to be but little changed either in number or in appearance, although some leucocytosis was present. Spectroscopic examination of the urine showed no increase of the urobilin. He concludes, therefore, that ether doses do not exert any deleterious effect upon the blood.

The statistics of Gurlt for the year are of interest; they comprise 58,769 cases. Of these, 27,029 refer to the use of chloroform, with 29 deaths; 19,856 to ether, with 3 deaths; 5000 to Billroth's mixture (chloroform, ether and morphine); 1000 to brom-ethyl; 600 to ether-chloroform with no deaths. The figures for seven

years are: 327,500 cases with 134 deaths—*i.e.*, 1 in 2444; and 1 death in 2039 from chloroform.—*Therapeutic Gazette.*

ASSOCIATION OF ARTERIOSCLEROSIS AND RHEUMATIC GOUT WITH OTHER LITHEMIC MANIFESTATIONS.

By B. K. RACHFORD, M.D.,
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It is the purpose of this paper to call attention to the etiologic role which the uric-acid diathesis plays in the production of arteriosclerosis, chronic kidney-disease and rheumatic gout. The term, uric-acid diathesis, is here used in the comprehensive sense in which I have used it in former papers, and which is used to express the same conditions described by Flint under the term, "uricemia," and by DaCosta under the term, "concealed" or "American gout." The term lithemia has now come into general use for describing this morbid condition. The previous papers I have written extensively on the pathology and symptomatology of this disease, and have expressed the belief that the symptomatology of this condition results not alone from the presence of uric acid in the blood, but also from the other alloxuric bodies, including the zanthins. In my studies of the symptomatology of this condition, I have called special attention to the symptom-group produced by the presence of urates in the urinary passages; and have also emphasized the importance of the gastroenteric symptoms as they occur in infancy and childhood, and of certain nervous symptoms, such as migraine, migrainous epilepsy and gastric neurosis, which may occur at any period of life. But in this paper I shall not discuss these lithemic manifestations, which I have so fully treated of in other papers; and will, therefore, come at once to my present theme, the relationship which this same lithemic condition bears to arteriosclerosis, kidney disease, and rheumatic gout.

I have been much impressed, by careful clinical observations, extending over a number of years, with the fact that lithemia is one of the most important etiological factors in the production of arteriosclerosis. We can well imagine that this condition of the arteries might result from their long-continued irritation by the presence of an excess of the alloxuric bodies in the blood. The following case will illustrate this relationship:

CASE I.—The patient was a man aged 55, of negative family-history, a hardware merchant, living in a small town about 100 miles from Cincinnati. As a young man he was strong and active and lived well, but was never addicted to the use of alcohol. All his life he had been a meat-eater, and had been especially fond of rich and highly seasoned food. During the past ten years he suffered more or less from lumbago, and muscular rheumatism in other parts of the body. He has also been a great sufferer for many years from periodic attacks of migraine. He has also had during the past seven or eight years five or six severe "bilious attacks" each year. These attacks would put him to bed, with severe pain in the gastric region, and vomiting, and at times they would be accompanied by severe frontal headache. Treatment had little influence in alleviating or shortening the duration of these attacks. They would run a course of from two to five days, and the patient would then be thoroughly convalescent. For some time these attacks had been accompanied by transient albuminuria, and of late the albuminuria has been greatly increased, and has been accompanied by almost complete suppression of urine. In the interval

between these attacks the urine was normal in quantity and free from casts and albumin. It is also important to note that about one year ago this patient had a slight attack of paralysis, involving the right side, as a result of which he was partially crippled for some time, but from which later he almost, if not quite, recovered. In May, 1897, I saw this patient in consultation with Dr. Roberts, of Paris, Ky., to whom I am indebted for the clinical history just narrated. When I saw the patient he was in the third day of one of his so-called "bilious attacks." He was suffering from almost complete suppression of urine, but the small quantity that was obtained from the bladder contained casts, and was very heavy with albumin. Uremic symptoms were pronounced, and had been for forty-eight hours. Under diaphoresis and purgation, which had been given him by Dr. Roberts, the uremic condition was somewhat improved when I saw him for the first time.

After a careful study of the case I gave it as my opinion that the patient would recover from this attack, and that much could be done to ward off future attacks by proper diet and medication. I also expressed the opinion, by reason of the fact that he had well marked arteriosclerosis, that he would some day die from apoplexy, or from acute uremia. When the patient recovered from this acute uremic attack, he was placed upon a rigid diet of milk and cereals. He was also ordered to take a dose of Carlsbad salt each morning, and 5 gr. of sodium salicylate in Seltzer water after dinner and after supper. In three weeks he had recovered sufficiently to go about town. The albumin had not entirely disappeared from his urine, but the casts could no longer be found. He was continued on a strict vegetable and milk diet, and the medication was continued as before. For the next five months the patient continued well, looking after his business. The urine, as Dr. Roberts reported to me, had almost, if not quite, cleared. In all this time he did not have a single headache or "bilious attack;" and his family, as well as himself, had begun to hope that he had a new lease on life, and that he was entirely cured. On October 29th, while on his way home from his place of business, he was stricken with apoplexy, and was carried home in an unconscious condition, to die fifty-six hours later. The urine examined during this attack was free from albumin and casts.

In the study of this very suggestive case, it is impossible to divest oneself of the idea that the lithemic attacks from which this patient suffered were brought about by the same pathologic condition which afterwards resulted in arteriosclerosis, intermittent albuminuria and apoplexy. The importance of recognizing this relationship is very great, since much can be done by diet and treatment to ward off, or at least retard the progress of the arteriosclerosis, which so commonly ends the lives of these unfortunate lithemic patients.

In this history there is no fact more worthy of note than that the bilious attacks from which this patient suffered were accompanied by a transient albuminuria, and that as years went by and the arteriosclerosis progressed, the kidneys became more and more incompetent to excrete the large quantity of nitrogenous extractives which they were called upon to do during these attacks, and that as a result of this functional incompetence the albuminuria became an acute nephritis, with not only albumin, but casts, and an almost complete suppression of urine.

Cases of this description are of frequent occurrence in the practice of every general practitioner, and if rightly interpreted they must impress the importance of carefully studying the urine of patients suffering from migraine or other paroxysmal lithemic

manifestations. It is not uncommon to find lithemic headaches and attacks of gastric neurosis accompanied by a transient albuminuria; in such cases as these we have, as a rule, a beginning arteriosclerosis, and these are the cases which years afterwards die of cerebral hæmorrhage and uremic poisoning. The importance of the early recognition of these cases cannot be over-estimated, since much can be done by diet and medication to prolong and make comfortable their lives. It is of the greatest importance that the practitioner should clearly hold in mind the fact that lithemic paroxysms, such as migraine and gastric neurosis, are in part at least produced by the presence of the xanthin-bodies in the blood, and that these, the most potent of which is paraxanthin, are capable, not only of producing the frightful nervous paroxysms from which lithemic patients suffer but also, after a time, of bringing about by their irritating presence an arteriosclerosis, which predisposes these patients to cerebral hæmorrhage and chronic Bright's disease.

I wish also to call attention to the fact that there is a group of cases, which are ordinarily called by the profession "rheumatic gout," or "chronic rheumatism," which are in no way related to acute articular rheumatism, but which are to be classed as lithemic manifestations. It is not uncommon to find patients suffering from chronic joint-disease which may shift itself from joint to joint, with a special preference for the joints of the hands and feet, in whom these symptoms are associated with other lithemic manifestations. The following case will more clearly illustrate this relationship:

CASE II.—Both the father and mother of Miss X., aged 40, suffered from paroxysmal headaches, her father also from "chronic rheumatism," which greatly inconvenienced him but rarely confined him to his bed. The patient, herself, up to a year and a half ago, had never suffered from rheumatism or joint-trouble of any kind, but for many years previous to this had suffered from severe paroxysmal headaches (migraine). A year ago she commenced to suffer with joint-pains in her feet and hands, which, at times, would shift to the right shoulder, and from that time until the present she has never been free from so-called "chronic rheumatism." Since the "rheumatism" commenced she has had very few headaches, and in her own mind associated the cessation of her headaches with the beginning of the rheumatic condition. At the present time she is under treatment, and I have observed that the arthritis is aggravated at the menstrual period, and that at times one joint of one of the fingers of the hand will be red, tender and swollen, and a week later the same joint may be almost normal. The inflammation in these joints stiffens them and produces tender points on the external condyles, but these joints are not especially painful on motion.

In this case we have a condition, which may be described as rheumatic gout, developing as a symptom of a long-standing lithemic state, and it is especially worthy of note that the joint-symptoms in this patient are aggravated during the menstrual period.

In this connection I would call attention to another patient, referred to me by Dr. Arthur W. Johnstone, now under treatment and living in a different State. This patient suffers from a sharp inflammation of certain joints in the hands and feet, just before or during the menstrual period, and she never has these symptoms at any other time. These arthritic attacks last from three to five days, and then disappear as suddenly as they came; for the time the patient is quite disabled. Severe paroxysmal headaches occasionally are associated with these attacks of what may be called menstrual gout.

In the following case the import

ance of arthritic gout as a lithemic manifestation is emphasized:

CASE III.—Mr. A., aged 55, was formerly a distiller. He retired from business some years ago, and at present his chief occupation in life is to avoid having one of his arthritic or migrainus attacks, which have contributed very much to his discomfort for a number of years. This patient has suffered from severe attacks of migraine for many years, but during the past ten years they have been somewhat less severe and less frequent. About ten years ago he began to suffer from attacks of arthritis, for which he was treated with salicylic acid. These attacks have continued to recur at irregular intervals to the present time. They as a rule confine him to bed or his room for days or weeks at a time, and are characterized by pain, tenderness, and swelling in the joints of the feet and sometimes in the hands. With these attacks there is a slight rise in temperature, and he always attributes them to some error in diet. "He is quite sure" that attacks have been precipitated by eating strawberries. At the present time this patient is nervous, morose, and has an arteriosclerosis, and with his acute lithemic attacks he has a slight transient albuminuria.

I wish especially to call attention to the fact that the migrainous attacks from which this patient suffers are accompanied by the excretion of an excess of paraxanthin. And I have little doubt but that the irritating xanthins are the *materies morbi* of the whole complex symptom group, including the arteriosclerosis from which this patient suffers. While my studies during the past few years have convinced me that paraxanthin is an important factor in the production of true migraine, yet I have not been able to demonstrate that paraxanthin is in the same manner and to the same extent a factor in the production of the attacks of arthritic gout, but the clinical relationship which I have here noted, and which is known to every physician, leads inevitably to the conclusion that the same body (paraxanthin), or one closely allied to it, is also partly responsible for the arthritic symptoms and the arteriosclerosis which are so commonly held together in the same symptom-group. The pathological significance of these facts is important.

CASE IV.—An army officer, aged 50, has had albuminuria, arteriosclerosis, and a well-marked arcus senilis for more than ten years. During the past two or three years he has had two or three attacks of arthritis each year. These attacks have been sometimes called "gout," and sometimes "rheumatism" by the army-surgeon in attendance. They are, as a rule, confined to the feet and ankle-joints. The joints involved are red, swollen and tender; the tenderness most marked on the external condyles. This patient, like the previous one, always ascribes his arthritic attacks to some error in diet, and a painful experience has also taught him to place strawberries on the proscribed list. But this gentleman, unlike the previous one, has never suffered from headache or depression of spirits. He is at all times an optimist, and a genial companion even during the time he is confined to the house with his arthritic attacks. In the interval between these attacks he leads a very active life, drilling and marching his company, riding a bicycle, and doing other athletic things. Suddenly in the midst of this activity he is put to bed with an attack of arthritis which may confine him to the house from two to six weeks. Two years after these notes were taken, this officer was retired from the army on account of chronic "Bright's disease."

My studies of this case over a number of years led me to the opinion that paraxanthin was not the important cause of these attacks, as I was never able to find it in great excess in the urine. I am not, how

ever, prepared to say that the damaged kidneys did not have something to do with the failure to find an excess of paraxanthin in the urine. In other cases with very similar clinical histories, but with no albuminuria, I have been able to demonstrate that these joint-attacks were accompanied, or followed, by an increased excretion of the xanthin-bodies, but I have never been able to find in the urine of these cases the enormous excess of paraxanthin, which is to be found in migrainous urine. I therefore incline to the belief that paraxanthin is an important factor in producing the nervous symptoms of lithemia, and that the other xanthin-bodies, together with uric acid, have more to do with the production of the joint-symptoms from which lithemics suffer.

I have in my mind many other cases in which rheumatic gout, arteriosclerosis, and chronic Bright's disease have developed in patients who have long suffered from migraine and other nervous manifestations of lithemia; but this sequence of symptoms is so common in lithemic cases, that it is unnecessary to consume space with their further recital. I wish, however, to call attention to two other cases of this character, which claim special attention since they show an interesting relationship between thyroid feeding, acute arthritis, and an excessive excretion of the alloxuric bodies.

CASE V.—A German, aged 40, had neither gouty nor rheumatic inheritance, was a hard-working and hard-drinking teamster for many years, till his sickness interfered with both his capacity for work and drink. In January, 1890, he had his first attack of arthritis; previous to that he had from time to time pains in his joints which were augmented by exposure to damp, cold weather. The first attack of arthritis came on very suddenly, and was limited to the ankle and instep of his right foot. For two weeks he was confined to his room, and shortly after he went to work, and remained well until February, 1891. At this time he had a quite severe attack of kidney colic, which was terminated by the passage of a uric-acid stone. A few days subsequent to the passage of this stone, he had his second attack of arthritis, which, as before, was limited to the right foot and ankle, and confined him to his room for one week. Following this attack of kidney-colic he had three more; the last one in 1894. During each attack he passed a uric-acid stone, and following each attack he had arthritis in one or both feet, which confined him to his house for from one to three weeks. During this time he had also a number of arthritic attacks, which were not associated with kidney-colic. During the year 1896, I saw and treated this patient in a number of his arthritic attacks, which by this time had become so frequent and so long continued as to totally incapacitate him for his work as a teamster. Even in the interval between these attacks the pain in the instep and heel would not entirely disappear, so that when he was at his best he had to use a cane or a crutch in getting about. In February of this year, the patient, who was at that time slowly improving from one of his severe arthritic attacks, was given one grain of thyroid powder three times a day, which he continued for one week; at the end of that time I found him in bed with fever, and another sharp arthritic attack, which he rightly attributed to the thyroid he was taking. This attack produced by the thyroid powder was quite severe, and yielded slowly to treatment, and it was accompanied, like all of his other arthritic attacks, with an excessive excretion of the alloxuric bodies.

That the thyroid powder precipitated this attack of arthritis, there can be little doubt, since I have had the same experience in a number of other cases, one of which was especially

instructive to me, since it was selected for the purpose of trying the effect of the thyroid powder. A brief report of this case follows:

CASE VI.—An adult male was admitted to the Cincinnati Hospital for a polyarthritis from which he had suffered more or less for two years. At the time of his entrance, the joints of his feet and hands were red, swollen and painful, but after some weeks of treatment the acute symptoms disappeared, and the patient was comparatively comfortable, except that these same joints were somewhat stiff and tender. Some two months after his entrance into the hospital, this patient was given 2½ gr. of thyroid powder, t.i.d. Three days later his wrists and ankle-joints became inflamed, and he was in the beginning of what proved to be one of his ordinary attacks of acute polyarthritis, and his urine at this time contained, as it did in his other attacks, an excess of the alloxuric bodies. The patient slowly recovered from his acute arthritis, and was discharged from the hospital some months later.

In the last two cases reported it is an important fact that thyroid powder called forth an attack of acute arthritis in every way resembling the arthritis attacks from which these patients had previously suffered. It is important, therefore, to note that thyroid feeding is contraindicated in this class of cases in that it may precipitate these attacks, and thereby entail weeks if not months of suffering. Moreover, these facts may not be entirely without value in the study of the etiology for rheumatic gout. In this connection the following facts may be kept in mind:

1. Attacks of arthritic gout are associated with the excretion of an excess of the alloxuric bodies in the urine.

2. Thyroid-feeding will increase the excretion of the alloxuric bodies in the urine, and will produce an acute arthritis in a patient suffering from chronic rheumatic gout.

To these facts may be added the third which was noted in Case II herein reported, viz.: That patients suffering from arthritic gout not uncommonly have acute arthritic attacks precipitated by the menstrual periods. In one of the cases reported the acute arthritis never occurred at any but the menstrual time, and was for this reason spoken of as menstrual gout.

If, in considering these facts, we remember that there is a hyperactivity of the thyroid gland at the menstrual period, we may be led to suspect that the thyroid secretion has something to do with the abnormal body-chemistry, which is coincident with these attacks of acute rheumatic gout.

I do not desire to express an opinion as to the possible relationship which exists between the hyperactivity of the thyroid gland and these arthritic attacks. I only call attention to the clinical relationship which exists, in the hope that it may offer a clue of some value in the etiologic study of these obscure cases.—*Philadelphia Medical Journal.*

INEBRIETY AND TUBERCULOSIS, ALLIED DISEASES.*

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The very close relationship between these diseases has been noticed for many years.

In certain families, tuberculosis and inebriety alternate. Some of the members will drink to great excess, then abstain, contract tuberculosis and die. Others will have all the symptoms of tuberculosis, begin to drink and re-

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cover from the consumption, become inebriates and die suddenly of acute pneumonia or nephritis. It is very commonly observed that inebriates who abstain from all use of spirits, calling themselves cured or reformed, soon contract tuberculosis and die. Such cases are very acute and rapid in their progress and termination. Another fact never understood was the apparently abortive influence of alcohol in early stages of tuberculosis. The old-time prescription to drink all the spirits possible when lesions of the lungs were made out, always ended either in precipitating the disease to more rapid death or a low form of dementia and inebriety. The latter was always associated with delirium and exhaustion, and terminated in some acute disease.

The following case represents a class which will disappear in the near future when this subject is better understood:

A., aged 22, had incipient phthisis; he was given at regular intervals large quantities of whisky, and a year later recovered, but continued to use spirits. For the next five years he drank continuously and became demented. He was placed in an asylum and recovered; this was followed by bronchitis and fears of returning phthisis, and he returned to the use of alcohol. He is now a low imbecile inebriate. The frequency with which these diseases appear associated and following each other are attested by all students of inebriety.

In my experience with 2,000 cases, fully 20 per cent. are associated with tuberculosis. I believe a much larger percentage of all cases of inebriety die finally from tuberculosis, of which, probably, there was no intimation until at the end of life. These associated cases have a common heredity and a great variety of common symptoms, which are apparent to all close observers. Dr. Maudsley in "Pathology of the Mind," has described a class of cases which inherit qualities of mind and body that end in both tuberculosis and insanity. They are called phthisical insanities, and although they have no signs of tuberculous deposits or insanity, there is present a peculiar predisposition which quickly merges into the one or the other from the slightest causes. These symptoms are marked in a large number of inebriates before inebriety is developed, and are of the same family type and identical in many ways. Such persons possess an intensively active nervous organization. They are quick, irritable, passionate, fanciful and changeable, eager in project and impatient of opposing delays, very idealistic and unstable of purpose, brilliant in flashes but always wanting in breadth and calm depth of thought and in methodical steady perseverance. They are always quick in thought and intense in their energy; seeing the project of the hour they press towards its realization as the only important thing in the world. In a brief time they turn to some other scheme and abandon the first. In all they do there is the same fitfulness of energy and display of imagination, with hectic credulity and irregularity of thoughts, feelings and actions. There is another class, more of the imbecile type; they are dull, heavy, impetuous and unreasoning, with little or no self-control, usually gourmands and have no other pleasure than to gratify the impulses of the moment; usually have marks of defective growth and degeneration, and sometimes are prominent in business enterprises and show much activity of mind and body. In both of these classes, inebriety, insanity and tuberculosis are almost certain to appear alternating one with the other. They are heredities of the same class, states of defective and retarded growths, followed by exhaustion and low vitality. The ancestors of these persons were very largely inebriates, insane and tuberculous.

Insanity is not so frequent, and seems to depend on some peculiar exciting causes which can be traced,

such as injury, sunstroke and some peculiar mental strain.

Inebriety is simply narcotism to remove the pain and suffering from the defective functional activities.

Heredity has left the person with low and defective vitality, with feeble power of resistance and inability to adjust himself to the changing surroundings. He is in a state of chronic exhaustion, continually using up nerve energy that is replaced with great difficulty. His defectiv . brain is unable to conserve force and hold it in reserve for emergency. Hence the seductive relief which comes from the narcotism of alcohol. Inebriety is only a symptom of this central bankruptcy of energy and power to develop force for the functional activities of life. The same conditions of weakness and degenerations diminish the powers of resistance to the attacks of microbes and tuberculosis. Also the same conditions make the narcotism of alcohol fascinating and create the impression of strength by concealing the physical pain and demands for relief. In the latter case the degenerations go on, more profoundly affecting the higher centres with sensory hallucinations and delusions and changing the metabolism of the body. While alcohol apparently checks the invasion of the microbes and changes the symptoms, it creates new centres of degeneration and destroys the powers of resistance to every condition of strain and drain on the body. The removal of alcohol rouses the predisposition and favoring conditions of the soil for the growth of the bacillus.

If the degeneration has not taken on acute forms in other centres as in inflammation, tuberculosis may follow. A great variety of facts attest these observations, and suggest a wide field for more exhaustive studies. One of these facts shows that families of inebriates and consumptives are often very fecund and numerous. Where the degeneration of the parents is unmistakable, the number of children born are often very large, confirming the oft noted fact, that just before the final extinction of the race a supreme effort is made to perpetuate the seed and save it from final extinction. The oak tree about to die will be over-burdened with acorns. The mongrel dog, whose race is nearly run out, will have an unusually large litter of puppies, which will die in infancy. While the families of inebriates are often very large they do not live long. If they live through childhood, they carry with them into maturity defects that soon end in extinction. Two degenerate members of a famous family in New York married. Both were moderate drinkers. Of the thirteen children born five died in infancy and eight grew to maturity. Three of this number died of tuberculosis, and were inebriates, one succumbed to acute pneumonia, one became demented, two died of some low form of fever associated with rheumatism. One is still living, but is feeble-minded, and has been eccentric and partially demented all his life. All the descendants of these persons are dead.

Another typical illustration of this class came under my care. Three members of a family of nine came for treatment for inebriety. One relapsed and became insane; the second was killed by accident; the third is a low drunkard; two of the remaining children have died of tuberculosis; one is an eccentric reformer with extreme zeal and little wisdom; one is a paranoiac single woman. The parents of these children were wealthy, drinking persons, without business, who died in middle life from some acute disease.

These dying families are by no means uncommon, especially in the older sections of the country. They appear in the two extremes of either great fecundity or barrenness. In one case a sudden large progeny will follow, in the other barrenness, and in both profound constitutional diseases appear with tuberculosis, ine-

briety and insanity in its obscure and modified forms. Where a general history indicates that the family is degenerating, growing weaker in appearance and conduct retrograding, tuberculosis and inebriety with hysteria, eccentricity, rheumatism, and a variety of nerve disorders are almost certain to follow. Inebriety and various forms of drug addictions come first, then tuberculosis or acute affections such as pneumonia, hepatitis, nephritis and affections of the heart. These facts are not observed carefully because often the person or victim manifests some unusual form of vigor and ability before these diseases appear. A son of one of these dying families took high honors at college and entered professional life with brilliant prospects. He attained eminence, suddenly became an inebriate and two years later died of tuberculosis. His inherited degeneration was overlooked in his precocious brilliancy, and display of vigor masked the early dissolution which concentrated in inebriety and tuberculosis. Not all these cases become tuberculous or inebriates; other organic affections appear. The heart and kidneys suffer with the stomach, and a great variety of nervous affections which are likely to concentrate on the lungs, or depress the nerve centres to such a degree as to demand narcotics for relief. This sudden or gradual lowering of the co-ordinating nerve centers in vigor and power may be felt first in the lungs, and then the microbe's soil is ready for the growth of tuberculosis. The inheritance of low vitality and a predisposition to seek relief in spirits and drugs that cover up and relieve this pain and physical unrest, still further lowers the nerve centres of co-ordination, literally enfeebling the power of, resistance to all microbic invasions, and making the possibility of tuberculosis more certain.

The neurotic origin of tuberculosis has been for many years urged by Dr. Mays, of Philadelphia, in many able studies. He has shown conclusively that tuberculosis is far more common in feeble-minded neurotic families. He has proven that it follows more frequently in families of inebriates and those who are eccentric, hysteric and possess a neuro-psychopathic constitution. These facts are not new but have been observed by many competent authorities for years. Dr. Mays has restated them with much additional evidence and many new conclusions that are unquestionable, proving the neurotic origin of consumption.

The present great precautions used to prevent the transmission of tuberculosis germs overlook this fact. The common neurotic origin of tuberculosis and inebriety is also noted in the paroxysmal character of their progress and termination. Cases of tubercolosis come on suddenly, pass rapidly to a fatal termination, or are marked by long irregular halts and apparent recoveries, which are supposed to be due to certain remedies or means used. These halts are paroxysmal, irregular and followed by other diseases or death from the original disease. Climate cures, drug cures, food cures, are all secondary to nerve rest and hygienic measures which build up the brain and central nervous system.

Inebriety begins the same way, in many cases suddenly, and is followed by halts and proxysmal changes. Then the drink crave breaks out again, subsides, then changes to acute inflammation of the lungs or kidneys. A period of moderate drinking seems to prepare the nervous system for drink-storms and excesses.

In tuberculosis, bronchial catarrhs and irritations of the throat, lead up in the same way to pronounced tuberculosis. In many cases of tuberculosis a marked mania exists for drugs of some kind. This is the same craving for relief that possesses the inebriate. The former is filled with the hope of virtue in drugs, is credulous expectant, ever ready to try

every new thing, never doubting its possible good effects. Filled with delusions of strength and final cure of his malady, the inebriate has the same boundless confidence in his power to abstain and ability to use spirits at all times and recover from the effects. The similarity of these cases can be traced in a great variety of symptoms which are identical in both cases. In both of these diseases there are similar nerve degenerations which may concentrate on any organ of the body.

Dr. Alison, in an exhaustive paper on the etiology of cirrhosis and pulmonary phthisis among inebriates, found phthisis more common among those of active habits.

He studied eighteen inebriates in fifty-four cases of phthisis, and asserted (*Archives Generales de Medecine*, Paris) as his positive conclusion that the use of alcohol predisposed to consumption by lowering the powers of nerve resistance, and by creating a constant source of irritation in the bronchi and lungs from the elimination of the alcohol. He was also clear in his conviction that inebriety and consumption were interchangeable, one following the other from the same general causes, and both more likely to occur before forty. After that, acute inflammations followed more readily.

Dr. Mays, in the *Journal of Inebriety*, for 1889, reported a number of cases from German authorities where death occurred from some form of inebriety, and the postmortem revealed tuberculosis and lung degeneration. In the same paper he reports a number of cases of inebriety following in the children of consumptives, and of phthisis or consumption appearing in children of inebriate parents. Dr. Haycraft, in "Darwinism and Race Progress," declares that criminals, inebriates, lunatics and consumptives are all born with neuro-psychopathic constitutions, and in no other affection does heredity play so important a part.

Dr. Irwell, in "Racial Deterioration," describes the neuro-psychopathic constitution as a permanent condition of defect and weakness of the psychical nerve centres, noted in instability of nerve and brain power, lack of persistency, headaches, insomnia, indigestion, great susceptibility to environments, exaggerated emotional activities and a general insane temperament.

Dr. Williams, in his work on pulmonary consumption, written some years ago, describes the close relation between inebriety and consumption, calling them members of the same family group of diseases, one alternating with the other.

The fact has been noted by many specialists that inebriety often terminates in acute inflammation of the lungs and kidneys, coming on suddenly, showing that exhaustion has a special tendency to concentrate in this way.

Dr. Clouston, of Edinburgh, in a late report says, that it is surprising how often insanity, consumption and inebriety appear in the same family and follow down to extinction among the descendants.

When one of these diseases is present the others are most likely to follow. Dr. Payne, in his "Pathology of Chronic Alcoholism," says: "I can find no evidence to support the opinion that the free use of alcohol checks the progress of tuberculosis.' On the contrary, the impression seems well founded and firmly held by many authorities that inebriety follows tuberculosis, and that they alternate one with the other frequently; at least there can be no question that they are very frequently associated.

Dr. Sharkey, in the London Pathological Society, claims that disturbances and lesions of the vagus nerve by lowering the nutrition of the lung predispose it to become the nidus of the bacillus of tuberculosis. Hence all inebriates are predisposed to tuberculosis, and are more likely to contract this disease than any others.

The evidence of the neurotic origin of tuberculosis is often overlooked in bacterial study. The same extraordinary care to prevent infection in public places should extend farther back to heredity, alcohol and the great strains and drains that lower the vigor and lessen the power of resistance and make it possible for bacteria to find favorable soil for the destruction of the body.—*Jour. Am. Medical Association.*

SOME EXPERIMENTS ON THE ASSIMILATION OF DIPHTHERIA ANTITOXINE.*

By C. FISCH, M.D.,
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In submitting to your criticism, the following few remarks, I have first to apologize for the desultory and abrupt form in which I am compelled to present them. The way in which my experiments necessarily were conducted, and the only very scant amount of time I was able to devote to them, prevented me from arranging them in a more elaborate and æsthetic picture. I trust, however, that the theoretic as well as the practical interest clinging to them will procure me your forbearance.

Ehrlich, Kossel, and Wassermann some five or six years ago established the fact that in female animals immunized against diphtheria and tetanus toxine, not only the blood serum exhibited the well-known antitoxic potency, but that the secretions of the milk glands, too, were charged to a considerable degree with it, although much less so than the serum. In an exceedingly fascinating and ingenious series of experiments Ehrlich was able to show that nursing animals, when inoculated with sublethal doses of toxine (that means when immunized during the nursing period), conferred immunity to their suckling offspring. These investigations have afterward been repeated several times, always with the same results; as experimental animals, mice, goats, horses and cows were employed. Two French observers* went so far as to make out a table of the proportional antitoxic potency of serum and milk in the same animal (horse).

The salient point, of course, was the immunization of the suckling young by means of this antitoxic milk; that means the question, whether by absorption along the gastro-intestinal tract of an antitoxic fluid the antitoxic property can be appropriated by the organism—whether passive immunity can be produced in this way. For certain reasons the general trend of explaining the facts mentioned was not in favor of this hypothesis. It was deemed much more probable that while immunizing the mother animal small quantities of toxine were directly transferred to the young, and that so an active tolerance for the poison, an active immunity resulted. The facts observed in animals were largely borne out by observations on human beings. It was well known that suckling infants were rarely attacked by infectious diseases from which their mothers were suffering; this was especially evident in diphtheria and typhoid.

Much more important, however, became statistical investigations, which showed that the mortality in breast-fed infants from infectious diseases was enormously smaller than artificially fed babies, a fact for which no other explanation could be brought forward other than the presence of antitoxic energy in mother's milk. Finally, the question as far as infants or young animals are concerned, could be considered solved by direct experiments—I only mention the names Schmidt and Pflantz, Mets-

*Read before the Bethesda Pædiatric Society, February 3, 1898.

*Salomonsen and Madsen. *Ann. de l'Inst. Pasteur*, vol. xi, p. 315.

chnikoff, *et al.*—experiments in which infants were taken from a healthy mother and nursed by a woman who had gone through an attack of diphtheria. In every case in the blood of these infants the presence of the specific antitoxic potency or body could be demonstrated. The animal experiments were conducted on mice, which were given up to a mouse immunized against tetanus; here, too, a direct transfer of antitoxine was the result.

In view of these facts, it is surprising to find so few attempts in the literature at administering antitoxine by way of the gastro-intestinal tract. While even Escherich,* only a few weeks ago, was compelled to acknowledge that infants might be safely immunized by giving the serum by mouth or by rectal injection, he positively maintains the position that such a modus is only effective in infants, and does not hold good for older children or for adults. Other authors think differently. The result of the perusal of the few treatises and notices published on the subject is that the main question, the question of absorbability of antitoxic serum by the digestive tract, has not as yet been definitely settled.

The practical value of a definite knowledge about this subject is apparent, hypodermic medication, especially in children, always being a somewhat annoying and trying task. But for me the greater interest consisted in the light that a conclusive solution of the problem might shed on the intrinsic nature of the antitoxine. Did not but lately Behring himself despairingly admit the possibility that we might not have to deal with a definite chemical compound, but rather with a form of energy, likening it to the magnetic force produced in iron under certain conditions? The probability must be considered that if such an antitoxine, whatever it be, is absorbed unaltered by the mucous membrane of the digestive canal, it rather represents a stable compound, a definite substance, than a mere potential energy inherent to substances that certainly are changed during their passage through the same.

Very beautiful investigations, of which the first notice came to us from Germany last week, bid fair that our ideas on this matter will soon be revolutionized, or at least will be settled definitely. Once more mysticism has to yield to logic, although I did not know which one of the two is the better or truer alternative.

My experiments were begun in a merely qualitative way on animals and ended in a series of quantitative tests on the species *Homo sapiens*. I had at my disposal the milk of a number of goats and of a cow, which had been previously immunized against diphtheria in the ordinary way to a fairly high degree. The cow's milk, at the time my experiments commenced, had an antitoxic potency of four antitoxic units to the cubic centimetre, while that of the goats was a little less powerful (2.3 to three units to the cubic centimetre). I did not test the serum of these animals, but concluded from analogy that its potency was eighty to a hundred and ten units to the cubic centimetre. I will add that the cow afterward succumbed to general cachexia following a large injection of toxine, while several of the goats escaped death from impending paralysis by the hypodermic administration of pilocarpine.*

From a litter of puppies four were selected (two males and two females) after they had become four weeks old. Their weight was approximate-

* *Wiener klin. Wochenschrift*, 1897, No. 48.

* The milk of these animals may be condensed, and with proper precautions it keeps a long time. A condensed sample of antitoxic goat's milk is now as effective as it was six months ago, when it was prepared. By the addition of a large quantity of sugar it can be made into a very pleasant preparation.

ly the same (twelve to fourteen hundred grammes), as was their general condition. By means of a rubber syringe one ounce (about thirty cubic centimetres, that means one hundred and twenty units) of antitoxic cow's milk was slowly forced down the throat of one (No. 1) of them; at the same time a hypodermic injection of one-tenth of a cubic centimetre of diphtheria antitoxine (ten times the fatal dose for a guinea-pig of three hundred grammes) was given in the abdominal wall. Another puppy (No. 2) received the same injection of milk, while the toxine injection was given twelve hours after, and finally, a third (No. 3) animal got the milk twelve hours after the toxine injection was administered. As control, the fourth dog was injected with a tenth of a cubic centimetre of the toxine alone. The result of the experiment was that all of the four dogs died. But there was a very decided difference in the time elapsing between the injection of the toxine and death. The control and No. 3 died thirty-four and thirty-six hours respectively after the injection. No. 1 lived sixty hours after the injection, while No. 2 survived as long as four days (ninety hours) after the injection of the poison. He seemed to succumb more to a very extensive necrotic and gangrenous degeneration of the abdominal walls than to a direct intoxication, which latter was the case in the three other animals, who showed comparatively little local reaction (some œdema and infiltration), but exhibited the most complete picture of paralysis (of the hind extremities mainly). The retarding influence of the antitoxine given by the mouth is apparent, although in no case was it sufficient to save the animal. I must remark, however, that young dogs are exceedingly susceptible to the poison, and that the dose I employed was certainly much too large.

As an instructive fact, proving that it is the susceptibility of an animal for a toxine that determines a certain amount of antitoxine for neutralizing the poison, rather than the absolute quantity of the latter, I may be allowed to incidentally add that in one or two other puppies a fourth cubic centimetre (one antitoxic unit) of milk was not sufficient to counteract a tenth cubic centimetre of my toxine (which in a guinea-pig it would have done), while the second puppy with a half cubic centimetre of milk (two units) escaped unharmed.

A number of kittens served for another experiment; they were only a few days old (eyes not yet opened) and had to be artificially fed. The toxine injections (a twentieth of a cubic centimetre) were given as usual on abdominal aspect. The outcome was more satisfactory, inasmuch as I succeeded in keeping three out of five kittens alive, when injected with a dose of toxine that proved fatal in a control within thirty-six hours. One of the three animals died afterward from the weakening effect of a necrotic ulceration at the site of injection. Two animals perished sixty and ninety-six hours respectively after the injections had been made, and these were the ones that had received milk and toxine at the same time. The three first mentioned were inoculated twelve, twenty-four, and thirty-six hours respectively after the milk had been administered. As to the amount of milk, I limited it to what an animal would take at one nursing.

This experiment with kittens I have only lately repeated with absolutely the same results, only that in this case instead of antitoxic milk I employed the antitoxic serum itself. If so, it seems to be undoubtedly possible that an absorption or an assimilation of antitoxine can take place in very young animals when introduced into the digestive track. The conditions are said to be different in adult animals. In order to find out the truth of this assertion my next series of animal experiments dealt with adult guinea-pigs. It was

not only the convenience that led me to select them, but the consideration that if in a herbivorous animal the test should prove the result positive, this ought to be so in carnivorous animals, or in those partaking of a mixed diet. I took, however, the precaution to compel the animals to be submitted to the experiment to fast for twenty-four hours previously. The gastric capacity of an adult guinea-pig (five to six hundred grammes) is about forty grammes. therefore the dose of milk was never increased above twenty cubic centimetres. Six adult animals treated in this way (injected with toxine twelve, twelve, twenty-four, twenty-four, thirty-six, thirty-six hours respectively after the injection of milk) remained perfectly healthy. The control animal died promptly within thirty-six hours (a tenth cubic centimetre of a one-hundredth toxine). Of course, it will be seen that the amount of antitoxic material far exceeds the amount necessary to neutralize the toxine; but it was not my intention to determine the degree to which absorption had taken place. I clinched the evidence by the following tests: An adult guinea-pig was treated to twenty cubic centimetres of antitoxic milk, in the way described, on three consecutive days. Forty-eight hours after the last artificial feeding it was killed, its blood collected, and the serum separated in the ordinary way. This serum protected another animal in the dose of at least a cubic centimetre against five times the fatal dose of toxine; more accurate determinations were omitted.

A parallel series of tests followed this milk test with ordinary antitoxic serum in place of the milk; results absolutely the same. Guinea-pigs that received serum by mouth and toxine hypodermically at the same time died invariably, while when the toxine injection was given about twenty-four hours afterward the animals were sure to be saved.

Without going into any experimental details, which only would have served to tire you, I think that the evidence produced is sufficient to admit of the assertion that absorption of antitoxic substances or substrata invested with antitoxic potency can really take place by way of the mucous membrane of the gastro-intestinal canal even in adult animals. But there are certain discrepancies in the results, mainly connected with the time after which this absorption seems to have taken place, which made it desirable to attack the question afresh, with a view of getting an insight into the quantitative relations of the process. Many circumstances tend to make this impracticable in smaller animals. Therefore, the rest of my researches bear on experiments made on the human organism, and I have to thank some of my friends for kindly volunteering to submit to them.

Of course, in calling the following experiments quantitative, this word must not be taken in its mathematically correct meaning. It was only an approximate estimation that was attempted, and this I succeeded in. But before reporting them I would like to refer to a preliminary experiment, which was made to see how an artificial gastric juice acted on the antitoxic quality of our serum. One cubic centimetre of the serum was mixed with nine cubic centimetres of a solution of Fairchild's pepsin (in one one-hundredth per cent. hydrochloric acid, and the mixture kept in an incubator for two hours at a temperature of 57°). The simple fatal dose of toxine was then injected into three guinea-pigs, together with a proper amount of the digested fluid, which had been thoroughly neutralized with dilute NaOH solution. All three guinea-pigs survived and did not show any of the characteristics of diphtheria poisoning.

After this result I refrained from investigating into the effects of rectal injections of the antitoxine.

In making my calculations I had to choose for a pivoting point the

investigations made by Madsen and others, who found that the quantity of antitoxine contained in the tissues of an immunized animal is *nil*, only sometimes the sexual glands (ovary and testicles) exhibiting some traces of it (the latter after Metschnikoff). The whole bulk of it is contained in the blood. This agrees very well with the latest brilliant researches of Wassermann and Tankaki* on tetanus antitoxine. I therefore calculated that the mass of the blood being one-thirteenth of the body weight, in a certain amount of blood or serum a certain adequate amount of antitoxine ought so be retrieved, supposing that absorption to any extent from the stomach or the intestinal tract took place. The following reports will show that this supposition and calculation were correct.

I began with myself. After a preliminary test had shown that my blood did not possess any antitoxic properties whatever, I swallowed ten cubic centimetres of a serum that contained two hundred and fifty units to the cubic centimetre—twenty-five hundred units in all. My weight at the time was sixty-three kilogrammes, from which it would follow that I was the lucky possessor of twenty-one kilogrammes, or about twenty-one litres of blood. In one experiment, I, by puncture, drew after some twenty-four hours from my finger some blood, of which exactly one cubic centimetre was immediately (before clotting) shaken up with nine cubic centimetres of distilled water. One cubic centimetre each of this watery solution, together with the fatal dose of one one-hundredth cubic centimetre of toxine was injected into two young guinea-pigs of three hundred grammes. Both remained healthy, justifying the conclusion that that tenth cubic centimetre of blood contained enough antitoxine to neutralize the fatal dose. Brought in connection with the total amount of antitoxine and blood, which had a bearing on this result, this would mean that of the 0.25 unit theroetically present in one cubic centimetre of blood the presence of at least 0.1 unit had been demonstrated.

Two similar experiments, the one made on me, too, six weeks after the first, and the other on Dr. M., yielded practically the same result, although in the case of Dr. M., instead of serum an adequate quantity of milk had been injected, and the blood was not drawn until thirty-six hours after the injection. I shall not overtax your patience with an enumeration of the details of these two tests.

It is true both of us were healthy and in perfect physical condition, especially so far as the digestive function was concerned; and if it may not be allowed to generalize from these two or three experiments, their importance lies in the conclusive proof that under certain conditions an almost entire absorption of antitoxine by the gastro-intestinal tract can take place.

As to the time which is needed to incorporate in this way the antitoxic substances or potencies, we learn from the foregoing remarks that it is completed within twenty-four to thirty-six hours. It would not only be interesting, but also of great practical importance, to determine as nearly as possible the shortest time in which this absorption may occur.

Dr. Z. was kind enough to furnish me with three different specimens of his blood, after the injection by mouth of twenty-five hundred units of serum. His weight at the time of the experiment was eighty-four kilogrammes, therefore the amount of antitoxic force to be looked for in 0.1 cubic centimetre of his blood was 0.09 unit, or nearly 0.1. The specimen taken before the experiment began proved to be absolutely inert. The specimen drawn after thirty-six hours was antitoxic to such a degree as to protect the usual size guinea-pig in the dose of 0.1 cubic centimetre (prepar-

**Berlin. klin. Wochenschrift*, 1898, No. 1.

ed as in the first experiment) against nearly one-hundredth cubic centimetre of antitoxine. In contradistinction to this, the two guinea-pigs which were treated with the blood taken five and nine hours respectively after the antitoxine administration died from the simple toxine dose after thirty and thirty-four hours.

With Mr. H., a student of our college, I conducted the same line of experiments; blood was drawn four times: before, six hours after, eleven hours after, and twenty-fours after swallowing the same dose of antitoxine. The outcome was that samples Nos. 1, 2 and 3 gave absolute negative results, while with the fourth sample it was easy to protect the animals against the fatal dose of poison.

It has therefore been established that while after twenty-four or thirty-six hours nearly the whole amount of antitoxine can be recovered from the blood, when the antitoxine has been taken by mouth, after five, six, nine, and eleven hours nothing or very little of it can be found. My experiments, of course, would not exclude the possibility that at these hours some antitoxine was present; on the contrary, that is very probable; but its amount certainly was small and not sufficient to protect animals against even very small doses of the specific poison.

I need not state *in extenso* the conclusions it will be allowed to draw from these remarks. It seems, in the first place, that they tend to corroborate the theory of the chemical nature of antitoxine, and in the second place they show that with perfect safety immunization against diphtheria may be produced by oral administration of the antitoxic serum or the antitoxic milk. In the case of children the latter seems preferable. On the other hand, they emphasize the fact that curative effects must not be attempted by this way of administration on account of the slowness of absorption, or at least of diffusion through the system; even for prophylactic purposes (in families where one member is infected, for instance) it must be employed only with careful discrimination of the conditions.

For speculative minds it would be a promising task to find out why it takes so long for this substance to be diffused through the body, while almost all other absorbable chemical bodies, when in contact with the intestinal mucous membrane, assert their presence in the circulation much earlier.—*N. Y. Med. Jour.*

HOW TO TREAT SICK-HEADACHE.

Analgesine, says Dr. Hirtz in the *Journal des Practiciens* of December 11th, 1897, is unquestionably a medicament of the first order. Huchard experimented with it as an antipyretic; but it is especially an analgetic, and Germain Sée used it commonly to combat pain. The dose is, so to speak, individual. Some subjects are relieved by a dose of 4 grains; others require 15 grains; and sometimes 30 or 45 grains are necessary to obtain recovery.

Patients should be warned against the abuse of this drug, which has become public property, and is frequently taken without the advice of a physician, as it gives rise occasionally to symptoms of veritable poisoning. Analgesine is more easily tolerated when combined with 8 grains of sodium bicarbonate. It may also be administered hypodermically when the condition of nausea, dependent upon the headache is too painful and too pronounced to allow of the ingestion of any liquid. It may be given in enemata, from 30 to 45 grains of analgesine with 6 drops of laudanum being sufficient for four injections.

Before the employment of analgesine, says the author, caffeine was frequently prescribed, either in potion

or in subcutaneous injection, and the following formula, by Huchard, may be recommended:

℞ Caffeine.
Sodium benzoate, of each 660 grains.
Peppermint water, 8 ounces.

M.

A teaspoonful is to be given every two hours until four teaspoonfuls have been given, each one representing 4 grains of caffeine. The same dose will be continued in a Pravaz syringe, with the following formula for hypodermic injection:

℞ Caffeine, 38 grains.
Sodium benzoate, 44 grains.
Distilled water, sufficient to make 2½ drachms.

M.

If the sick-headache persists, after the administration of analgesine, other drugs may be tried, such as acetanilid. They should not be given except in divided doses, in small capsules containing from 3 to 4 grains five or six times a day. Care should be taken not to exceed 30 grains a day.

Phenacetine has the advantage of being almost non-toxic and of provoking much more rarely than analgesine eruptions and symptoms of intolerance. Capsules containing 4 or 5 grains may be given four or five times a day.

Exalgine does not give such brilliant results in sick-headache as in the trifacial neuralgias. Four grains may be given at a time, but this dose should not be exceeded, and its action should be carefully watched, as it gives rise to accidents.

Lauder Brunton, says Dr. Hirtz, recommends sodium salicylate combined with potassium bromide. The amount is 23 grains of the former and 38 grains of the latter, given in four doses.

Immerwahr, Lewy and Schumann have found in methylene blue, a very efficacious remedy for sick-headache, especially the form called angeiospastic. They gave it in doses of a grain and a half four times a day, combining it with nutmeg as follows, in order to avoid vesical irritation:

℞ Methylene blue.
Pulverized nutmeg, of each 1.5 grains.

M.

This quantity will make one capsule, about four of which may be given a day.

Migrainine, which is considered by Schumann one of the best remedies for sick-headache, is a combination of antipyrin and caffeine, as follows:

℞ Antipyrin, 89.4 per cent.
Caffeine, 8.2 per cent.
Citric acid, 0.56 per cent.

M.

Aconitine is sometimes successful when other nervines fail. It is prescribed in globules only, each containing four one-thousandths of a grain, of which two a day may be given.

Guarana contains guaranine, which is identical with caffeine. It is given in a powder in doses of from 8 to 30 grains dissolved in water.

Seguin, who was a great advocate of the ocular theory of sick-headache, thought it was frequently due to defects of refraction, and he recommended the employment of mydriatics and the correction of the muscular defects by wearing proper glasses. As an internal remedy, he recommended the extract of cannabis indica, to be given three times a day in pills, each containing a fifth of a grain, which amount may be progressively increased to 3 grains. Gradle, of Chicago, prefers the tincture of cannabis in doses of from 20 to 25 drops twice a day, at an interval of six hours.

Ophthalmic sick-headache, during its painful stage, is amenable to the same treatment as common sick-headache. Other indications, however, present themselves. This form of sick-headache is associated with nervous affections, such as neurasthenia, hysteria, certain mental troubles, epilepsy, tabes and general paralysis. The most useful treatment, and the only one really efficacious, given in the interval between the attacks in order to delay their recurrence, is with the bromides. Charcot and Fere, says Dr. Hirtz, laid great stress on the services which this treatment rendered. Potassium bromide, sodium bromide, or a mixture of several bromides, may be prescribed in amounts increased from 30 to 90 grains in twenty-four hours.

Ophthalmoplegic sick-headache sometimes resists all treatment. During its painful stage antipyrin, phenacetine, exalgine, etc., may be employed. The paralytic stage is frequently rebellious to all therapeutic intervention, and this is explained, says the author, by the anatomical and pathological changes. In one case, Gubler found the oculomotor nerve surrounded by an abundant exudation, with thickening of the pia mater. In a case coming under Weiss's observation the nerve was buried in tuberculous masses; in another the nerve was pressed upon by a fibro-chondromatous tumor. In spite of these facts, which baffle all attempts at cure, either the iodide or the bromide treatment should always be tried. Locally, energetic revulsives may be tried under the form of blisters, the cautery, or even the seton. Not only must the attacks be cured, but, what is more difficult to accomplish, their recurrence must be delayed, in order to render them less frequent, and, if possible, to cause their disappearance. To do this, the various causes which lead to sick-headache should be taken into consideration. The patient should be put upon a strict diet; he should avoid all indigestible food, alcoholic drinks, and liquors, the smallest doses of which bring on an attack of sick-headache in predisposed subjects. The majority of recoveries, according to Dr. Hirtz, are due to extreme sobriety.

Debout recommended the following as a prophylactic measure:

℞ Quinine sulphate, 45 grains.
Pulverized digitalis flowers, 23 grains.
Syrup, a sufficient quantity.
M.

This quantity will make thirty pills. The dose is a pill every night for a period of several months.

In arthritic, rheumatic and gouty persons, the following treatment is recommended by the author: The patient is put upon a strict diet; nitrogenous or indigestible food, especially vegetable, is not allowed at night, and water, or a drink like weak tea, may be taken. In the morning, before eating, Carlsbad or Tarasp water, heated to about 104° F., may be taken, or else Vichy water. Every night, before supper, a pill, containing the following mixture, may be taken:

℞ Quinine valerianate, 15 grains.
Extract of colchicum, from 3 to 7 grains.
Extract of digitalis, 3 grains.
Extract of aconite, 1½ grains.
M.

This quantity makes ten pills.

Neurasthenic sick-headache is best benefited by living in the country, moderate muscular exercise, and a quiet life free from professional occupations. It may be overcome by the employment of the phosphates or the glycerophosphates, the use of which may be alternated with arsenic under the form of Fowler's or Pearson's solution, in amounts of from 6 to 12 drops a day; or strychnine arsenate may be used in globules containing fifteen one-thousandths of a grain, of

which from two to three a day may be given.

Hydrotherapy, static electricity and psychotherapy are, says Dr. Hirtz, ordinarily valuable adjuvants.—*Therapeutic Gazette.*

A "PREJUDICE" AGAINST KEELEY AND HIS METHODS.

Some three years ago the editor of the *Christian Advocate*, New York, undertook an impartial investigation into the question of the permanency of the so-called "cures" for inebriety effected by the Keeley method. This investigation was very strongly opposed by the Keeley Company; every possible difficulty was placed in the way, and Dr. Buckley, the editor, was denounced as being prejudiced. To this charge Dr. Buckley frankly admitted that he was prejudiced against both Keeley and his methods, and set forth in full the grounds for entertaining this prejudice. The rev. doctor gives Keeley his blessing in the following outspoken style:

OUR PREJUDICE AND ITS ORIGIN.

We had, and still have, a prejudice against Dr. Keeley, regarding him as pursuing quackish methods and governed primarily by the desire to make as much money as he can, and believe that that is the chief reason of the keeping of his remedies secret. Having been interested for many years in the reformation of drunkards, we have been in the habit of preserving everything related to the subject.

About thirteen years ago Dr. Keeley sent out a circular offering, for nine dollars, to cure drunkenness by two bottles of medicine.

In addition he says: "All medicine packed securely *and sent masked* when so desired."

In the further description of it he testifies: "Up to this time I have not heard of a single instance of failure."

He had then been sending these medicines around the country long enough to make a call for a third edition of this circular; he claimed then to have been using the remedy five years. This is followed by a number of certificates in the usual patent medicine style.

He further says: "I have the fullest confidence in its merits, and feel no hesitation in guaranteeing it to be what the press has already named it, 'An infalliable cure for drunkenness.'" He observes, however, that "there may be some cases of failure in the future."

As he signed himself "Surgeon of the Chicago & Alton Railroad, and late Surgeon U.S.A." while resorting to these quackish methods, we wondered whether the phrase "Surgeon C. & A. R. R." signified that he was the general surgeon of that corporation, or whether "late Surgeon U.S.A." meant that he ever was a surgeon in the regular army, and were informed that, like many other physicians along the line of a railroad, he was employed in case anything happened at the little village where he lived, and that he had been a surgeon in the late war in connection with a *volunteer* regiment.

We suppose that these special titles were added simply to push his "*infallible* cure" in "two bottles at nine dollars," and frankly confess that such a circular, with such statements and signatures, created a prejudice in our mind, especially as he repeatedly declared that "the double chloride of gold in my hands has uniformly effected a cure in nine days, and left the patients without a desire for intoxicants, or for any stimulant as a substitute, no patient so cured having relapsed into the drinking habit;" and published extracts of letters to himself calling his two bottles "the *saviour* and *redeemer* [italics not ours] of the drunkard's mind and body; because it *saves* him from temptation and *redeems* him from the effects of a dissipated life."

This prejudice did not, however, lead us to conclude that the contents of the bottles might not be valuable, but simply that the inventor had in view the making of money, and therefore was willing to turn aside from the regular profession of medicine and patent his bottles "*in order to protect himself more fully.*" This he had a right to do, but not as a regular practitioner of medicine.

We were the more ready to conceive a prejudice from this cause, that in 1880 he had sent us a circular advertising a medicine which he declared to be an infallible and certain remedy for another disease. This he professes to cure by two bottles which have a thoroughly quackish name, and are sold at five dollars a pair. In the circular is an address to those afflicted assuring them that if they would buy these bottles and take the medicine they would not need a vacation to recuperate their wasted energies, but could go on with the arduous work of the pulpit and parish, the practice of law, mercantile pursuits, journalism and politics (it being especially useful to politicians in a campaign, during which "an immense amount of cerebral force is expended,") in fact, the contents of these bottles would "be found more beneficial than three months in the White Mountains or a summer at the seaside."

Considering that for five years he "never knew a failure" of the bottles at nine dollars a pair to effect a permanent cure of drunkenness—"in nine days"—while requiring no one to leave his home or his business, or putting him to any other expense than the purchase of the medicine, and that the other medicine, with its two bottles at five dollars a pair, never failed to cure a terrible disease which Dr. Keeley says "often leads to insanity, epilepsy, paralysis and dipsomania," we confess that our prejudice increased when we saw him withdrawing from the market the bottles for the cure of drunkenness, and raising the price to twenty-five dollars a week and requiring three or four weeks' treatment at Dwight, and selling State rights throughout the country at about the rate of $23,000 for a State of moderate population, largely rural; furnishing all the medicine, and getting forty per cent. on all used by each institute, each patient requiring five bottles, at four dollars and fifty cents each, as we are informed by an admirer of the system.

Nor can we say our prejudice was diminished on finding the Keeley Institute of Maine sending to the physicians of that State a typewritten circular, signed by the "president," offering to give a commission of $15 for every patient (male or female brought to the Institute for treatment

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CHECKING CHARITY-ABUSE.—Dr. H. Augustus Wilson informs us that each and every patient must sign the following card before receiving free treatment in the department of which he has charge:

JEFFERSON MEDICAL COLLEGE HOSPITAL.

ORTHOPEDIC DEPARTMENT.

1020 Sansom Street.

PHILADELPHIA.....189

I hereby certify that I am unable to pay for the services of a doctor, and on that account consider myself a proper person for free treatment in the Orthopedic Dispensary of the Jefferson Hospital.

Name .....
Address .....

Dr. Wilson adds, that "this rule will probably continue to deprive the department of available cases for clinic-teaching, but it will make room for equally desirable patients who are deserving of receiving charity. It is a step in the right direction, and I hope there will be others to follow." To which we say, *Amen!—The Philadelphia Medical Journal.*

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DANGERS OF PULMONARY TUBERCULOSIS.

Until some new steps are taken in regard to the looking after houses infected with tuberculosis, the ravages of the plague will not be greatly mitigated. The above reflection must often come to those physicians in whose diocese many families come and go, such as the boarding-house districts of towns and cities. Here is a Post-office clerk who coughs and expectorates and emits his exhalations in an institution the daily resort of hundreds of citizens and the habitat, for seven or eight hours each day, of many or few employees. He occupies a room at a boarding-house for say, three months, when off he goes to another. Then in a shorter or longer time he seeks new quarters, all of which he infects, none of which, probably, is ever disinfected. He dies. May be, or maybe not, his physician sees him through his last illness recommends that the apartments of the deceased be disinfected thoroughly.

Another instance. (True to the life). Over on A—— Street is an old frame dwelling, lately taken by a young healthy married couple and two hearty children. Within two months of their occupancy of the house the family physician is called to see the older child, who has had "a bad cold" and fever and "won't eat" for two weeks. He finds, on examination, his little patient suffering from acute tuberculosis. The mother says she has had a "dreadful cough," and examination of her sputum shows the tubercle bacilli. "Who lived in this house before you, do you know?" the doctor asks.

"We don't know, but the neighbors say three of the family died of consumption," the sick woman answers wofully.

The doctor looks around the old frame "shack," and seeing the impossibility of disinfection feels like setting it on fire.

Such instances might be multiplied many times. Every medical man is conscious of this truly awful state of things.

So the following, from Herman Biggs' address at the last meeting of the British Medical Association, shows

that the dawn of a brighter day is breaking on the greatest city in the New World:

"The Health Board of New York City first began an educational campaign in relation to the causation and prevention of pulmonary tuberculosis in 1889. In that year a communication on this subject, presented by the writer and the associated Consulting Pathologists of the Department, was widely published, and leaflets, based on it, giving the essential facts as to the nature of this disease, were freely distributed. No further action was taken at that time, as investigation showed that the medical profession and the public were not then prepared for more extended measures.

"In December, 1893, the attention of the department was again called to the subject by the writer, and it was determined to institute at once more comprehensive measures for the prevention of this disease. The measures then adopted required the notification of all cases of pulmonary tuberculosis occurring in public institutions, and requested reports of cases occurring in the practice of private physicians; they also included arrangements for the bacteriological examinations of sputum, to assist in the early diagnosis of this disease; the inspection of all reported cases in tenement houses, lodging-houses, hotels and boarding-houses, and the instruction of the patients and their families as to the nature of the disease, and the means to be taken for its prevention; the inspection of premises in all instances where deaths were reported as due to tuberculosis, and the issuing of orders, where it was deemed necessary, upon the owners of apartments which had been occupied by consumptives and vacated by death or removal, requiring that such apartment be thoroughly renovated, by painting, papering or kalsomining, before they were again occupied by other persons; and the education of the public, by wider and more comprehensive methods, as to the nature of this disease.

"Placards were attached to the doors to prevent the reoccupation of apartments which had been vacated by death or removal before the orders requiring renovation had been complied with.

"Under the resolutions by virtue of which these measures were enforced, 4,166 cases of tuberculosis were reported in 1894; 5,818 in 1895, and 8,334, in 1896. So far as was possible all of these cases, except those in private houses, were visited, or the premises where they lived were inspected, and, in addition, the premises occupied by persons dying from tuberculosis (numbering each year nearly 6,000) were inspected, and such action taken as was considered possible and desirable. Altogether the premises and cases thus coming under observation during these three years numbered more than 35,000.

"These facts convey some idea of the enormous sanitary importance of the subject. It is conservatively estimated that there are at least 20,000 cases of well developed and recognized pulmonary tuberculosis now in New York City, and an additional large number of obscure and incipient forms of the disease. A very large proportion of the former cases constitute more or less dangerous centres for infection, the degree of danger depending in each instance upon the intelligence and care which is exercised in the destruction of the expectoration. All the suffering and death consequent upon the prevalence of this disease, in view of modern scientific knowledge, is largely preventable by the careful observation of simple, well understood and easily applied measures of cleanliness, disinfection and isolation.

"In the beginning of 1897, the Health Board further adopted some recommendations made by Dr. T. Mitchell Prudden, Consulting Pathologist to the Health Department, and the writer, which advised that pulmo-

nary tuberculosis be declared to be an 'infectious and communicable disease, dangerous to the public health,' and which required 'the notification of all cases occurring in the city,' in the same way as is required in regard to small-pox, scarlet fever, diphtheria and other similar diseases. Tuberculosis, however, in accordance with the special section of the Sanitary Code, enacted to provide for these measures, is distinctly separated from these other diseases—is not classed with them as a contagious disease, but is referred to as 'an infectious and communicable disease.' It has always appeared to the Health Board exceedingly desirable that a broad distinction should exist in the public mind between this disease and those diseases which are more properly classed as contagious.

"In the treatment of apartments, which have been occupied by tubercular patients and vacated by death or removal, renovation has been and is ordered, rather than disinfection attempted, because the Health Board has always felt that disinfection for tuberculosis in the poorest tenement houses could not be satisfactorily performed, and has considered renovation as certainly efficient. In the thousands of orders which have been issued under the resolution referred to upon the owners of real property during the last four years, requiring the renovation of premises, little or no difficulty has been experienced in enforcing compliance, and rarely has there been serious objection.

"Public institutions, hospitals, asylums, homes, etc., are now not only required to report the name, last address, sex, age, and occupation of every case of tuberculosis coming under observation within one week of such time, but they are further required to notify the department of the discharge or transfer of such patients. The purpose of this procedure is to keep under more or less constant supervision those cases of pulmonary tuberculosis which occur among the poorest classes of the population; in other words, those which are most likely to be dangerous sources of infection to others. Unfortunately, at the present time, there are no hospitals directly under the control of the Health Department, for the isolation of cases of pulmonary tuberculosis, but it is hoped that such hospitals may be soon provided.

"The best medical opinion forbids that persons uffering from pulmonary tuberculosis be treated in association with other classes of cases in the general medical wards of general hospitals. This opinion is based on the daily observations of dangers incident thereto, and it has very properly resulted in the exclusion, to a large extent, of persons suffering from this disease from many of the general hospitals to which they were formerly admitted."

Let Toronto and other Canadian cities follow this good example.

THE ONTARIO MEDICAL ASSOCIATION.

The yearly meeting of the above Association is announced for the first two days in June. We publish the list of papers so far received by Dr. Brown, the Secretary.

It is proposed at this meeting to have fewer papers on the programme, and thus allow more time for discussions thereon. This is a wise proposition, as in former years a number of valuable papers went undiscussed, and, indeed, for lack of time, some of the papers went unread.

It is now eighteen years since the Ontario Medical Association was organized and its membership now numbers about one thousand.

The aims of the Association are the cultivation af medicine and surgery; the advancement of the character and

honor of the profession; the elevation of the standard of medical education; the promotion of public health; and the furtherance of unity and harmony among its members.

Every application for membership which may be made at the meeting (and is granted to every man in good professional standing) must be signed by two members of the Association. Such application is referred to the Committee on Credentials. Forms may be obtained now or at the meeting from the General Secretary.

If the cheap railroad rates continue, it is expected that the coming meeting will be very largely attended. At any rate, excursion rates will be secured.

The annual fee is two dollars.

The Committee of Arrangements, under the chairmanship of Dr. G. S. Ryerson, has already made plans for the entertainment of their confreres from outside places.

The following is the list of papers already promised for the coming meeting of the Association which meets in Toronto, June 1st and 2nd:

"Pancreatitis from a Surgical Standpoint," Dr. James Bell, Montreal. "Syphilitic Cirrhosis of the Liver," Professor J. G. Adami, Montreal. The subject to be discussed in Medicine is "Excretion in Cure and Immunity," led by Prof. H. A. Macallum, London, followed by Dr. H. B. Anderson and others. The discussion in Surgery will be "The Treatment of Fractures of the Skull," led by Dr. G. A. Peters, Toronto, followed by G. S. Rennie, Hamilton; R. V. Moore, Brockville. The discussion in Gynæcology will be "Carcinoma of the Uterus," to be led by T. K. Holmes, Chatham, followed by H. S. Griffin, of Hamilton, and J. W. McCullough, Alliston.

"The Injurious Effects of our Overwrought School System on the Health of Public and High School Pupils," R. Ferguson, London; "Immunity," J. J. Mackenzie, Toronto; "The Effect of the Climate of our Canadian North-West on Tuberculous patients," P. H. Bryce. "Endometritis with Erosions of the Os," J. F. W. Ross; "The Early Removal of Tubercular or Necrotic Areas," H. H. Oldright, Toronto; "The Traumatism of Labor," C. B. Oliver, Merlin; "When should we Operate?" illustrated by cases and specimens, Wm. Oldright, Toronto; "My Experience with Diphtheria during the Fall of 1897," Wm. Doan, Harrietsville; "Hyper-resonance of the Chest, a Premonitory Symptom of Tuberculosis of the Lung," W. C. Heggie, Toronto; "The Medical and Surgical Treatment of the Insane," A. T. Hobbs, London; "Cretinism in Ontario," A. McPhedran, Toronto; "Location of Brain Lesions," report of a case, H. D. Livingstone, Rockwood; "Experiences with New Remedies," G. S. Ryerson, Toronto; "Vicarious Urination," A. T. Rice, Woodstock; "A Brief Sketch of the Nervous System, of its Liability to Injury and of Some of its Diseases," I. Eyron Newman, Detroit; "Rheumatoid Arthritis in Children," W. B. Thistle, Toronto; "Oophorectomy for Fibroid Tumors of the Uterus," Albert A. MacDonald, Toronto; "Operative Methods in the Conservative Treatment of Tuberculous Joints," Alex. Primrose, Toronto; "Infant Diet," W. J. Greig, Toronto; "The various Operative Methods of Dealing with Eyes lost through Injury or Disease," G. H. Burnham, Toronto; "Toxæmiæ of Pregnancy," C. J. O. Hastings, Toronto; "Tubercular Meningitis," R. J. Dwyer, Toronto: "Hypo- and Hyper-Respiration in Pulmonary Tuberculosis," Edward Playter, Ottawa; "Recent Improvements in the Preparation of Cat-gut and Gauze," N. A. Powell, Toronto; "Remarks on the Treatment of Club-foot, based on Personal Observation of 243 Cases," B. E. Mackenzie, Toronto; "Exhibition of Machine for Manufacturing Plaster Paris Band-

ages," H. P. H. Galloway, Toronto; "Rosaceæ," Graham Chambers, Toronto.

There will be a clinic on the second day at the Victoria Hospital for sick children.

THE TEETH OF SCHOOL CHILDREN.

There is no doubt that the American habit (Canadian, too) of indulging in soft diet, and of drinking largely after each mouthful at meals, has a great deal to do with the deterioration of children's teeth. The immediate cause of the decay of the teeth, of course, is microbic, through whose action disintegration of the tooth substance takes place. One of the chief abuses in dental surgery is the early extraction of the temporary teeth and of some of the permanent teeth. This maleficent practice prevents the complete growth of the dental arch and consequently predisposes to the crowding of the after-coming teeth. The smallness of the jaws transmits itself by heredity to on-coming generations. It should be considered a crime to extract all the teeth of a person whose jaws have not yet reached maturity. The question of the prevention of the decay of teeth of future generations is one of the most supreme importance, not only from the standpoint of appearance, but from that which is of much more moment, the health of future generations. Without sound teeth there cannot be sound digestion, and without sound digestion there cannot be sound health. If the teeth of school children were periodically examined by a dental inspector and their condition reported on to the parents, this would be one great step toward lessening what threatens to be a calamity to the race.

THE TRINITY ALUMNI ASSOCIATION.

Our congratulations are extended to the late president and officers of the Trinity Alumni Association for the unqualified success of their recent meeting and banquet. The papers by Drs. Vaux, Grassett, Yale, Stockton and Howitt, (short resumes of which will be found in our report on another page) were of a high order of merit, being both scientific and practical. The American visitors were well received and much appreciated. It is a matter of much satisfaction to see the cordiality which exists between the medical men of the United States and Canada. We must commend the society on the choice of its President-elect, and Dr. Howitt, of the Royal City, on the honor conferred on him by his fellow graduates of Old Trinity.

THE SLAUGHTER OF THE INNOCENTS.

In "Toronto the Good," the home of so many charities, there is, we think, one thing lacking. Every man knows, especially he whose work lies in the more populous and less sanitary districts, that during the summer months infants die by the hundreds and thousands. Medicines are useless. The nursing is vile. Even though district nurses are procured the mortality is little lessened. Unless the child can be got away from its filthy surroundings little can be done; so what is wanted is a hospital for these very young children. Children under six months, we understand, are not admitted to the Victoria Hospital for Sick Children. We would like to see something done to lessen this great infant mortality.

Physician's Library.

Atlas of Method of Clinical Investigation. With an epitome of special Pathology and Treatment of Internal Diseases. By Dr. CHRISTFRIED JAKOB. Authorized translation from the German. Edited by A. A. ESHNER. With 182 colored illustrations upon 68 plates and 64 illustrations in the text. Philadelphia: W. B. Saunders, 925 Walnut Street. Toronto: J. A. Carveth & Co. 1898.

In these modern days, everybody knows, much teaching is done by designs, drawings, stereopticon views, and illustrative methods generally. To the advanced teachers and pupils who espouse this way of imparting and gaining knowledge, the series of Atlases which the above firm are preparing for the profession are gladly sought for. The one under review is of particular interest just now, when the subject of internal medicine is coming so much to the fore. The plates are beautiful and, for the most part, very accurate. There are 33 plates, representing the various constituent elements of the blood in health and in various hæmic diseases. The pictures of the urinary sediments and sputa are very instructive. We can cheerfully commend this work of Jakob's to every physician interested in the study of scientific medicine.

Flint's Encyclopædia of Medicine and Surgery. By various writers. New York: J. B. Flint & Co. 1898.

It is a difficult task for a reviewer to review a work of this sort; but judging from the quality of the over two score leading English and American contributors, the scope and character of the work, and its leading articles, one is compelled to acknowledge its great value as a book of reference. It is much after the style of Quain's dictionary. Particular stress has been laid upon the treatment of disease, the sections upon which are very complete, the exact doses and combinations of the various drugs recommended in nearly every case being given. Comparatively full descriptions have been given to diseases peculiar to women, diseases of the eye and ear, diseases of children, as well as of the more important surgical operations. We would recommend this work, particularly to the senior medical student and the junior practitioner.

Day-Dreams of a Doctor. By C. BARLOW, M.D. Buffalo, N.Y.: The Peter Paul Book Company. 1898.

This little book is predicated to give "many lessons of value in the management of the sick, and especially of the contagious and infectious diseases have been presented in such a manner as was thought would be most instructive to the lay reader. . . . It has been one of the objects in presenting this work to the public to show, in a comprehensive way, the responsibilities of the physician, not only as a specialist, but as a general practitioner." Its essays are on such subjects as Surgery and the Surgeon, Woman, Preventive Medicine, and Bacteriology. A vein of romance runs through the work, which the writer "ventures to hope may not be uninteresting." The book contains a large amount of information relative to the physician's life, written in the ordinary *journalese* style.

Appletons' Popular Science Monthly for May will contain an article on "Snow Crystals," illustrated with a series of actual photographs taken by the aid of a microscope. The curious and beautiful crystal forms, accurately reproduced by the camera, give one a new interest in snowstorms.