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CANADA
MEDICAL JOURNAL.

ORIGINAL COMMUNICATIONS.

A Paper on Frost-Bite and its consequences, read before the New Brunswick Medical Society. By WILLIAM BAYARD, M.D., Edin., President of the Society, &c., &c.

GENTLEMEN.—In compliance with the wish expressed at our last meeting, I shall proceed to give you a few observations upon "*Frost-bite and its consequences.*" It has been rightly suggested that papers read before this Society should be concise, and as a proof of my concurrence in the suggestion, I shall make my remarks as brief as possible. I do not pretend to have exhausted the subject. If I succeed in eliciting the opinions of my professional brethren respecting it, my object will be accomplished. Therefore, I trust that no gentleman will hesitate to express disapproval, or approval, as his judgment may dictate, of any statement put forth in this paper. Free and enlightened discussion should be our aim; without it, our meetings will produce small results.

I need not tell you that man possesses, in an eminent degree, the power of resisting the influence of cold, and that when the body, or a part of it, has been exposed to *severe* and *long-continued* cold, serious local and constitutional effects may, and oftentimes do, ensue.

The exact temperature required to produce such effects cannot readily be arrived at, so much depends upon the age, vigour, and habits of the person exposed. The very young, the aged, and those whose circulation is languid from any cause, being predisposed to the injurious consequences of it.

High wind increases the effect of cold upon the body, but generally the range of cold must be brought to 16° below freezing-point on Fahrenheit's scale, before actual freezing takes place.

The mean temperature of man in health is 98° of Fahrenheit. The limbs are flexible and moveable at 96°, reduce the temperature a few-

degrees, and the muscles become painfully contracted; if reduction be made further, the muscles become rigid, but they are relaxed by gentle warmth and the motion is restored.

The *local effects of cold* are chiefly observed on the extremities, where the circulation is least active.

The first stage of frost-bite is generally ushered in by a feeling of stiffness and numbness of the part,—it looks pale, has a bluish tint, and is slightly shrunken. Let the cold be continued, sensibility and motion are lost, the part becomes much shrunken, perfectly hard, and white, or presents a mottled appearance. If the part is exposed to a *very low* temperature the sensibility and circulation may be arrested in so sudden a manner as to be unknown to the sufferer.

I need not dwell upon the *constitutional effects of cold* further than to remark that when the body is exposed to severe and long-continued cold, the blood recedes from the surface, rapidly settles in the internal organs, the nervous fluid ceases to be generated, the brain becomes oppressed, stupor appears, and gradually creeps on, till the person is overwhelmed by drowsiness, which, if yielded to, ends in coma and death.

The application of intense cold in a solid form, may cause the "complete and immediate death" of the surface with which it is brought in contact, and form an eschar, similar to that produced by a burn. And it is asserted by some writers, that the action of cold applied *through the atmosphere* will produce the same effect. In other words, that a part of the body may be so "*frozen and killed*" by *atmospheric exposure* that reaction or inflammation *cannot* take place. This I believe to be an error. The temperature required to produce such a result, would necessarily be fatal to the individual exposed to it. I contend that the vitality of the part is *suspended* not *killed*, and that a certain amount of reaction invariably takes places, as is evidenced by the appearance of more or less swelling, pain, heat, and redness within a short period after the removal of the frost. Experience teaches us that a part may be frozen to such an extent that it is stiff, colourless and apparently lifeless, yet, when the frost is properly extracted, it will resume its natural functions.

Professor Syme tells us that "a frost-bitten part *is not dead*, and "when freed from the influence of the cold it regains its power of "action."

Erichsen, page 169, in the last edition of his work, states that "In "the next degree of cold the vitality of the part is completely destroyed, "all sensibility and motion in it are lost, it becomes shrunken and livid; "but though its vitality may have been annihilated by the immediate

" action of the cold, it is not until the part has become thawed that " gangrene usually manifests itself; it then appears to do so, by the " *violence of the reaction induced*, the part rapidly assuming a black " colour, becoming dry, and separating eventually, as all other mortified " parts do, by the formation of a line of ulceration around it."

A portion of the body may have its heat so rapidly abstracted by the evaporation of a spray of ether or rhigoline, as to freeze it, and render it insensible under the surgeon's knife, but in a few minutes reaction takes place, and it regains its natural condition.

The extent of freezing required to produce such reaction or inflammation, that the part must of necessity mortify, cannot readily be arrived at; though we may reasonably conclude that upon the severity and *duration* of the application of cold, depends the amount of subsequent inflammation.

We know that the congelation of water is only the commencement of an operation that is infinite: it is formed into ice at 32°; let that piece of ice be retained in the atmosphere in which it was frozen, and it will receive and retain extra cold, and thus the temperature of the ice falls to that of the air, until it may sink to 40 degrees below zero, and its hardness will increase proportionally.

We also know that nerve substance is composed of 80 per cent. of water, 7 of albumen, and the remainder is fatty matter and salts. May we not expect the same phenomena to take place in the tissues and nerve-substance of the body, that are developed in the piece of ice? Suppose the water of the nerve-substance to be crystallized. May not the ice thus formed continue to receive and retain cold, increase in hardness, and, consequently so disorganize the nerve that when its water is liquified it cannot resume its natural functions.

Dr. Benjamin, W. Richardson (whose experiments upon this subject are highly instructive) classifies the changes developed by cold and during recovery in the following order.

1*st. stage, or starting point.* Natural condition. Temperature 96 Fahr: Sensibility perfect.

2*nd stage. Preaction.* Enervation: removal of nerve force. Increased vascularity. Increased temperature. Exalted sensibility.

3*rd stage.* Inertia. No vascularity, no nerve force, no blood. Temperature 16° Fahr. Perfect insensibility. Solidification of water of tissues.

4*th stage. Reaction.* Returning vascularity of paralysed vessels. Increased vascularity. Increased temperature. Exalted sensibility. Resolution of water of tissues. Enervation continued.

5th stage. Return to natural state. Nervation of vessels. Reduction of vascularity. Temperature 96° Fahr. Natural sensibility.

The cerebrum of a living animal may be frozen. In this state the consciousness of the animal is lost, but the functions of organic life remain the same. The animal thus placed is in a state of hybernation from which it may recover; on recovery the brain does not seem to have lost power. The phenomena are simply those of awaking from profound sleep.

Having frozen the brain and nerve-substance of pigeons and cold blooded animals, Dr. Richardson attributes the phenomena of disturbed natural function to the transference of the water from a fluid to a solid state. He says: "In freezing nerve matter we take from the water its "heat of fluidity, or the force which, holding its molecules apart and "giving them motion, supplied the condition for that mobile and active "state, which is the fluid state of water. We reduce it by this means "from activity towards inertia: therewith we deprive the structure of its "power to maintain what is called life."

He further adds that, "In speaking of the crystallization of nerve-"matter by cold, I have ventured to insist firstly and chiefly on the soli-"dification of the water: but in nerve-substance there is also a consider-"able per cent. of fatty matter, which, when heated, is fluid like water, "and which also like water loses its heat of fluidity, crystallizes, and "becomes solid by cold. When, then, we freeze the brain, we solidify the "fat also, and what is more we solidify it at a temperature at least 30 "degrees higher than the freezing point of water; and as that fat solidify-"ing first, becomes a bad conductor, so it impedes and limits the freezing "of the whole mass of nerve-substance. In hybernating animals I should "think the fatty matter of the brain and cord is intensely solidified by "the cold."

His experiments have proved "that if the freezing extends to the "medulla oblongata, death results from arrest of the respiratory power." Also that in proportion to the rapidity of the freezing, so the reaction diminishes.

Let us now proceed to the practical part of this subject. It is seldom that the surgeon sees a case of Frost-bite before the frost has been removed from the part, and so much depends upon the manner in which it has been extracted, that the mischief is generally done before he is called.

I need not tell you that the affected part should be restored to its natural condition, in the most gradual, cautious, and gentle manner, not violently, lest over-action be produced in a part already greatly weakened.

The person should be placed in a cool room, the part immersed in iced water—or very gently rubbed with snow. If ice or snow cannot be obtained, the coldest water should be used, repeatedly changing it, until the circulation and sensibility are thoroughly restored. The patient should not approach the fire, and all warm applications should be scrupulously avoided. These precepts should on no account be neglected, for by so doing, mortification would in all probability be the result.

Sooner or later after the part has been restored to its natural temperature and sensibility, capillary congestion takes place, accompanied by the usual symptoms of reaction: heat, redness, pain, and swelling. If the part has been exposed to severe or long-continued cold, effusion under the cuticle appears; this generally takes place in from 12 to 24 hours; the vesicles may be filled with a colourless serum, or a mixture of blood (or the hæmatin of blood) and serum.

In the milder form of inflammation the contents of the vesicles is *colourless*, in that where the part has become disorganized, the contents of the vesicle is very *dark* coloured: and if the dark colour of the vesicle is accompanied by the falling of the nails, we may conclude that such an amount of disorganization has taken place, that gangrene must be the result.

The treatment of Frost-bite after reaction has commenced, consists in endeavouring to prevent the inflammation from running to such an extent as to induce sloughing of the structure. The necessity no longer exists for keeping the patient in a cool room. The part should be placed in an easy and elevated position, lightly covered, and slightly stimulating lotions applied. If local reaction threatens to be severe, painting the part with the compound Tincture of Iodine has been found most serviceable. If vesicles appear they should be opened by small punctures, and lint applied, spread with a mixture of equal parts of lime water and cod-liver oil, which has the effect of relieving the burning and smarting sensation, probably by protecting the ulcerated surface from the action of the atmosphere.

Should the part lose its sensibility, become colder, assume a purplish, mottled or greenish-black hue, vesicles filled with *dark fluid* rise upon the surface, and the swelling, at first hard and tense, put on a doughy character; then we have gangrene to deal with, and should treat it accordingly, by mild local antiphlogistic treatment: and if there is much local tension, by free incisions. When fœtor appears, it should be diminished by antiseptic applications, such as carbolic acid, the chlorides and charcoal. If the gangrenous parts are large, these substances may be applied in the form of solution, or the charcoal may be dusted upon the part; if small, they may be used in poultices.

The sloughs should not be pulled away, nor should stimulants be applied to the living tissues, unless the sloughs do not readily separate, but diluted balsam of Peru, very dilute nitric acid, or opiate lotions may be applied. Parts quite dead, but that do not separate readily, such as tendons, ligaments, and bone may be cut off. But nature should be allowed to *eliminate all small parts*, such as fingers and toes. Amputation may be performed where the part involved is large, as an arm or a leg.

That the elimination of all small parts should be left to nature, I may quote Mr. Baudens, whose experience among soldiers returned from the Crimea was very great. He says that: "The surgeon should abstain and "consign exclusively to the reparatory efforts of nature the care of elimi- "nating the parts that have mortified as a consequence of congelation. "Nature traces the lines of demarcation between the living and dead "parts far better than the hand of the surgeon, and especially at the "price of far less sacrifices. The rules of art indicate certain places of "election for amputation, that often entail the sacrifice of portions of "limbs capable of preservation, but nature, essentially conservative, "removes nothing but that which cannot live. The portion of bone to "be eliminated becomes dry, black, and projecting. The soft parts "which remain at its base, swell, become covered with granulations and "gain upon the bone. This soon comes away of its own accord, whether "separated in its continuity by the process of necrosis, or in its con- "tiguity by the destruction of its connexions. After its fall a deep "cavity remains, which is rapidly filled with granulation, and the stump, "thus well cushioned by the soft parts, is placed in the most favorable "condition."

In conclusion gentlemen, let me bring under your notice a case bearing upon this subject that has caused not a little litigation in the adjoining county of Charlotte, one in which we are all more or less interested; for no man knows when it may not be his lot to be placed in the defendant's position. Professional standing, character, or rectitude of conduct will not exonerate him from attack, and, judging from past experience innocent or guilty he *must pay* the penalty. I allude to the prosecution of Doctor Robert Thomson, of St. George.

It appears that a man by the name of Kay (during a state of intoxication) had been frost-bitten. The Doctor saw him for the first time 12 *hours* after the removal of the frost. From the history of the case he learned that the man had been exposed to a temperature below zero for about 4 *hours after* sensibility in his extremities had been lost. After the arrival of the man at a house he was placed in a moderately warm room

and the parts were immersed for *half an hour* in cold water, and during the time they were in the water scales of ice formed upon them. Immediately after being taken out *blood flowed from under the nails.* The parts were then wrapped in *warm flannels.* When the Doctor saw them, they were very much *swollen, painful, dark-red* or *purple,* and " *covered with blisters containing blood* and *water.*"

The vesicles were opened and poultices composed of meal, hops, yeast and charcoal applied. About 6 hours after this a nail of one of the fingers fell off, and in a few days several others. Ultimately mortification took place, and nature was allowed to eliminate the parts.

Circumstances prevented the Doctor from visiting his patient oftener than once in about 10 days, but during the interval he received frequent reports of the case, and gave written directions, treating it as one of mortification.

The 1*st.* question to be considered by the medical witness: Was the exposure such as to cause a *severe and dangerous frost-bite?* This question must be answered in the affirmative, (from the acknowledged fact that the parts had been exposed to a temperature below zero, for *upwards* of *four hours* after sensibility in them had been lost) upon the principle that the frozen part will continue to receive and retain cold while exposed, in the same manner as a piece of ice.

2*nd.* Was the frost properly removed from the part?

This question must be answered in the negative. The patient should not have been placed in a warm room, the cold water was not continued long enough, and warm applications at such an early period were highly objectionable.

3*rd.* Did not the dark appearance of the parts, the swelling, pain, and above all the *vesicles containing blood* and water, with the *nails falling* off so early, justify the conclusion that such an amount of disorganization had been produced that mortification must follow?

I think few medical men could be found who would hesitate to arrive at such a conclusion. Yet Drs. Gove and Black declared that hot applications at the time they were used were not objectionable; that vesication, falling off of the nails, pain, redness, and swelling *indicated such vitality that the parts should have been saved,* and that the death of the parts was caused by the application of the *charcoal.*

I will not stop to combat such opinions, but simply state that assertions like these, made in a witness-box, tend to degrade our profession. Other medical men are compelled to contradict them. Hence doctors get the credit of differing where difference of opinion should not exist. And jurors, unable to form a correct opinion as to who is right, and who is

wrong, lose confidence in medical testimony, and decide the case upon other merits, that should be decided strictly upon scientific grounds.

The jury acting upon this principle gave a verdict of $9,000 against the unfortunate Doctor; illustrating the advisability of submitting all cases of malpractice to the investigation of competent medical experts, who shall decide whether the charge is tenable or not, and upon whose decision the trial shall proceed or fall to the ground. In other words, the medical man should be tried by his peers, by men capable of pronouncing upon his guilt or innocence.

St. John, N. B., July, 1870.

Case of Elephantiasis Arabum of the right leg, treated by Ligation of the Femoral Artery. By D. C. MacCallum, M.D., M.R.C.S., Eng., Prof. of Midwifery and Diseases of Women and Children, McGill University, &c.

The November number of the *St. Louis Medical and Surgical Journal* was lately sent to me by my friend, Prof. G. W. Campbell, who, at the same time, called my attention to a communication which it contains on Elephantiasis Arabum from the pen of Prof. Bauer, a gentleman well known to the profession in Canada. In this article, a Chronological Table is given of the known cases in which ligation of the main artery of the limb was performed for the relief or cure of the intractable disease under consideration; and Prof. Campbell noticed that no mention was made of a case that was so treated in the Montreal General Hospital in the month of April, 1859, and which was the first operation of the kind performed after those of Prof. Carnochan of New York, the surgeon who first proposed and carried into effect this bold and original treatment of Elephantiasis. The truth is, the case has never been placed on record. Shortly after the operation, I wrote a brief account of it to Prof. Carnochan promising to publish the case later, and send him a copy of the article. The notes of the case, however, unaccountably disappeared, and I recovered them unexpectedly only a few months ago. As this treatment is exciting some attention at present in the surgical world, I have thought that it would be well to publish the notes. They are as follow:—

J. W., aged 20, was admitted into the Montreal General Hospital, January 24th, 1859, suffering from Elephantiasis Arabum of the right leg.

He states that, as far back as he can remember, his limb has been enlarged. His parents told him that the swelling first appeared after the

subsidence of an eruption on the skin of the lower extremities. The limb has of late years increased much in size, become weightier and more unmanageable. He has never experienced any pain in it, but has observed that after exposure to wet or severe cold, the affected part became more tense, and was accompanied by a feeling of general uneasiness and a feverish state of the system. The Elephantiasis is confined to the right leg, and principally to the part between the ankle and knee joints, although there is considerable swelling above the knee. The surface is rough and nodulated, and interscected by fissures varying in depth. From these fissures, at times, a thin discharge distils, which in drying forms brownish looking scales. The skin and subcutaneous cellular tissue are much hypertrophied, and exceedingly dense and inelastic. For a period of fourteen years he has not been able to flex his foot, in consequence of the resistance offered by the hardened tissues at the ankle joint, and he has had but a slight degree of motion in the joint during that time.

From the date of his admission until the 30th April, a period of three months, the patient had been placed under what has been considered the most approved forms of treatment, but without deriving the slightest benefit from them. In the month of February a very large abscess formed in the upper part of the thigh of the diseased leg, which in due time was opened, giving exit to a large quantity of fœtid pus, of a greenish colour. On the 30th April, having called a consultation and obtained the consent of my colleagues, I ligated the femoral artery in Scarpa's triangle. The vessel was exposed without difficulty, and found to be perfectly healthy. The patient progressed favorably, and the ligature separated on the 21st day. Measurements of the limb were taken at the date of the operation and again on the 3rd May, three days after, and on June sixth, when he was walking about the ward. The differences are exhibited in the following table:—

CIRCUMFERENCE.	DAY OF OPERATION, APRIL 30TH.	3 DAYS AFTER, MAY 3RD.	5 WEEKS AFTER, JUNE 6TH.
At Malleoli	12½ inches	11 inches	10½ inches
5 in above	13¾ "	11 "	10½ "
7 " "	14¼ "	12 "	11 "
10 " "	15 "	13 "	11½ "
12 " "	14½ "	12½ "	11 "
Lower Border of Patella	14¼ "	13 "	12 "
Upper do do	15 "	13½ "	12⅜ "
Mid third of Thigh	15½ "	14½ "	14¼ "

Some months after J. W. was discharged from the Hospital, he was again admitted by Dr. Fraser for abcess of the upper part of the right thigh.

I met him two years after the operation, and on examining the limb, found it enlarged from œdema; the skin and cellular tissue had lost, however, all the characteristics of Elephantiasis. He informed me that so long as he kept the limb carefully bandaged the œdematous swelling was absent. He had become very dissipated in his habits, and was a frequent inmate of the Montreal General and Hotel Dieu Hospitals. I am of opinion that had he been a person of strictly sober habits, and had he given given the limb proper support for some time, he would not have suffered from the œdema which so frequently troubled him. It is quite possible, moreover, that the two large abscesses in the upper part of the thigh for which he was treated, had as much to do in causing the subsequent œdema, as had ligation of the femoral artery.

Extract from a Thesis on the Antiseptic Properties of Camphor. By J. M. DUNSMORE, Presented before the Medical Faculty of McGill University, Montreal, for the degree of M. D. C. M. Session 1869-70.

I have been induced chiefly through the representations of Dr. Coleman of Seaforth and Drs. Hornibrook and Davison of Mitchell, Ontario, to write on camphor, in order to bring its use as an antiseptic in surgery under the notice of the Medical Faculty of this University. I do so with confidence, believing that such a liberal and enlightened body of men will treat the subject as its merits deserve. If the result prove unfavorable, the consolation will remain of having erred in company with men of large experience, one of whom, Dr. Coleman, can point to a quarter of a century's successful practice to give weight to his opinion.

ANTISEPTIC PROPERTIES.—Among the many virtues ascribed to camphor by the non-professional public its antiseptic properties seem to have been long recognised and highly valued; but whether the attention of the profession has yet been directed to its use as an antiseptic in surgery I have been unable to ascertain, either from books or any other reliable source. That such a property should exist in camphor without being generally applied to the purposes of surgery is not to be wondered at, as not until within the last few years has any considerable attention been given to antiseptic surgery, and carbolic acid has been the agent employed to the exclusion of all others. Nor is the facility with which camphor may be obtained, and its common use as a domestic remedy a good reason why it should not possess properties unknown to, or unrecognised by the profession. Some of the most important discoveries in medicine have originated with the non-professional. Jenner received his first hints of the prophylactic powers of vaccination from a dairy maid of

Gloucestershire, and long before Lænnec commenced his series of observations that led to the invention of the stethoscope, the attention of the profession had been called, though in vain, by a civil engineer of London, to the importance of auscultation in diagnosing diseases of the internal organs. But my object here is not to speculate. According to the testimony of at least three medical men of good standing, camphor has been used in their private practice during the last twelve or eighteen months in cases similar to those in which carbolic acid is recommended, and they have found it very effective as an antiseptic. Dr. Coleman, who has used the camphor treatment somewhat extensively, speaks positively of its efficacy in all cases where carbolic acid is indicated. In a recent private communication on the subject he says:—"I have used the Camphor treatment in many cases besides those referred to, and always with the happiest results. In several cases I have put the comparative values of the treatment of carbolic acid and camphor to a differential test, and I can positively affirm that in every case the weight of usefulness was on the side of the camphor treatment."

The result of the treatment in the appended cases leaves but little room for doubt that camphor is a valuable agent in the treatment of wounds; but whether it be as powerful an antiseptic as carbolic acid is a question I shall not attempt to argue, the evidence which has been hurriedly collected being perhaps insufficient to prove this point conclusively.

Case 1.—K. McL., age 30, on September 12th, 1868, had his right hand accidentally caught with a chain, the blunt hook of which entered the palmar surface of the middle finger at the metacarpo-phalangeal articulation, lacerating the integument and deeper structures the whole length of the finger, and leaving a gaping ragged and decidedly nasty looking wound, with the glistening tendons plainly exposed but not torn.

Treatment: Make a lotion of spirits of camphor and water in equal parts. Saturate a cloth with the lotion and apply round the finger. Bandage loosely and support with roll of bandage round each of the proximate fingers. Keep slightly moistened with water but not enough to chill the surface of the finger. Wound to be dressed every day as above. No adhesive straps or sutures were used.

Sept. 17th.—Very little swelling; edges of wound approximated; integument reunited to parts beneath; plastic lymph effused between the edges of the wound. Continue treatment.

After this the wound healed rapidly, the finger being left quite straight and free from contraction.

During the whole process of healing there was no purulent formation:

CASE 2.—January, 1869. J. S., age 22, while chopping, the axe glanced, cut through the boot, and took a slice off the metatarso-phalangeal articulation of great toe of right foot. The axe entered about an inch from the articulation on the phalangeal side and cut backwards through the joint, raising a flap two inches in length and an inch and a half wide. A paring of bone a quarter of an inch in thickness was attached to the flap. The wound was not dressed, except with temporary bandages, until twelve hours after the accident. The flap was then withered, much serrated at the edges, and possessed little sensation; it fell far short of coaptation. There had been considerable bleeding.

In dressing this wound eight silver sutures were put in, and owing to the contraction of the flap the wound now presented the appearance of nine elliptical gaps. No adhesive straps were employed. A piece of very thin old cotton folded and saturated with spirits of camphor was applied to the wound, and over this another cloth wet with water, the latter to be changed as often as necessary to keep up slight moisture, the spirits of camphor to be applied three times a day.

On the fourth day the flap had lost its contracted appearance; inflammation slight; union had taken place by first intention.

The sutures were removed on the eighth day without in the least disturbing the union, a feat not generally accomplished when wire sutures are used.

If pus had formed in either of the above cases with the consequent result of slow granulations, no doubt the utility of the finger in case 1. would have been impaired, and in case 2. painful articular inflammation would have been the result.

CASE 3.—This is a case similar to the former (No. 2.) The accident occurred on March, 4th 1869, the subject being an active man, middle age, married. The wound in this case was behind the joint on the inner side of the left foot. Comminuted fragments of the bone adhered to the flap, and a splinter of bone extended forward to the joint. None of these were removed.

The treatment was similar in all respects to that adopted in case No. 2, only that the lotion used in the after dressing was composed of equal parts of spirits of Camphor and water.

The case progressed very favorably, no pus having formed during the whole process of healing. In fifteen days the wound was quite healed, some slight tenderness only remaining, and this was probably due to the fracture extending into the joint.

A circumstance worthy of note in this case is that the patient after the

first four days walked about with the aid of a stick, and persisted in attending to light farm duties.

CASE 4.—Geo. B, a child, age 5 years, suffering from Morbus Coxæ. Had been under treatment for five months according to Dr. Sayer's method. At the part where the adhesive plaster was applied externally as a fulcrum for extension a large slough formed, and lumps of curdy matter, flakes of fascia, and fœtid purulent matter were thrown off. For a considerable distance round the sore there was much swelling with tenderness on pressure. Fever at night. For some time the child had been allowed to go round on crutches. Was again confined to bed, and extension from the foot applied with counter extension from the groin. A pad saturated with spirits of camphor was kept continuously applied to the sore. The effect of this treatment was very decided. The swelling and tenderness soon disappeared, the formation of unhealthy pus ceased, and the discharge was no longer fœtid as it had been before the application of the camphor.

CASE 5.—C. R, a mechanic employed in the Mitchell foundry, age 42, June 7th. 1869, had a portion of the middle finger of one of his hands sawn off, the middle joint of the index finger cut open, and a piece chipped off the articular surface of one of the bones of that joint.

It was found necessary to remove the remaining portion of the middle finger—the index finger getting the benefit of a doubt of the possibility of saving it. On dressing the wound after applying the adhesive straps the bandages were wet with a lotion composed of equal parts of spirits of camphor and water. The patient was also directed to keep the bandages constantly moistened with the same lotion.

The wounds were examined on the sixth day, and there was then no suppuration—union had taken place by first intention. The patient was ordered to continue the lotion. The wounds remained united, and no further dressing was required.

CASE 6—J. B., age 15, had his hand torn with a circular saw on the 28th of May, 1869. The thumb fore finger, and middle finger were completely torn away and the adjoining parts much lacerated. The wound was dressed in the usual way and the following lotion applied:—Camphor ℥j, Spts. Rect, oj, aq. oiij; the wound and hand to be kept constantly wet with the lotion. In three days union had taken place throughout the whole wound except at the points where the ligatures were left. On the tenth day the ligatures came away, and during the whole time no perceptible discharge of pus took place.

CASE 7.—H. B., age 12, August 5th, 1869. Cut with a scythe on the

anterior part of the leg from below upwards, lifting a flap two and a half inches in length, laying bare both the tibia and fibula, and severing the anterior tibial artery. The wound was dressed with sutures and adhesive straps and the same lotion as in case No. 6 applied. The wound was examined on the seventh day and the sutures removed; complete and firm union had taken place, and there was not the slightest appearance of pus. The ligatures came away on the fifteenth day.

CASE 8.—Jas. H., age 38, August 17th 1869, while attending a sawing machine had his little finger jammed between two logs. Examined the wound for Dr. Davison a few hours after its occurrence and found two lacerated and contused wounds extending the whole length of the finger, one on the palmar and the other on the dorsal aspect, and also a compound fracture of the second phalanx. The extensor tendon was severed near the last articulation and torn out of its sheath backwards to near the seat of fracture, and a portion of the second phalanx was completely divested of periostium. The two wounds communicated freely with each other both on the outer and inner side of the finger, the integument and parts beneath being completely raised from the bone. The finger was literally burst to pieces. In dressing, the wounds were well syringed out with spirits of camphor, and the finger put up on a splint, the bandages being moistened with a lotion composed of equal parts of spirits of camphor and water. The patient was ordered to keep the bandages constantly moistened with the same lotion. Six days afterwards: no appearance of suppuration; finger reduced to near its normal size; wounds apparently healed except at the point opposite the denuded bone. The man had continued at work after the first few days.

The foregoing cases occurred in the practice of the surgeons whose names are given in the note to the introduction. There are also many other cases not reported where the camphor treatment was adopted by them with equal success.

As yet the camphor has been used as an antiseptic only in the form of a lotion. This form may be objectionable, as the sparing solubility of camphor in water causes a precipitate to be formed when water is added to its solution in spirits. The same objection would not apply to camphor oil, camphor putty &c., which might be used in the same manner as the corresponding preparations of carbolic acid.

Hydrate of Chloral in Cerebro Spinal Meningitis. By J. B. CHAGNON, St. Pie, Province of Quebec.

A. B., a young girl of 12 years was taken sick on Monday, June 6th, with the following history related to me by her father two days after,

being the date of my first visit to her. Whilst playing out doors with her sister, she suddenly entered the house exclaiming that she had a most distressing headache running down to the back of her neck. Cold water was applied to her forehead, with no relief whatever. Soon after she complained of the pain running down to her stomach, then up to her throat with some feeling of suffocation.

Her parents and the neighbouring friends having diagnosed the case to be *worms*, five lozenges were administered, followed in the morning by a tablespoonful of castor oil. Success did not answer their expectation, when at noon of the following day, another dose of oil was given; and so she spent the second night of her illness tossing about and rolling herself in her bed. Then I was called and found her with the following appearance:—She was laying on her side with her head thrown back between her shoulders. I tried to give it its natural position, but in vain, so intense was the rigidity of the posterior cervical muscles. Excruciating pain was felt by pressure all over the spinal column; legs were flexed on the thighs; the mere touch to the skin was sufficient to bring a nervous shock. Trismus was almost complete, and the power of deglutition seemed to be much impaired. She was unconscious and the general character of fever seemed to be one of typhus; tongue parched, brown and contracted; black sordes on teeth with fœtid breath; eyes somewhat sunken, and pupils dilated during remissions, but contracted to a pin's head during paroxysms; for though of a typhus character, the fever had a remittent type. Skin dry but not very hot; thermometer marked 102; pulse 120, small and hard. By uncovering the chest and abdomen, numbers of petechiæ could be seen; some very small, some others as large as a French pea. The same was observed on arms and legs, but very few in number; bowels constipated, had not voided urine for last twenty hours.

As regard to treatment; having considered that almost all recent authors disagree in this respect, some placing their chief reliance in opium alone, some others in antiphlogistic means; this authority in mercury, that other in stimulants, and according to statistics, I regret to say, with so little benefit, I thought myself justifiable in adopting a new one, and on that account I was induced to try the effects of chloral. The intestines having been cleared out with a brisk cathartic, head shaved and cold water applied to it, 12 grs. of chloral were given, patient having previously been removed into a dark room.

At 12 o'clock, four hours after, I found patient in a profound slumber which she had not had since the very first hour of her illness. I left, ordering to repeat same dose every few hours, according to the length of rest and intensity of pain.

June 9th, 8 a.m.—Patient more composed, had slept in all, about ten hours; had taken three doses of chloral, had another evacuation from her bowels and voided half a pint of high colored urine. Seems to be more conscious, pupils moderately dilated, muscular rigidity the same, pulse 118, temperature in the axilla 101; rejects any kind of food; treatment continued.

June the 10th, 8 a.m.—Much the same as yesterday; treatment continued.

June 11th, 10 a.m.—Patient more sensible, tries to answer questions but unable to do so; skin perspiring freely; temperature reduced to 99, pulse 112; has swallowed a few spoonfuls of milk; same rigidity in posterior muscles. Five doses having been administered in last twenty-four hours with rest after each dose; treatment continued.

June 12th.—Has perspired all last night most freely; recovered conciousness and can answer in monosyllables; pulse and temperature, same as yesterday; petechiæ fading off; tongue less dry and lips covered with an eczematous eruption; seems to be a little deaf: eight grains of chloral to be given every five hours.

June 13th.—Deafness has increased, though her intellect is more bright; temperature natural; bowels in good order and urine less loaded; pain almost *nil* except by moving her. Has hardly any pain by pressure on spinal column, though her head is yet rigidly thrown back on shoulders, trismus less severe and the power of deglutition much improved.

Ordered 10 grs. chloral twice a day.

June 14th and 15th.—Same appearance in disease, same treatment continued.

June 16th—Patient completely deaf and rigidity of cervical muscles the same, but much less painful in attempting to reduce it by force. She is gaining rapidly in every other respect.

Ordered 10 grs. chloral at 9 p.m.

June 19th.—Much better, sits up in bed half the time, less rigidity of neck; can swallow well, but seems to have no auditory organs whatever.

June 25th.—Appetite good; gaining strength: hardly any rigidity of posterior cervical muscles, sits up all day: complete deafness.

Chloral discontinued.

June 30th.—Patient improving much, but feels great weakness in her back, cannot stand in the erect posture without help.

July 18th.—Can stand up and walk, but her gait is most unsteady. Though she is in full convalescence, there seems to be no amelioration in the organs of hearing.

Remarks.—Two prominent points may be worth consideration in this case: 1st. the exhibition of chloral, which I think has never been administered before in this disease, the benefit obtained with it and its *modus operandi.* 2nd. Complete deafness along with convalescence.

As to the *modus operandi* of chloral in Cerebro Spinal Meningitis a great discordance of opinion may be maintained respecting it; since the disease is, with few exceptions, among authors regarded as inflammatory whilst chloral has never until now been looked upon as an antiphlogistic agent.

Although the question of its being a good hypnotic is well settled, chloral most certainly acts on the vasa motor nerves and this accounts for its antiphlogistic virtue. Further experiments and practical observations will most probably before long, make the medical profession better acquainted with its true therapeutical qualities.

Deafness resulting in this case is rather due to the usual consequences of inflammatory diseases, viz: lesion of nervous tissue, as thickening, or effusion, than to a simple want of nervous power and consequent absence of function. If so, chloral may then be regarded as having antiphlogistic properties, since it undoubtedly proved to be the fact in the present case.

St. Pie, P.Q. 28th July, 1970.

HOSPITAL REPORTS.

MONTREAL GENERAL HOSPITAL.

Cases in Medicine and Surgery under the care of Dr. D. C. MacCallum.

CASE 5.—*Removal of a Deep-seated Cystic Tumor of the Neck.* Reported by Mr. THOS. G. JOHNSTON.

Leonore L———, æt. 16, Canadian, a delicate anæmic looking girl, was admitted into the Montreal General Hospital August 1st, suffering from some digestive disorder with slight debility, from which, under appropriate treatment she quickly recovered. While under treatment it was observed that she had a large cervical tumor which caused considerable deformity. She stated that it had been coming on gradually for two years, and expressed a wish to have it removed if it could be done with safety. Upon examination it was found to be cystic, deeply seated beneath the sterno-cleido-mastoid; projecting anteriorly into the submaxillary and superior carotid triangles, and posteriorly into the occipital triangle; it was soft, about the size of a lemon, and quite moveable. Its strongest point of attachment seemed to be to the tissues in the occi-

pital region as it was much more easily moved from before backwards than from behind forwards, although the greater part of it lay anteriorly to the muscle. It was also very firmly attached by its upper end which extended well up to the mastoid process of the temporal bone. Its nature and attachment having been, as far as possible, ascertained, its removal was decided upon.

August 8th.—Chloroform having been administered, Dr. MacCallum made a vertical incision extending from near the apex of the mastoid process to a point about opposite the transverse process of the fifth cervical vertebra, dividing at its upper end a few fibres of the sterno-mastoid, and exposing the cellular tissue immediately investing the sac of the tumor. In this tissue overlying the tumor was seen the spinal accessory nerve with some branches of the cervical plexus. These having been carefully dissected off, were, together with the sterno-mastoid, drawn well forward by an assistant, while the sac was at the same time pushed backwards beneath the muscle, thus exposing it to its fullest extent. It was then seized with a pair of bull-dog forceps and drawn out, when, by passing the handle of the scalpel around it, and by a few slight incisions its removal was completed. In the bottom of the wound could be seen the sheath of the carotid vessels laid bare for about an inch, while by passing in the finger the common carotid could be distinctly felt pulsating at its bifurcation. The whole operation was attended with the loss of but little blood, the principal hæmorrhage being from a small vessel cut through in the first incision, the bleeding from which was easily controlled. The wound was then washed with carbolic acid lotion 1 to 30, closed by means of metallic sutures, and dressed with a pad of lint soaked in the same lotion, covered with oiled silk, and kept in place by a light bandage around the neck. The tumor weighed ℥ iij and contained about fl ℥ iiss of a milky fluid. Its removal was at first contemplated by an incision made anteriorly to the sterno-mastoid where the greater part of the tumour lay, but an incision posterior to that muscle was preferred for the following reasons:—1st. The bulk of the tumour was so moveable that it could be easily pushed beneath the muscle from before backwards. 2nd. The posterior incision avoided the external jugular vein. 3rd. The cicatrix would be in a less exposed situation.

August 9th.—Dressings not touched, except to inject some of the lotion beneath the oiled silk. Slept well last night, and, with the exception of slight stiffness in the neck, feels quite comfortable.

August 16th.—Wound was healed by the first intention; sutures were removed on the 11th and 12th. No pus was formed, and as far as the operation is concerned, nothing now remains to prevent her discharge

from Hospital. The dressing used throughout was lint saturated with carbolic acid lotion 1 to 40, and, with the exception of the day succeeding the operation, was changed daily.

CASE 6.—*Gun Shot Wound of the Arm and Back with Injury of the Lung.—Pleuro-Pneumonia—Pericarditis—Erysipelas—Death.* Reported by Mr. JOHN H. MATHIESON.

D. C., æt 25, was brought to the Montreal General Hospital on the 20th July, 1870, at 11 a. m., with a gunshot wound which he had received about half an hour previously. He is of a light complexion, pale and cachectic. Has been complaining of indigestion, loss of appetite, and general debility for the last twelve months. Is an engine driver, and attributes this indisposition to his occupation. Is not married.

In the morning he borrowed a double-barrelled fowling piece, which, unknown to him, was loaded, and, in company with a friend, was going over the mountain to shoot birds. On the way he handed the gun to his companion and passed on a few steps in advance, when the gun accidentally went off in the hand of his friend. The shot entered the right arm at the outer side, and carried away the whole mass of muscle to the bone, the wound extending from about an inch and a-half above the elbow to within four inches of the shoulder. The periosteum was not injured. The charge then passed into the back, beneath the inferior angle of the scapula, completely riddling a space about five inches square. Many grains grazed the skin beyond this, and some were lodged just beneath the skin, an inch or two from the point of entrance, while others passed out again. The direction of the shot was inwards, (towards the median line of the body) and backwards. From the appearance of the wounds the arm at the time of the accident must have been extended from the body at an acute angle, and carried somewhat backwards. The gun was held horizontally.

About three dozen grains of shot, fragments of cloth, clots of blood, &c., were extracted from the wounds in the back by Drs. Ross and Roddick; the wounds were then brushed over with carbolic acid lotion, (1 to 10); strips of plaster were passed around the arm to bring the edges of the wound together, and the whole dressed with iced carbolic acid lotion, (1 to 40). There was very little loss of blood—no vessels required ligaturing, He has been coughing a little since the accident. The sputa are frothy and streaked with blood. He is said to have "coughed up several mouthfuls of pure blood" immediately after the

accident. The shock has not been very great. Pulse 68. Pulsation as strong in the right as in the left radial.

3 P. M. Pulse 73. He has completely recovered from the shock. He complains of pain in the right infra clavicular region and in the right hypochondrium, which is increased by taking a very deep breath. Dr. MacCallum examined his chest but found no adventitious sounds. The wounds cause very little pain. There has been considerable oozing of blood from both since they were dressed. He is to have milk diet, with one pint beef tea, one pint tea, and corn starch extra. Ordered Liq. Ammon. Acet ʒ i. every fourth hour, and Liq. Opii. Sedativ ʒ ss. at night, and before if necessary.

10 P. M. Pulse 77 and full. Respiration 25. No pain in the chest except when he takes a deep breath or moves in bed, he then feels a sharp pain in the infra-clavicular region. No cough. Sputa less frothy and no blood. There is considerable thirst. Tongue dry and clean. Perspiring gently. He got the draught about 7 p. m.

July 21st, 9 A. M. Pulse 72, soft and full. He slept the greater part of the night, but his rest was often disturbed. Appears cheerful. Skin cool and moist. More pain in the chest than yesterday, but cannot detect any crepitation or friction sounds. There is a circumscribed spot of dullness in the mammary extending to the axillary region. Dr. MacCallum pointed out that in consequence of the fixed and quiescent state of the right side of the chest from the torn and painful condition of the muscles it was impossible to detect anything by the stethoscope. He got Liquor Opii. Sedativus ʒ ss. this morning.

1 P. M. Pulse 74. He is about the same as in the morning—perhaps a little more restless. Temperature in the left axilla 100¼ deg. F. Ordered a linseed meal poultice on the chest over the seat of pain.

5 P. M. Pulse 96. The pain in the chest is much greater, and is now confined to the right mammary region. Has not had any rigors. He got Liq. Opii. Sedativus ʒ ss. about 3 p.m.

10 P. M. Pulse 90 and a little fuller than it was in the evening. He slept about two hours after taking the sedative, and now is much easier. Skin hot, but he is perspiring gently. Can discover no abnormal sounds in the chest. Respiration 30. The wounds both well.

July 22, 8 A. M. Pulse 118, small and feeble. Surface hot and dry. He slept a good part of the night and says he feels better to-day. There is now no pain in the chest. Respiration 28 and moderately full. Urine scanty and high colored. There is no pain in the wound on the back except when he attempts to take a deep breath; small spots of slough

are beginning to form in it. The arm is painful, swollen, and œdematous. A small circumscribed red spot about the size of a penny, has formed on the back of the right hand over the cicatrix of an old sore.

1 P. M. Pulse 124. Temperature 104¾ deg. F. Skin dry. The strips of plaster surrounding the arm for the support of the edges of the wound were too tight, and were divided. The erysipelatous spot has spread—it now covers the whole back of the hand from the clefts of the fingers to the wrist joint. Dr. MacCallum ordered large doses of Tinctura Ferri Perchloridi if it did not stop spreading.

10 P. M. Pulse 112 and weak. Skin hot and dry, lips parched. The pain in the arm continues. The erysipelas has not spread any farther. He, therefore, did not get the iron. His sleep is very light and broken at short intervals. He got a draught of Battley's sedative.

July 23, 9 A. M. Pulse 102 and weak. Slept but little last night, and complains of exhaustion. The erysipelas has disappeared entirely from the hand. Pain in the arm still continues. A large superficial slough has formed over the whole surface of the wound. Many of the slight scratches are healing. The part which was more deeply wounded is very much swollen, and large sloughs are forming. The swelling extends also into the right axillary and infra-axillary regions, and is attended with discoloration and great œdema.

2 P. M. Pulse 104 and fuller than in the morning. Temperature 102¾ deg. F. No cough. No pain in the chest. Skin moist. Tongue clean. Countenance cheerful.

10 P. M. Pulse 120. No pain in any part. Skin is moist. Got a draught of Battley's sedative about an hour ago and feels sleepy. Says he is much better to-night.

July 24, 9 A. M. Pulse 102. Sleep last night disturbed, and some delirium. Temperature 102¼ deg. F. Skin moist. Tongue clean. Has passed very little urine since yesterday morning. Bladder is distended and causes pain. There is very slight pain now in the arm and none in the side. Dr. MacCallum drew off about Oii. of urine with the catheter.

10 P. M. Pulse 112. Skin hot. Is very restless. Pain in the side and arm is increasing. Bladder is again distended. Dr. Rodger removed about Oii. of urine with the catheter.

July 25, 9 A. M. Pulse 96. Temperature 102 deg. F. Did not sleep any last night. Pain in the chest is much greater. On the right side, over greater part, there is entire absence of the respiratory murmur, percussion gives a short, high pitched, hard note. On the left side puerile respiration. Breathing is shallow and a full breath causes pain. There is

a large puffy swelling on the side, anterior to the wound, which is erysipelatous. The wound in the arm looks well—part of the slough has separated. The urine was drawn off this a. m. The arm bandaged from the fingers to the wound, and the edges brought together with plasters.

10 P. M. Pulse 106 and very weak. Is slightly delirious. Extremities cold and covered with perspiration. Forehead and chest hot and dry. Breathing short but causes less distress than in the morning. Pupils contracted. Not much accumulation of urine, and it does not cause any distress. The erysipelas is spreading rapidly towards the spine.

July 26, 9 A. M. Pule 126 and weak. He had a very bad night. got Liq. Opii. Sedat. 3 ss. but did not sleep. Is delirious, but recognizes persons and answers questions, though not always correctly. He has been sinking rapidly, and Dr. Ross, who has been up with him nearly all night, gave stimulants—wine and brandy. He now appears to be suffering very much. Respiration 40 and very shallow. Eyes are partially closed. Eyeballs rolled up, pupils contracted. The erysipelas covers the whole of the back from the neck to the sacrum, extending forwards on the right side to within two inches of the mamma, and on the left to a line drawn from the axilla to the middle of the crest of the ilium. About Oii. of urine was drawn off this a. m. Brandy continued.

2 P. M. Pulse 120, very weak and thready. Great dyspnœa. The area of dulness on the right side has increased in extent. There is hyper-resonance in front in the infra-clavicular region. The dyspnœa is so great, and the respiration so shallow, that nothing can be ascertained from auscultation. Temperature in left axilla 100 deg. F. Extremities cold and covered with cold perspiration.

11 P. M. Pulse 130. Extremities cold and bathed in perspiration. Head hot. Tongue furred. Lips parched. Dyspnœa has increased. Greater tendency to delirium. Has not had any rigors.

July 27th. He continued to get weaker, and the dyspnœa increased. till 6 a. m. when he died.

Sectio Cadaveris, nine hours after Death.—The whole of the right lung was covered by a false membrane of recently deposited lymph, varying in thickness from one-eighth of an inch to that of bibulous paper. The middle of the lower lobe was consolidated, and in this part what appeared to be a laceration was noticed. On examining farther it was found to communicate with a spot about half an inch in diameter which had undergone disintegration, the tissues being quite soft and friable. Several of these spots of different sizes were found, and in one of them a *grain of*

shot. No more shot could be discovered. The remainder of the lower lobe and the lower part of the middle lobe were very much congested. The rest of the lung was collapsed. There was considerable pleuritic effusion. A roughened membrane of lymph was found on the pericardium at the base of the heart, and extending up the ascending aorta. The valves were healthy. All the other viscera were healthy.

CASE 7.—*Peritonitis caused by a severe blow on the abdomen.*—Reported by Mr. John H. Mathieson.

A. C., æt, 25, was admitted into the Montreal General Hospital, on the 22nd July, 1870, suffering from the effects of a blow on the epigastrium. He works in a planing mill, and received the blow from a plank while feeding a circular saw on the 20th inst. When admitted he complained of great pain in the epigastrium, very much increased by pressure. The slightest touch over the abdomen gave him great pain, and this became intolerable when the pressure was increased. He had vomited some blood before being admitted, and twice since admission there was a very little vomited. Abdominal walls tense. Pulse 110 and hard; tongue dry and covered with a dirty grey fur. Skin very hot. He lies on his back with his knees drawn up and thighs flexed. Countenance anxious and expressive of great pain.

Dr. MacCallum ordered 12 leeches to be applied to the abdomen, to be followed by a large linseed meal poultice; and Pulv, Opii gr. ss. in pill every four hours. Milk diet.

July 23rd. The application of the leeches and poultice was followed by great relief. There was a good deal of blood drawn. Pulse 66 and softer. Slept well last night. Countenance less anxious. Pain is nearly gone and the tenderness is very much less. Skin is still hot, but he sweats freely. There is some nausea with a constant desire to vomit, but he has only vomited twice since yesterday.

July 24th. Pulse 70; slept well last night. No pain nor tenderness. Skin moist and not very hot. Tongue very slightly furred. No further tendency to vomit. He was lying on his right side reading when the visit was made.

10 p.m. Pulse 78 and full. Skin moist; tongue clean; countenance a little more anxious, complains of pain upon pressure in the right inguinal and hypogastric regions.

July 25th. Pulse 68. Tongue clean; no tendency to vomit; tenderness in the abdomen is gone. He slept well last night. Has not had a passage

for six days. Ordered an injection of soap and water and to take the pills thrice daily.

July 26. Pulse 68. No pain. Had a motion of the bowels last evening after the injection. Feels quite comfortable.

July 27. Pulse 70. Is very much better. No pain except when he attempts to sit up, when there is pain in the epigastrium on the spot where he got the blow. He got another injection last night which was followed by two stools.

July 28. Pulse 71. Improving rapidly. No pain. Stop the pills; allowed to sit up for a short time. Half diet.

July 29. Pulse 69. Tongue clean and moist, no fever. Has been sitting up for the last six hours and the pain has returned in the abdomen. No tenderness, however, and supposed to be muscular pain.

July 30. Pulse 70. Does not complain of anything except weakness. Ordered Quinæ Disulph gr. j ter in die. Mutton chop with the half diet.

July 31st. Has muscular pains and cramps through the abdomen. The dark mark produced by the blow is seen quite distinctly extending across the lower part of the hypochondriac and epigastric regions.

August 1st. Pulse 68. Muscular pains quite gone. Has no pain in the abdomen now. The only effect of his illness now is weakness. He left the hospital to-day.

CASE 8.—*Acute Rheumatism cured in Seven days by a combined alkaline and blister treatment.* Reported by MR. JOHN H. MATHIESON.

C. M., a coachman, æt 40, was admitted into the Montreal General Hospital on the 2nd August, 1870, with acute rheumatism. He had been very healthy previously.

Eight days ago he felt pains in the back and limbs, attended with rigors and marked febrile symptoms. On the following day he was seized with very severe pains in the right wrist and shoulder, which passed in a few days to the left knee and right ankle. He painted the painful joints with Tincture of Iodine, and took a dose of Epsom Salts.

He now complains of severe pain in the left shoulder and wrist, which are swollen, hot and exceedingly sensitive. There is some pain in the right wrist and knee when moved, but none when at rest. Pulse 94, full and hard; heart's sounds normal. Tongue red at the tip and edges, and heavily coated on the dorsum. Urine strongly acid, scanty, and highly coloured—no sediment. Sp. gr. 1020. Perspiration abundant and acid. He says he has not slept any for the last four nights. Dr. MacCallum

Ordered—Potass Bicarb 3j every fourth hour. Pulv. Ipecac Co. gr. x at night. Blisters of Emplast Lyttœ around limb a few inches from the painful joints. Milk diet. Extra·1 pint beef tea.

August 3rd. Pulse 80 and softer; slept about four hours. Pain in left wrist and shoulder is very much less. The swelling, redness, and heat are also diminished. The left ankle is now affected. A large quantity of serum was removed from the neighborhood of the joint by the blisters. Its re-action is neutral. Ordered a blister to be applied above the left ankle.

August 4th. Pulse 78. He is very much better. The pain has left the joints entirely, and he only complains of stiffness. Urine and perspiration slightly acid. Tongue thickly coated with a dark fur. Bowels constipated. Ordered—Haust albus.

August 6th. Pulse 74. No further pain. Tongue clean along the tips and edges. Reaction of urine and perspiration neutral. Ordered—Potass Bicarb 3j thrice daily.

August 7th. Allowed to sit up. Ordered—Potass Bicarb gr. xx, Quinæ Sulph. gr. j. Aquæ 3ss. Thrice daily.

August 9th.—Pulse 74. Is quite convalescent. Tongue clean—no pain. Urine normal in colour and quantity. Sp. gr. 1018. Reaction neutral. Heart's sounds normal; bowels constipated. Ordered—a Podophylin pill, to be followed by a seidlitz powder

August 13th.—He has had no farther symptoms of the disease. Has free use of all his joints and complains only of weakness.

Discharged.

CASE 9—*Intermittent Fever (Quotidian) treated with large doses of Quinine.* Reported by Mr. LOUIS T. MARCEAU.

O. M., aged 21, a sailor, was admitted into the Montreal General Hospital, complaining of *malaise*, headache and constipation. He states that he is a resident of Quebec, but that during the summer months he works on a boat that runs between Ottawa and Whitehall. He is obliged to work hard and is much exposed to cold and wet. When he was last at Whitehall on July 12th, he was seized with a violent headache accompanied by vomiting. This pain in the head was more severe on the next day, and in the evening he had an attack of severe shivering followed by fever and perspiration. These attacks have returned every day up to the present, July 26th. The patient has a very sallow, anæmic appearance. He looks and feels very dull and depressed; complains of a

hammering sensation in his ears. Has no appetite; tongue pale and coated with a light fur; bowels constipated; pulse 92; increased heat of skin. No enlargement of the spleen; blood, examined by the microscope, appears normal. He was ordered a purgative, to be afterwards followed by 30 grains of quinine to be given in three doses during the intermission. Full diet.

July 27th.—Had an attack last night, but it was much milder, 5 grains of quinine three times a day.

July 28th.—No paroxysm. Still feels dull and heavy. Pulse 80. Less heat of skin.

2 grains of quinine three times a day.

July 29th.—No paroxysm, Is much improved in spirits, expression of countenance not so dull and stupid, tongue not so coated, pulse 72, temperature of skin normal. Has had no action of the bowels since last purgative. To get 10 grains compound colocynth pill.

August 1st.—Left hospital to-day, looking, and as he said, feeling like a different man.

CASE 10—*Intermittent Fever (Tertian) treated with large doses of Quinine.* Reported by Mr. G. O'D. WALTON.

G. H., a sailor, was admitted into the Montreal General Hospital, July 19th, complaining of great weakness and constipated bowels.

He states that he is ordinarily strong and healthy, but that in his last voyage from Liverpool he was almost starved in consequence of the bad quality and insufficient quantity of food furnished him. He is quite anæmic in appearance, and the expression of his countenance is dull and depressed. He was placed on full diet and treated with occasional laxatives, and a tonic mixture, but did not seem to improve.

On the 26th July, at 9 a.m., he had a severe chill, followed by dry heat which again was succeeded by profuse perspirations. This being regarded as a paroxysm of fever and ague, he was questioned as to whether he had ever suffered from a similar attack, when it was elicited that he had been subject to them at intervals for many years. An investigation of the spleen did not show any increase in size, and the microscopic examination of the blood did not exhibit any alteration in the normal proportion of the white to the red corpuscles. It was decided before altering the treatment, to wait for another paroxysm, and ascertain the type of the disease.

July 28th.—Had another attack similar to the former, commencing at the same hour in the morning and extending over the same period of

time. Dr. MacCallum ordered the present treatment to be suspended and quinine sulph: gr. v. to be given every fourth hour.

July 30th.—No paroxysm to-day. Says he feels stronger and better than he has for some time. Has taken 12 doses of quinine (60 grs.) As he complains of slight headache and nausea, the dose is reduced to 2 grains of quinine three times a day.

August 1st.—No paroxysm. Is quite cheerful, and confident that he is again able for his duties. Discharged.

REVIEWS AND NOTICES OF BOOKS.

Anatomy, Descriptive and Surgical. By HENRY GRAY, F.R.S., &c., &c. The drawings by H. V. Carter, M.D., late Demonstrator of Anatomy at St. George's Hospital, &c. Edited by T. Holmes, M.A., Cantab; Surgeon to St. George's Hospital, &c., &c. A new American from the fifth and enlarged English edition, with four hundred and sixty-two engravings on wood, pp. 876. Philadelphia: Henry C. Lea, 1870. Dawson Brothers, St. James Street, Montreal.

Gray's Anatomy has been a favorite text book ever since its first appearance in 1858, and has been in very general use by student and practitioner. A fifth edition of this valuable work will be welcomed by those who, during the past year or two, found some difficulty in obtaining a copy.

The editor has somewhat altered the plan of the work, as he has collected that portion on General Anatomy which, in former editions, was scattered throughout the book, and formed of it an introductory chapter. This introductory chapter has been re-written, and gives the student a succinct but clear view of the study of Microscopic Anatomy. To this has been added a short description of the processes which mark the development of the ovum from fecundation to maturity. This portion of the work is new material, as, although it may be regarded as pertaining to general Descriptive Anatomy, it has been omitted in previous editions. We next have, as necessarily accompanying a description of the development of the ovum, a chronological table which has been translated from the work of Beaunis and Bouchard, with some slight alteration. This introductory material is not intended to supersede or in any way interfere with works on physiology, nor does it dip into doubtful subjects of Microscopic Anatomy. The object of the editor is to give to the student in a small compass, and in simple language, a plain account of

facts universally admitted, and which, with industry and moderate work he can demonstrate for himself. The illustrations in the chapter on General Anatomy have been borrowed from the works of Kolliker, Todd and Bowman, Wagner, Harley and Brown, Beaunis and Bouchard, and other well-known authors.

The rest of the work is brought down to the present day, and is illustrated throughout. The illustrations are beautifully executed, and render this work an indispensable adjunct to the library of the surgeon. This remark applies with great force to those surgeons practising at a distance from our large cities, as the opportunity of refreshing their memory by actual dissection is not always attainable. The work as issued from the press of Mr. H. C. Lea, is highly creditable to that well-known firm, the paper is all that can be desired and the type is clear and well impressed. It is to be had of Dawson Brothers, St. James Street.

A Guide to the Examination of the Urine—for the practitioner and student. By J. WICKHAM LEGG, M.D. Second edition. Philadelphia: Lindsay and Blakiston, 1870. Montreal: Dawson Brothers.

The important part which the urine now plays in the diagnosis of many diseases renders it necessary that every physician should be familiar with the examination of this fluid in its normal and abormal condition. As a guide to those who are engaged in the study of this subject whether student or busy practitioner, we do not believe they can find a work more suited to their wants than the one now before us. A mass of most valuable information is condensed within a limit that is simply surprising. We have read it carefully from the commencement to the end, and can easily understand how, within two months from its first appearance, the whole of the first edition was sold and a new one demanded. We need scarcely add that we cordially recommend the little volume to the notice of our readers.

A Practical Treatise on the Diseases of Children. By ALFRED VOGEL, M.D., Professor of Clinical Medicine in the University of Dupat, Russia, translated and edited by H. RAPHAEL, M.D., late House Surgeon of Bellevue Hospital, New York. From the fourth German edition, illustrated by six lithographic plates. New York: D. Appleton & Co., 1870. Montreal: Dawson Brothers.

Within the last few years works upon the diagnosis and treatment of diseases peculiar to infantile life have multiplied to a miraculous extent

A field of study, peculiarly hard to work in, and with but few workers, has of late years been filled with observers and we are every now and again getting their results in works published. Upon the continent of Europe Dr. Vogel, the author of the work now before us, has a high reputation in this particular department of medical science, and his book has been translated into Russian, Polish and Dutch. The present is the first English translation which has appeared, and if we may judge from its style we should say that it was an admirable one. Anything coming from the pen of a man so distinguished as is Dr. Vogel must be worthy of commendation, and it is especially in the diagnostic and pathological part of the work that this volume exists. Nothing could be more admirable than the description of the pathological appearances observed—they are admirably full and clear—the veriest tyro in medical science can comprehend them. In the treatment of infantile diseases, we must confess we find Dr. Vogel's work decidedly weak—many of the most famous remedies in certain diseases not being even alluded to—for instance, under the head of treatment of pertussis we do not find the slightest notice of the use of bromide of potash, bromide of ammonia, or nitric acid—all remedies which have been found decidely useful in this disease. In noticing the treatment of scarlet fever, there is no mention of the use which the sulphites may be put to; and without arguing the point, as to the usefulness in this disease, the simple fact that they are so employed by many should at least have caused the fact to be noticed. We simply take these two as illustrations. We find many omissions quite as striking—but those we have mentioned will suffice; while therefore we willingly admit that from the work as a whole, there is much information to be gained, we cannot recommend it as a text book—such as we could Churchill or West. To the student of infantile diseases it will be welcome, for, as we have already mentioned, on the pathology it is exceedingly complete. It has several admirable lithographic plates, one of them showing very clearly the fœtal circulation.

The Practice of Medicine. By THOMAS HAWKES TANNER, M.D., F.L.S., Member of the Royal College of Physicians, fifth American —from the sixth London edition, enlarged and thoroughly revised. Philadelphia: Lindsay & Blackiston, 1870. Montreal: Dawson Brothers.

The name and the fame of Dr. Tanner, as one of the most active, searching, and successful physicians of the present, day is becoming thoroughly known and appreciated wherever the English language is

spoken. First and perhaps best known as the author of "Tanner's clinical medicine," a work in the hands of nearly every medical student of the present day, he is now becoming equally well known by his extensive work upon the practice of medicine, which has within the last ten years run through some five editions. Each one has outgrown the other in size, till the present volume is so ponderous as to be almost unwieldy, it having attained the enormous number of twelve hundred pages. Some idea of the amount of new matter in the present edition may be had when we state, that it contains *four hundred* pages more than the edition bearing the imprint of 1866, the last previous one issued. After having made this comparison we can easily believe what Dr. Tanner states in his preface, viz:—that every page has been carefully and deliberately revised. We especially notice that the treatment of diseases has received, perhaps, more than any other portion of the work the attention of the author, and we can readily understand why it should be so; for since the edition of 1865 passed from his hand our knowledge of disease and its treatment has been steadily advancing. The style adopted by Dr. Tanner is one peculiarly his own, being true and concise; at times we think too much so, for we fancy we notice instances where the subject has in some measure been sacrificed for the sake of conciseness. Altogether the work is one that the practitioner will find exceedingly valuable to have in his library, as a volume for reference. The subject desired is easily found, and there is no doubt left on the mind as to the treatment to be pursued, for Dr. Tanner is, to use his own term, somewhat dogmatic under this head; but he thinks that twenty years of daily observation have given him the right to utter no uncertain sound. We need hardly say anything with regard to the "*get up*" of the volume—which has been produced in an exceedingly creditable manner by Messrs. Lindsay & Blackiston.

On the Wasting Diseases of Infants and Children. By EUSTACE SMITH, M.D., London, Physician to the Northwest Free Dispensary for Sick Children. Philadelphia: Henry C. Lea, 1870. Montreal: Dawson Brothers.

Ordinary systematic works upon the disorders of childhood but imperfectly sketch the clinical condition of chronic wasting, and the brief details to be found under the heads of "Marasmus," "Tabes," "Atrophy," &c., &c., give but a meagre outline of the prominent symptoms of these disorders. In the study of this class of affections peculiar to childhood, Dr. Smith, early in his career, found ample scope, and that he has dili-

gently pursued his researches the little volume now before us amply testifies. It consists of an introduction and nine chapters, the whole embracing very nearly two hundred pages. The introduction contains many general practical suggestions—such, for instance, as information to be derived from the face of the infant, breathing, cry, importance of diet, external applications, baths, &c., and much more equally important to become acquainted with as general principles. Chapter 1, deals with atrophy from insufficient nourishment. The various causes which give rise to wasting, under this head are noticed, and numerous methods of appropriate treatment are detailed. Chapter 2 treats of chronic diarrhœa, a complaint which, so far as experience goes, is fortunately comparatively rare in this city. Chapter 5, upon congenital syphilitis, is very well written, though not by any means exhaustive of its subject. The last three chapters are upon tuberculosis, acute and chronic, and we notice that Dr. Smith has endeavored to utilize recent views on the nature of the phthisical process. This is the only portion of his book which is at all speculative in its character, the rest being, so far as we can judge, thoroughly practical. We feel sure that no one can rise from its perusal without having gained information, and that too of a useful character.

PERISCOPIC DEPARTMENT.

Medicine.

THE USE OF HYDRATE OF CHLORAL AS A REMEDY IN EPILEPSY.

Dr. WEIDENER, of Jena, relates an interesting case of a lad, 19 years old, a gardener by occupation, who, since his sixteenth year, had been the subject of epileptic attacks. The fits, according to the patient's account, occurred at irregular intervals. Occasionally they would recur two days consecutively, in other cases not until after the lapse of several weeks. The countenance of the patient exhibited an expression of terror or affright. There was from time to time a rapid alternation in the temperature of the surface. Each epileptic paroxysm was ushered in by an *aura* of short duration, resembling a rush of cool air along the entire extent of the spine. Shortly after, the patient, with a loud shriek, was seized with epileptiform convulsions, which held him apparently breathless for some five to ten minutes. With almost every paroxysm the tongue was bitten;

after the convulsions had subsided, there was observable a number of punctated ecchymoses over the eyebrows. During the intervals there would often be experienced, suddenly, convulsive movements of the muscles of the upper extremities and, also, often of the lower extremities Physical excitement would often give rise to repeated convulsive distortions of the lips.

The father of the patient, it was ascertained, had suffered from epilepsy up to his twenty-seventh year; a brother, twenty-five years old, had been epileptic since his eighteenth year; and another brother, thirteen years old, since his ninth year.

A careful examination of the patient proved that nothing abnormal was to be detected in either of the organs of the chest, abdomen, or pelvis. The skull was symmetrical in shape, and of a smooth, even surface. Neither cicatrix, tumour, nor other mark of injury could be detected on any part of the body.

The fits, instead of remaining irregular in their occurrence, as at first, became, subsequently, somewhat periodical, recurring, every seventh day, always at the same hour—between three and four o'clock a.m. The patient then awoke with a sense of difficulty of respiration, great anxiety, with confusion of mind; after uttering a loud scream or two, within the course of five or ten minutes, he was seized with a violent paroxysm of epileptic convulsions.

On Friday, November 12th, about one o'clock a.m., some two hours preceeding the anticipated paroxysm, a dose (45 grm.) of the hydrate of chloral was taken by the patient. About fifteen minutes after taking it he fell asleep. Between three and four o'clock the respiration of the patient was regular—about fifteen respirations to the minute. He awoke at seven o'clock a.m., without headache, or any other of the ordinary symptoms of the epileptic attack. On each of the two succeeding Fridays (Nov. 19–26), and at the same hour, he took the same quantity of the chloral, and with the same result. No paroxysm had now occurred for a space of three weeks. From the 15th of November the patient had been placed under the use of bromide of potassium in large doses.

Dr. Weidener remarks, January, 1870, that on a close examination of the patient he could discover no remaining symptom of an epileptic character, he, therefore, believes himself justified in presenting the case as a fair example of the beneficial results that may be anticipated from the administration of hydrate of chloral a short time preceding the expected occurrence of the epileptic paroxysm.—*Deutsches Archiv. f. Klinische Medical*, Feb. 1870. D. F. C.

CASES OF HEAT APOPLEXY.

Case *communicated by Surgeon G. H. Daly, Officiating Garrison Surgeon.*—Private F., 26th Foot, admitted into the receiving room garrison dispensary, 10-30 a. m., on 15th June with heat apoplexy, the symptoms of which were first observed by his comrade.

At 11 a. m., when seen by me, the following symptoms were present: very stertorous and heavy breathing, without puffing, unconsciousness, intense heat and dryness of head and body generally, bounding pulse, convulsive movements of limbs, dilated pupil.

Twenty grains of quinine were given in solution at once, ice was applied to the head, and iced water splashed over his chest and face at intervals of a few seconds; to have ten grains of quinine every hour. At noon his bowels had acted freely from an enema given on admission; he was now conscious to the application of cold water to his chest and face, starting up at every plash, but he was delirious, and unable to articulate.

At 1 p. m., breathing heavily but less laboriously, skin burning hot and dry, pulse full and strong, 120, semi-conscious, answers when loudly spoken to; ordered the body to be sponged with diluted acetic acid.

At 4 p. m., had taken 40 grains of quinine, is now conscious and answers coherently, complains of frontal headache, skin hot but moist, pulse quick but less full.

At 5-30 p. m. he was so much improved that he was sent to the general hospital.

Assistant Surgeon Carpenter, 26th Foot, was good enough to communicate his state to me on the following morning:—"Slept half the night through; skin, pupils, &c. natural; tongue furred; pulse 94, compressible; complains only of dizziness when he sits up." No relapse occurred, and strength gradually returned.

ABSTRACT OF TWO CASES OF HEAT APOPLEXY TREATED WITH QUININE, *by Assistant Surgeon E. O'Sullivan, 96th Regiment.*—Since the early part of May last up to the present date, four cases of heat apoplexy occurred amongst the men of H. M's 96th Regiment, stationed at Dum-Dum.

The two first cases were treated in the usual way: cold applications to head, leeches, &c.; both the cases were fatal.

CASES TREATED WITH QUININE.—No. 1, S. R. Private, 96th Regiment, brought to hospital at 6 p. m., 10th June, from the Main Guard, where he had been confined for a couple of hours; had been made a prisoner of in the bazaar, where he was found drinking; he was in a semi-

comatose state, and spoke with difficulty when aroused, complaining of pain in his head.

At 7 p. m.—Perfectly comatose, pupils dilated; skin hot; pulse full 130; can swallow with difficulty; 10 grains of quinine given at once, to be repeated every second hour. A solution of five grains of quinine was made, and at 7-30 p. m. one-half of this solution was injected into the right arm at insertion of the deltoid muscle, the other half was injected into the left arm, to be repeated every hour.

In this manner he had fifteen grains of quinine, and twenty grains by the mouth, and at 10-30 p. m. the patient was conscious.

11 p. m.—Can speak; had some lime juice and water.

12 p. m.—Dropt into a sound sleep.

11th June.—Feels slight headache, otherwise pretty well.

22nd June.—Quite well.

No. 2, D. S. Private, 96th Regiment, was on sentry at the hospital. About 5 p. m., 13th June, he suddenly left his post, and rushed in the direction of the hospital guard room, where he was arrested, and brought into hospital.

6-30 p. m.—Quite insensible; nearly outrageous, requiring three or four men to keep him in bed; pupils very much dilated; extreme sensitiveness of the body; eye-lids open; muscular spasms frequent, and very powerful, with grinding of the teeth; pulse small, 140; skin cool and dry; unable to swallow. A solution of quinine, same strength as in the case No. 1, was immediately injected, 2½ grains into each arm; this was repeated in half an hour.

7-15 p. m.—Spasms completely disappeared, lying quietly; cannot swallow. The injections of quinine to be repeated every hour.

10-30 p. m.—Patient slightly sensible, but upon being roused, falls into a heavy stupor.

11 p. m.—Complains of great pain in his head, and extreme thirst; had some lime juice and water.

In this case, there were twenty-five grains of quinine injected.

14th June.—Much better; pain in head still continues; ordered leeches, calomel, and antimonial powder.

15th.—Has hœmaturia, urine being ammoniacal.

22nd.—Doing very well; can walk about the ward.

Both of these cases, previous to my arrival at the hospital, had cold applications to heads, cathartic enemas, and leeches adminstered, but I am of opinion that the cure is due to the quinine.

CASE *communicated by Dr. Waller.*—J. S. Steward, admitted 16th June, 3-30 p. m., had been working in the sun with a thin straw-hat on,

on leaving the deck to go below felt senseless to the bottom of the ladder. On admission, was comatose, struggling, clenching his fists, and biting his lips, respiration embarrassed, pupils contracted, skin burning hot.

Cold douche was applied, and ten grains quinine given by the mouth, and repeated hourly for three doses.

On the following morning he was sensible, cool, with a good pulse, but hesitated in his speech, which was not a natural condition. He complained of headache. A large mustard poultice was applied to the nape of the neck, and quinine given in five grain doses. On the 18th he was free from pain and stammering, and was discharged on the 19th.—*Indian Medical Gazette.*

THE STETHOSCOPE AS A MEANS OF ASCERTAINING THE SEX OF THE CHILD.

Dr. JAMES CUMMING communicated to the Obstetrical Society of Edinburgh some interesting investigations on this subject.

TABLE I. MALES.

The first case was one of twins, the heart of the one fœtus was heard in the right groin beating 110 in the minute, and on delivery it proved to be a male; the second heart was heard in the left hypochondrium beating 154, and on delivery it was found to be a female.

2.	Fœtal	pulsation,	138	per minute.	15.	Fœtal	pulsation,	116	per minute.
3.	"	"	138	"	16.	"	"	120	"
4.	"	"	135	"	17.	"	"	120	"
5.	"	"	130	"	18.	"	"	138	"
6.	"	"	130	"	19.	"	"	125	"
7.	"	"	132	"	20.	"	"	140	"
8.	"	"	132	"	21.	"	"	140	"
9.	"	"	140	"	22.	"	"	137	"
10.	"	"	132	"	23.	"	"	140	"
11.	"	"	140	"	24.	"	"	141	"
12.	"	"	136	"	25.	"	"	122	"
13.	"	"	133	"	26.	"	"	120	"
14.	"	"	133	"					

TABLE II., FEMALES.

1.	Fœtal	pulsation,	150	per minute.	9.	Fœtal	pulsation,	140	per minute.
2.	"	"	142	"	10.	"	"	152	"
3.	"	"	140	"	11.	"	"	140	"
4.	"	"	150	"	12.	"	"	143	"
5.	"	"	144	"	13.	"	"	144	"
6.	"	"	140	"	14.	"	"	141	"
7.	"	"	140	"	15.	"	"	160	"
8.	"	"	144	"					

From these two tables it seems that when the pulsation varies from 120 to 140, the probability is that the fœtus will be a male, and when the pulsation varies from 140 to 160, the fœtus will likely be found to be a female. But there are some exceptions to these facts. In three cases in which the pulsation was from 150 to 160, the fœtus proved to be a male; and in fifteen cases in which the pulsation varied from 116 to 138, the fœtuses were found to be females. It appears, therefore, that there is less frequent variation in the pulsation in the male fœtus than in the female; or rather that there are fewer cases in which the heart's action exceeds 140 in the male, than that it falls below that number in the female.

These tables are exceedingly interesting, however, as far as they go; and the subject is well worthy further attention.—*Edinburgh Medical Journal*, June, 1870.

DIABETES A NERVOUS DISEASE.

Dr. Dickinson, in his recent paper before the Royal Medical and Chirurgical Society, after showing the *post-mortem* appearance of the brain and spinal cord in four cases of diabetes, says it would seem that diabetes is associated with an organic change, which may be briefly described as a destruction of the nervous matter along the arteries of the brain and cord. He thinks we may give up the view that these changes are consequent upon the diabetic state of the blood, and grant that the nervous alterations *produce* the glycosuria. The alterations in the brain are, in nature and seat, those which physiology has shown are capable of producing diabetes. The urine often becomes saccharine in consequence of injuries of the head, apoplectic seizures, intra-cranial tumours, and cerebral irritation. Diabetes, though sometimes hereditary, continually results from circumstances exerting a depressing or otherwise injurious action on the nervous functions, among these may be mentioned, mental disturbance, rage, grief, anxiety, and toil, dissipation, and especially sexual excesses.—*Exchange.*

Midwifery.

THE IRRITABLE HEAD OF PREGNANCY.

By J. Waring-Curran, L.K. & Q.C.P.I., L.R.C.S.I., &c.

The irritable head of pregnancy is a very tedious occurrence when it arises, and a very troublesome sympton to overcome when it presents itself. Little, if any, notice has been paid to the subject, although this

undesirable complication may safely be said to range in severity next to the vomiting of pregnancy, but to occur with greater frequency. The constant character of this distressing symptom is wearing to the patients, although the pain in the head is never what may be called violent, but it produces an amount of restlessness and a degree of uneasiness, accompanied by want of proper sleep, which is detrimental to health.

I have known the irritable head commence between the second and third months of pregnancy, and continue to the termination of utero-gestation. In character it is remittent; some patients awake with it in the morning, and it never abates till bed-time arrives; others rise free from headache, but it commences in the course of the morning, and continues throughout the day. The irritable head of pregnancy is seldon, if ever, accompanied by vomitting. I have never noticed any gastric disturbance attending it. The patient complains of weight across the forehead, and the whole head feeling hot, although the face is pallid, and no increase of temperature can be detected by the hand; sometimes, but not always, there are noises in the ears, and objects, compared by many to stars, floating before the axis of vision. This, of course, is the aqueous humour passing up the anterior chamber of the eye. The countenance is invariably indicative of anxiety, or of a subdued form of constant suffering. There is never any fever; the skin is moist, and the woman easily perspires; but the bowels are irritable, generally relaxed, occasionally confined. The tongue is loaded with a white creamy fur at the base and in its centre, the tip and edges being exempt from coating. The pulse is quick, never beyond 90 in the minute, but it does not communicate much power. Between the finger and the artery a kind of tumour of the soft parts, often experienced in typhoid fever, is to be felt. There are never any muscular twitchings, no pain or uneasiness about the abdomen, the entire complaint being confined to the head.

In those who are unable to rest at night, or whose sleep is irregular and broken, who slumber occasionally during the day, at the sacrifice of a disturbed night, the irritability about the head is much increased, and the pain is aggravated accordingly.

No doubt the irritation produced by the gravid uterus is the cause of the mischief, and the only effectual cure is the birth of the child; yet much may be done to remedy, or, at least alleviate, a distressing and strangely persistent symptom.

I have tried many remedies, but they have proved ineffectual. I have applied counter-irritants to the nape of the neck, and evaporating lotions to the forehead, but they have been abortive. The only medicine from which I have obtained good results is the bromide of potassium, and I

prescribe it in ten-grain doses with spirits of ammonia, tincture of hyoscyamus, and camphor julep; and when the patient has procured sleep, and the white creamy fur is cleaning off the tongue, I order two-grain doses of oxide of zinc thrice daily, with a camphor and conium pill at bed-time. This method of treatment gives much relief.

I communicated a paper some time ago on the value of oxalate of cerium in controlling the vomiting of pregnancy. The effect of that drug, and it is a successful remedy, is not more appreciable, nor more satisfactory in its results, than the bromide of potassium in the treatment of the irritable head of pregnancy, when followed up with the oxide of zinc.—*Medical Press and Circular.*

Medical Jurisprudence.

POISONING BY TINCTURE OF ACONITE.

ABSENCE OF THE PULSE FOR THIRTY-FIVE TO FORTY MINUTES—HYPODERMIC INJECTIONS OF LIQUOR AMMONIÆ—RECOVERY.

By B. Wills Richardson, F.R.C.S.I.,

Examiner in the Royal College of Surgeon, Ireland, and Surgeons to the Adelaide Hospital, Dublin.

In the first volume of this journal for the year 1869 will be found the account of some valuable experiments by Professor Halford, in which he injected the strongest liquor ammoniæ, diluted with two parts of distilled water, into the superficial veins of dogs that had been bitten by venomous snakes. The results of the experiments, as regards the saving of life, seemed so conclusive, that Professor Halford was led to propose venous injections of diluted liquor ammoniæ for snake poisoning in the human subject, and, at the same time, to suggest that ammonia injections might "perhaps be extended to opium poisoning, or to that resulting from infection, as in fever, cholera, etc."

Several cases of poisoning from the bites of venomous snakes, in the human subject, were treated in this manner, subsequent to the publication of Professor Halford's suggestion; and, as far as I have been able to ascertain, with such seeming success, that the injections and recoveries have all the appearance of bearing the relation to each other of cause and effect.

Professor Halford recommends that the strong liquor ammoniæ be diluted with two or three times its quantity of water before it is injected, and that from twenty or thirty drops be thrown into one of the larger veins. In the case here recorded, I did not deem it judicious to dilute

the ammonia procured for me, having found that it was not a very strong preparation. He disapproves of throwing the injection merely under the skin, and believes that after the injection has been made, there is no necessity for resorting to the use of stimulants (*Ibid.* pp. 122 and 124).

Taking the hint from his suggestion to inject liquor ammoniæ into the veins in opium poisoning, etc., I injected this fluid with the most satisfactory results in the following case, the ammonia having been, however, injected subcutaneously, and not into the vein as recommended by him:—

On Thursday evening, November 12, 1869, I received an urgent message to visit Miss B., aged 25 years, who, while suffering from severe facial neuralgia, swallowed through mistake, instead of a tonic mixture, two tablespoonfuls of an aconite mouth lotion.

The mixture and the lotion being upon the dressing-table, Miss B., in the hurry to get out for some shopping, swallowed, just after breakfast, two tablespoonfuls of the lotion, instead of an equivalent dose of the mixture, her mouth being at the time benumbed by a previous use of the lotion as such.

The mistake was made at 11 o'clock a.m. A cup of tea was next taken by her, and she left home in a few minutes. Several shops were visited on her way to the house where she intended to make most of her purchases, so that the latter was not reached until half-past twelve o'clock p.m. She had barely entered it when she became "alarmingly ill, staggered on attempting to walk, and was seized with a fearful benumbed tingling in the lower half of the back, then in the face and head, while at the same time the tingling in the mouth became more developed. The head felt as if it were distorted by the pressure of a vice, and a sensation of tightness across the nose and eyes was most distressing. In a few minutes more, the legs became so weak, and such tremor came over her, that she could not stand without assistance. She was conveyed immediately to the house of an acquaintance in the neighbourhood, her friends being under the impression that she was too prostrate for the drive home a much longer distance. She was placed upon a sofa. The debility had become so great that she fainted on three or four occasions in attempting to sit up. Benumbed tingling of both the upper and lower extremities commenced at half-past one o'clock p.m., and vision became very imperfect, a blackness, as she described it, having come over the sight. A little time afterwards, vomiting of an olive-yellow-coloured fluid commenced, and was almost incessant up to seven o'clock p.m. Towards evening she was greatly collapsed, and having fainted when in this state, her friends fancied that she had expired."

Before I saw her brandy had been given repeatedly, as well as

acidulated drinks; but they were vomited as soon as they reached the stomach. Warm jars, also, were applied to the feet, and additional warm clothing was placed over her. There was no indication of mental aberration, and the bowels were undisturbed. I arrived at fifteen minutes to seven o'clock p.m., and found her in a most perilous state. The face was pallid, the pupils were largely dilated, and the extremities of icy coldness. Vomiting was almost constant, and loud eructations were frequent. She had, as she expressed herself, "a dreadful benumbed tingling in the legs, arms, head, face, and in the mouth, the head feeling as if it were compressed by a vice." The pulse was felt with difficulty at the wrists, and the heart's action was weak and irregular. I gave her immediately some warm brandy punch, and, in a few minutes afterwards, a mixture composed of aromatic spirit of ammonia, sulphuric ether, tincture of ginger, and camphor mixture. A sinapism was placed over the heart, and one upon the calf of each leg. The punch and the mixture were not retained upon the stomach.

She was pulseless at ten minutes to seven o'clock, and the extremities were cold as death. The pupils were much dilated, The intellect continued unimpaired.

It being obvious to my mind that death at the heart had commenced, I resolved to inject hypodermically twenty-five drops of liq. ammoniæ; but as the time that would be required to procure my own syringe might be a fatal loss to the patient, I sent to a neighbouring cutler, who was kind enough to send me one in a few minutes.

Seven o'clock p. m.: I injected half a drachm liq. ammoniæ under the skin, corresponding to the insertion of the right deltoid muscle.

Ten minutes past seven o'clock: Vomiting not so frequent; but the stomach will not tolerate the stimulants. She continues collapsed and very cold; forehead covered with sweat, eyes glassy, and pupils much dilated; tongue pale and contracted; no trace of pulse at the wrists; intellect unimpaired. Injected half a drachm of liq. ammoniæ under the skin of the outside of the right arm, about midway between the elbow and seat of the first injection.

Twenty minutes past seven o'clock; Vomiting at longer intervals; still pulseless at the wrists, and no sign of return of warmth in the extremities; complains constantly of the compresed and distorted feeling of the head; pupils have continued of the same size. Injected half a drachm of liq. ammoniæ under the skin of left infra-scapular region.

Twenty-five minutes past seven o'clock: Pulseless. Injected half a drachm of liq. ammoniæ under the skin a little below the middle of the outer part of the left arm.

Half-past seven o'clock: While my fingers were applied over the course of the radial artery, at the wrist, searching for a pulsation, I fancied I felt a weak, irregular, thready beating of the vessel. In a few minutes, this became no longer doubtful, but gradually stronger and stronger.

Eight o'clock: Pulse fully established, but a little irregular; vomiting had almost ceased; extremities warming; tingling of the skin and compressed sensation of the head and face no longer felt. The tingling, however, of the extremities, although not so decided, did not cease until half-past twelve o'clock next morning; and that of the lower lip continued until November 28.

In cases in which death is to all appearance impending, I should not like to lose time in trying to limit the injection to the vein, as suggested by Professor Halford, and would rather take the chance of a sufficient quantity of the ammonia being absorbed from the areolar tissue before its local action takes place, the chief objection to this procedure. Of the four injections made under the skin in Miss B.'s case, but one caused subsequent annoyance, the cutaneous eschar that resulted from it being about the size of one of our new halfpennies. There being no doubt that the symptoms were caused by tincture of aconite, the important matter to ascertain was the quantity that had been taken. I therefore made the necessary inquiries on the point, and learned that the lotion, if made according to the directions for compounding it, should have contained one drachm and a half of the tincture in every fluid ounce. Of this lotion Miss B. took two tablespoonfuls, as already mentioned.

Whether or not the late appearance of the symptoms was owing to the tincture being a weak preparation, or to the fact that it had been taken immediately after breakfast, or even to some peculiar idiosyncrasy, are matters for conjecture. At all events, when they were established, they were of the most alarming nature, and portended approaching death.

Although I am fully sensible of the wonderful assistance Nature renders to our art, nevertheless I believe that if she had not been herself assisted in this case, she would have failed in maintaining life sufficiently long to allow the influence of the aconite to pass away.

When we consider that none of of the stimulants given by the mouth were retained upon the stomach—that Miss B. was almost pulseless at a quarter to seven o'clock, and pulseless at ten minutes to seven o'clock, and continued to be so until about half-past seven o'clock—and that during these forty-five minutes she became weaker and weaker, colder and colder—the saving of her life may, I think, be fairly attributed to the ammonia subcutaneous injections, and for the following reasons:—

1. The vomiting, which had been almost incessant up to the moment of

the first injection, commenced to lessen in frequency immediately after it, and nearly ceased after the fourth; 2. The disappearance of the pulse from the wrists at ten minutes to seven o'clock, and its reappearance after the fourth injection; 3. And because none of the stimulants that had been given by the mouth were retained upon the stomach, any influence they may have exerted when descending to this viscus, and for the few moments they were in it, not being sufficient to prevent the progressive failure of the circulation.

In addition to the varieties of poisoning for which professor Halford has recommended liq. ammoniæ injections, it appears to me well worthy of trial in poisoning by chloroform and in hydrophobia. Possibly, if life could be prolonged beyond the time that death usually occurs in cases of hydrophobia the latter might be averted. Whatever doubt may exist as to the necessity of venous injections in a case like the one I have just narrated, there can be little as to the advisability of injecting the veins in hydrophobia; for, as the injections would probably have to be frequently repeated, such a multiplication of the cutaneous eschars it would be better to avoid.—*Medical Times and Gazette.*

Materia Medica and Chemistry.

ERGOT OF RYE AS A THERAPEUTIC AGENT.

By Dr. J. Waring-Curran, Dublin.

Although the chief uses of ergot of rye are, for the most part, confined to those affections of the uterus over which it seems to exercise a specific action, I have been induced to give extensive trial of the drug in other complaints; and as I have found most satisfactory results from its administration, the following paper has been written in the hope that ergot of rye may be more frequently exhibited as a medicine, and that the practitioner may be reminded that in it he has a most potent therapeutic agent of reliable efficacy in other diseases, apart from those affecting the uterus.

In Parturition.—The physiological action of ergot of rye upon the parturient uterus in exciting contractions of the unstriped muscular fibre is familiar to all, and the *constant* pains which it induces so characteristically differing from genuine labour pains. This action is entirely produced through the ganglionic nervous system by affecting the muscular coats of the blood-vessels, and thus diminishing their calibre. We are told by Dr. Brown-Séquard, as the result of a series of experiments made by himself, that the blood-vessels of the pia-mater of a dog under its

influence became smaller, and that the reflex action of the spinal cord was diminished to a great extent.

In three-fourths of the labours attended by myself, I have exhibited ergot with most salutary results. I have never observed any ill effects from it, when judiciously given, to either mother or child. I never attempt it unless the os is dilated and dilatable; and primapara cases, if the pelvic development be natural, and the os be not rigid, never prevent my giving it. The cases we read of, (and lectures have told us about its destructive effects upon the mother, and its poisonous properties to the child,) experience teaches me must have been cases where ergot was improperly given.

I have used extensively the liquid extract prepared by the action of ether and spirit upon powdered ergot, and the tincture too; but on neither have I the least reliance. Some time ago I was sent to assist a medical gentleman; upon my arrival I found the child's head in the vagina, and complete inertia; the gentleman in attendance told me he had given the liquid extract in large and repeated doses without any appreciable therapeutic action. I immediately prepared a fresh infusion—the preparation I invariably employ, and added to it some borax; in twenty minutes its action commenced, and within an hour the child was born. I do not say that in such a case the short forceps would not have done equally well; but people, as a rule, have, in private practice, so great a hatred to instrumental deliveries, and are so apt to attribute every little trivial subsequent complaint to their use, that I have not used the forceps as frequently as formerly.

When studying midwifery, some years ago, at the Rotunda Lying-in Hospital, Dublin, I painfully noticed—and the observation has made no little impression upon me—that the students and embryonic midwives were compelled to allow poor women to continue in labour, hour after hour until nearly exhausted, because the rules of the institution forbade their interference, unless an over-fed and morose female superintendent was awaked and consulted. The educated student, revolting at such consultations, allowed the case to linger in preference. As I now reflect, I have not a particle of hesitation in saying that many of those confinements might have been safely and expeditiously concluded hours previously, had the best informed and senior student been permitted to prescribe a dose of ergot. To keep a woman in labour five minutes longer than she might be is unnecessary and a great cruelty. The freshly prepared infusion, with borax, will demonstrate its action in twenty to twenty-five minutes, or earlier if the anterior os be gently irritated with the forefinger. So far as ergot is related to the accoucheur I should feel disappointed

arriving at the bedside of a parturient woman without it. I write not inconsiderately in making this remark, for I thoroughly deprecate the exhibition of any drug given indiscriminately and recklessly, and can thoroughly comprehend the issue of a case of distorted pelvis, or rigid os (when antimonial wine is requisite) where any could be found foolish and inexperienced enough to prescribe ergot.

Flooding after Labour I have never failed arresting by a full dose of infusion of ergot, at the same time lowering the patient's head, elevating the pelvis, and firmly applying the padded binder. I have observed in the practice of others that plugging the vagina had in several instances to be superseded by a full dose of ergot of rye, and that with the desired effect.

Menorrhagia is a term now so inaptly applied to the varied forms of uterine hemorrhage, requiring different treatment, that I purpose devoting a paper to this subject alone, and to the effect which heat along the dorso-lumbar region produces by inducing hyperæmia of the vasomotor nerve centres related to the uterus, and through the increased currents along the nerves, causing contraction of the uterine vessels, and thus arresting menorrhagia; but here I must confine myself to those varieties of uterine hemorrhage best cured by the ergot of rye. What I am pleased to call the *strumous abortive predisposition*, met with in patients of a scrofulous habit, who have become very frequently impregnated, who suffer from constitutional debility, from leucorrhœa when the menorrhagia has exhausted itself, or when arrested by treatment, demands the exhibition of ergot when the hemorrhage is present, which it rarely fails to command. Menorrhagia from obstructive cardiac disease at either the mitral or aortic orifices, congesting the pelvic viscera, that associated with a diseased portal system, that consequent upon a scorbutic state of the system, and genuine menorrhagia—*i. e.*, an increase of the catamenia continuing for an unnatural lengthened period and returning before the time calculated upon, without organic lesion, are the forms or varieties of menorrhagia to be benefited, to be checked and cured by the freshly prepared infusion of ergot and borax. Menorrhagias dependent upon ulceration of the os uteri, due to the existence of polypoid growths, or owing to the presence of malignant excrescences, or the effect of retroflexion of the uterus, do not come among the category of cases to be affected beneficially and permanently by ergot of rye, although I have used the drug for the purpose of pressing down the growth of a polypus to be snared, a malignant or an ulcerated surface to be cauterised.

Amenorrhœa occurring in the plethoric is best treated for a few days with strong salines, aloetic purgatives, or medicines which act upon and

increase the circulation of the large intestines, and then closely followed by two-ounce doses twice a day of the infusion of ergot, prepared according to the British Pharmacopœia. Amenorrhœa in those who have only *changed* a few times, and in those of tender years, and amenorrhœa of chlorotic women, should have citrate of iron, spirits of ammonia, and tincture of nux vomica administered for three weeks in full doses, and the fourth week the patient shall be ordered hipbaths, and from one ounce to an ounceand a half doses of the infusion of ergot thrice daily.

In these cases, as in the parturient, vomiting is sometimes induced, being the direct effect of the drug upon the muscular coat of the stomach. Accordingly, to prevent this, I direct the albumen of an egg or some gruel to be partaken of before the medicine, and this invariably with good results.

Hæmoptysis I have frequently arrested for a time with ergot, with good effect in the commencement of phthisis; but I should not be disposed to prescribe it, lest vomiting should be set up in the hæmoptysis which sometimes accompanies the advanced stages of pulmonary consumption.

Hæmaturia.—I have found great benefits from the tonic effects of ergot upon the blood-vessels, in causing a diminution of their calibre, and arresting hemorrhage from the kidney. I can safely say that its effects are superior to either turpentine or the vegetable acids in this complaint, and the same observation applies to the tonic effect it produces on the muscular fibre of the bladder in those cases of general atony which come under our notice, and for which so little permanent good can be done.

Constipation of the Paralytic is strikingly remedied, when the most powerful cathartics fail, by occasional doses of ergot, which sensibly diminish the amount of blood present in the spinal cord and its membranes, give tone to the muscular fibre of the bowels, and thus propel the fœcal matter to the rectum.

Fatty Degeneration of the Heart.—I have had, and still have, two patients suffering from this complaint, who are very materially assisted by occasional doses of ergot. I can only compare its tonic virtues to that of carbonate of ammonia, but as experience is limited, I cannot write emphatically.

As an Injection in Gleet I believe I have been the first to use the infusion of ergot and I have not yet failed. I employ the Pharmacopœia infusion, and direct its being injected three and four times in the day. I observe the tonic power it imparts to the urethra.

When the injection is thrown along the urethra, I direct the meatus urinarius to be firmly pressed against the nozzle of the syringe, so that the ergot may lie for five minutes in the urethra; for experiment has

taught microscopically that the first effect of ergot locally applied to a raw surface, is 1st, to increase the circulation; 2ndly, to suspend the circulation; 3rdly the circulation recovers itself, is still disturbed, and irregular, or spasmodic, showing that the contraction and relaxation of the muscular coats of the arteries are subservient to the will of the ergot, hence, undue contraction producing gangrene. These series of phenomena upon the blood-vessels of the urethra, at all events, set up healthy action and cure a foul disease.

I hope this paper may have the effect of bringing more prominently forward one of our most valuable drugs, that in the diseases I mention the practitioner in extensive practice may be induced to test its value and give us the result of his experience, for it is only by combining results that accuracy is established. To the point: an accomplished surgeon, at my suggestion, has employed infusion of ergot as an injection in a case of chronic catarrh of the bladder. The reports of the case are valuable, but they are not corroborated by other cases, hence my delicacy in alluding to what another will publish; for in other similar cases its tonic virtues may not prove as effectual.—*Medical Press and Circular, Nov.* 17, 1869, *p.* 397.

NITRITE OF AMYLE IN TETANUS.

By M. Foster, Esq., Huntingdon.

The treatment of traumatic tetanus is so empirical, and the favourable results of any medicine are so problematical, that it appears legitimate practice to use any *likely* remedy. In a practice of thirty-four years I have seen seven cases, all of which proved fatal, until this time I prescribed nitrite of amyle inhalation. I was induced to try it from its supposed property of alleviating the spasms of angina pectoris, and for which I had previously secured a supply.

J. B., aged fifty-two, publican, smashed the third finger of his right hand on Dec. 11th, 1869. He was exposed to much wet and cold on the 20th; felt himself very ill on the 22nd, complaining of stiffness of the jaws. My partner, Mr. Lucas, saw him on the 23rd, when tetanus was setting in fast. I saw him on Christmas-day. At this time his jaws were fixed, and on the recurrence, very frequently, of tetanic spasms, his body was rolled up into a rigid ball. I gave him five drops of the nitrite on a handkerchief. The inhaling of it had an immediate effect in lessening the spasms. Directions were left to administer the same on each return of the spasms. This was assiduously done by his wife. From that time onwards the spasms were *held in check* until the ninth day, when he had inhaled an ounce, and the case might be said to be reduced to a semi-chronic state, with a fair prospect of recovery. He was most *thoroughly* supplied with nutrients, a few stimulants, tonics, and aperients. He gradually improved until the end of the month, when he was convalescent.

His perfect recovery to health has been retarded by some attacks of catarrh and congestion of the lungs; otherwise he is well.

I know it is foolish and rash to pronounce any treatment satisfactory upon a single case, such as this; and it is for the profession to try its influence, for good or otherwise, in other cases as they may arise.—*Lancet, April*, 9, 1870, *p.* 533.

Canada Medical Journal.

MONTREAL, AUGUST, 1870.

THE WATER SUPPLY OF MONTREAL.

After considerable outlay the citizens of Montreal regard it as a matter of satisfaction that they have at last obtained a constant supply of good water. The quantity certainly is unlimited and the pressure sufficient to secure, in case of fire, a powerful stream; in this respect, at least, our city will bear favourable comparison with any city on this continent. Furthermore, the supply is quite adequate to an enormous expenditure in fountains and drinking troughs, where the water is constantly flowing night and day. This has been considered a great boon and is a means of affording an abundant supply to man and beast of what has hitherto been looked upon as pure and healthy water. The water to all appearance is pure and the arrangements such as to be generally approved. We say the water to all appearance is pure and good, but, unfortunately, it does not bear inspection. To arrive at definite and startling results, the water examined, should be that first drawn from the pipes in the morning after a few hours quiescence, this should be allowed to settle, and the sediment if placed under the slide of a microscope will be found to consist of both animal and vegetable refuse, diatomaceæ, fish spawn, manure, pieces of straw, hay seed, and an occasional cistoid worm teeming with a brood of young, more numerous than the united armies of France and Prussia.

There is no exaggeration in all this, it is a matter of great public importance, and we have with other independant observers satisfied ourselves, after frequent trials of the correctness of the above statement. There can be no question of the truth of this statement, and each particle of the water, at all periods of the day, contains a greater or less quantity of these impurities.

It is said we all have to eat one peck of dirt some time during our lives, but we do object to have it introduced into each morsel of food we eat, and each mouthful of fluid we drink; at the present rate the citizens of Montreal are indulging in nigher a bushel every year, which is anything but a pleasant reflection. There are many things connected with the Montreal water works which require careful investigation, and

we think that to arrive at anything like definite results as to what is best to be done, a scientific commission should be appointed, and suggestions received and acted upon.

The water supply of Montreal is drawn chiefly from the Ottawa river. This river with its numerous tributary streams is teeming with fish and their parasites; some of the streams which empty into the Ottawa are alive with small hair worms, one of the family of the Filiaria. Several of these we have captured and they have for some time past formed the subject of our almost daily observation; now and then a veritable Filiaris will be passed through our water taps. The worm is supposed to live on the water beetle, which is likewise abundant in these streams. Besides this we have captured on more than one occasion minute crustaceans, which are microscopic objects, and other forms of animal parasite; we have found on several occasions the young of the Filiaria in active motion and which, from its size and appearance, is not to be distinguished from the young of the guinea worm, which belongs to the same family. We have heard that the reservoir is full of fish, this is a matter of some moment, as if so it is another reason for seeking to improve its condition. We have no doubt that the rocky sides of the reservoir are covered with algæ, especially those which abound in stagnant water where there is a rocky bed. We would again urge on our Corporation to see to the condition of our water supply as there can be no doubt of the fact that in its present state it is unwholesome, and we believe is a fruitful source of bowel derangements, which are well known to be common in our city. To our citizens, those who can afford it, we would advise the purchase of a filter, or to extemporise one, with charcoal and sand which are always to be had , or, if it is preferred boil the water by which means we cook the impurities and render them less nocuous; but the proper thing to do is for our city to institute on a large scale filtering beds to pass the water through, prior to admitting it into the reservoir.

We trust that if the corporation of our city adopt the above suggestion and seek for advice from scientific men, that no personal or other considerations will induce them to appoint any, but persons whose opinions will carry weight with the community. If anything is to be done it should be attended to without delay before the cold of winter has set in, as it is in every way desirable that the citizens of Montreal should be supplied, especially during the prevalence of the heat of summer, with drinkable water. We may state that it is not at all unlikely that that direful scourge, cholera, may again visit our country during the next year, and we should fortify ourselves against the enemy by every conceivable sanitary precaution.