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## ART. VI.—OBSERVATIONS ON THE EFFECTS OF CONSTITUTIONAL AND LOCAL IRRITATION UPON THE FORMATION AND ERUPTION OF THE TEETH.

*Read at a Meeting of the Medico-Chirurgical Society of Montreal, April 3, 1847.*

By WM. H. ELLIOT, D. D. S.,

Fellow of the American Society of Dental Surgeons.

It is a general law of the animal economy, that all organs, whether osseous, nervous, or vascular, shall recover entirely, or in part, from injurious effects upon them during their formation, whether these effects be local or constitutional; but to this rule, the teeth are an exception; from such injuries the dental organism never recovers; but, on the other hand, teeth so effected seldom escape for any great length of time the ravages of disease.

The teeth continue throughout life to exhibit marks of previous constitutional derangement, because, unlike the other bones, they have no reproducing powers of their own, so that whatever injuries they may receive from constitutional or other causes while being formed, they have not energies inherent in themselves sufficient to restore them to a state of health. It it this peculiar characteristic of the dental organs that enables us to judge of the innate constitution, whether it be good or bad; it also enables us to point out, with considerable accuracy, at what periods during the life of the subject the constitutional derangement has been most severe.

The form, colour, density, and vital energy of the teeth, depend entirely upon the perfectness of their formation; upon this too depends their capability of resisting the action of external agents; and upon this also depends more or less the success of those dental operations, which have for their object the restoration of these organs to a healthy condition.

If the functional operations of those organs which produce the different structures of the teeth have been impaired, either by a bad constitution or accidental derangement, then it is only necessary for us to know the different periods when their formation takes place, to be able to judge the condition of the general health from the time ossification commences upon the incisors of the temporary set, until the crowns of the wisdom teeth are formed, a period of about fifteen years, beginning in the fifth month of fœtal life. If the derangement be the result of illness, of such a nature as to involve the whole system in fever or other constitutional disorders, or of local irritation, such as is produced by fracture of the alveolus in removing the temporary teeth, alveolar abscess, &c., then that portion of the bony structure and enamel, which was being deposited at the time the accident occurred, will, when the tooth makes its appearance, be found imperfect, and we frequently meet with cases where parts thus affected are entirely wanting.

The appearance of the teeth will indicate correctly the nature of the irritation. If it be constitutional, then these organs will be marked in pairs, and in such a manner as to show their different stages of advancement at the time the accident took place; if local, then those teeth only suffer which are in the neighbourhood of the disease.

The following table shows the different periods in which ossification is commenced and completed, on the crowns of each individual tooth of both sets.

| Ossification commences on the pulps of the | Ossification complete in crowns |
|---|---|
| Temporary incisors, 4½ months before birth. | 1 month before birth |
| " Cuspidate 4 " " " | at " |
| " Molares 3 " " " | 1 " after birth |
| 1st permanent " at " | 3 years " " |
| 1st " incisors lower jaw 2 mo. old | 3 " 10 months old |
| 2d " " " " 3 " " | 4 " " |
| 1st " " upper jaw 4 " " | 4 " 3 " " |
| 2d " " " " 5 " " | 4 " 6 " " |
| " Cuspidate lower jaw 7 " | 6 " " |
| " " upper jaw 16 " " | 7 " " |
| " bicuspides under " 34 " | 7 " 6 " " |
| " " upper " 4 years " | 8 " " |
| 2d " Molares under 4½ " " | 9 " " |
| 2d " " upper 5 " " | 9 " 6 " " |
| 3d " " 10 " " | 15 " " |

As the commencement and duration of the process of ossification depends upon other circumstances than the age of the subject, this table cannot be correct in all cases, but as a general rule we believe it may be relied on.

We have this day witnessed an interesting case of imperfectly formed enamel, in the mouth of a girl about ten years of age. Across the crowns of the lower incisors, about half way from the gum to their cutting edges, was a deep groove, and the points of the cuspidati of the upper jaw were entirely gone. Similar marks were also discoverable on the other front teeth of both jaws. We remarked to the mother of the child, who was present that the appearance of the teeth indicated good general

health; but at two years of age she must have been the subject of a brief, but severe illness. The mother confirmed our opinion, by saying her daughter had generally been healthy, with the exception of the time we mentioned, when she was attacked with measles, and was for some time considered dangerously ill. Cases of this description are of the most common occurrence.

The different phenomena exhibited in the formation of dental organism, are as variable as the degrees of health in the systems that produces them.

A good innate constitution, sustained by blood containing a proper proportion of the different materials that enter into the structures of the teeth, will produce these organs of a medium size, of a dense structure, perfect in form, and slightly tinged with yellow; while another state of the blood, in which serum preponderates, and which is always accompanied by a weak constitution, produces teeth of a delicate form, smaller in diameter, and more pointed than those of a healthy formation, of a blueish or pearly tint, and readily acted upon by external agents. These teeth are generally beautiful and regular, and are credulously looked upon by some as indications of a predisposition to pulmonary disease. Another state of the blood, in which calcarious matter and gelatine are produced in abundance, but of a poorer quality, exhibit teeth of a soft texture, and, like the others, readily acted upon by corrosive agents: they are also characterised by a chalky appearance, and an enamel full of small indentations. These teeth are very often, but not always, larger than those produced by a more healthy action. They are usually found covered with green tartar, a combination of the earthy portions of the enamel, with ceptic acid (ceptate of lime). This shows their inability to resist corrosive agents, to which they generally fall victims.

The calcarious portion of dental structure, is deposited from crassamentum, or red part of the blood, while the gelatine is derived from serum, or white part of the blood; and the earthy and animal matter contained in a tooth, bear about the same proportions to each other that the red and white portions of the blood do, from which the tooth was formed.

In good constitutions, the blood is composed of about four parts clot to one of serum; and dental bone, deposited from such blood, contains about three parts calcarious matter to one of gelatine. Now, it is evident, that any change in the proportions that the red and white blood naturally bear to each other, must produce a corresponding change in the ingredients of which dental bone is composed. Disease tends to increase the white, or serous part of the blood, and decrease the red. Consequently, those teeth which were progressing in their formation at the time the blood was under the influence of disease, will be composed of too large a proportion of gelatine; hence their liability to become diseased. Such teeth, for the want of a larger proportion of calcarious matter, are softer, and much more sensitive, than those formed under more favourable circumstances.

In short, teeth are met with of every degree of perfection, in form, colour, density, and capability of resisting the ravages of disease; and in all cases they are a correct indication of the state of the innate constitution.

The result of local irritation upon the producing of organism, is less remarkable, inasmuch as the quality of the blood remains the same; and the secreting organs are only effected by becoming more or less involved in the disease, and, as a general thing, its pathological indications are merely a more rapid deposit of dental structure, with occasionally an opaque spot upon the enamel, and, in some more rare instances, an entire destruction of the dental germ. Several cases, exhibiting these effects, have come under our notice, some of which we shall give.

In the summer of 1840, Mr. C., then a resident of Plattsburgh, New York, called on us with his daughter, a little girl about five years of age, for the purpose of obtaining our advice. Mr. C. stated, that about a month before we saw him, his daughter had had a temporary tooth extracted, and that the gums, instead of getting well, had been growing worse ever since. On examination, we found the gums on the left side of the lower jaw in a high state of inflammation, swollen, and of course sensitive; the second temporary molar had been extracted, and the alveolus remained open, from which there was a discharge of pus. On introducing a probe, we found that the alveolus had been fractured from the first temporary molar to the posterior angle of the first permanent molar. This bit of bone, about three quarters of an inch in length, being loose, we removed it; and on cutting away the lacerated portions of gum, we exposed the lingual surface of the first permanent molar, the eruption of which, by the natural process, would have occurred in the course of a few months. We sent our little patient away, with directions to have her mouth cleansed occasionally with tincture of myrrh. In a few days, however, she again made her appearance, complaining of pain and soreness. At this time, we found the crown of the first half-formed permanent molar, entirely through the gum, which was in a high state of inflammation about the tooth. As the inflammation had already destroyed the vitality of this tooth, thereby rendering it a source of irritation, we thought best to extract it, and accordingly did so. From that

time the inflammation gradually subsided, though not until it had destroyed the germ of the second molar; and consequently the third molar, or *dens sapientiæ*, for the want of a parent sac, will never be formed.

In this case it may be seen, that the removal of a temporary tooth in an improper manner, cost the patient three large permanent grinders.

The second bicuspid on the same side, made its appearance more than a year earlier than these teeth usually do, and in all respects perfect in its formation. At the time the accident occurred, this tooth was deeply seated under the temporary one which occasioned all the mischief. Yet it had in no way been affected by the previous inflammation, other than that its formation and eruption was completed in a much shorter time than that of other teeth of the same class, that were more distantly situated from the seat of the disease.

We have seen many cases of local irritation, with like results to the teeth of replacement, which we think warrant us in believing that an increase of circulation will produce a corresponding increase in the action of the secreting organs.

Premising that the innate constitution be good, and that the blood bear a proper proportion of the earthy salts and gelatine of the teeth, may it not be fair to suppose, that if a greater amount of osseous structure be brought to the secretory organs through the circulation, that they, in obedience to this impulse, will be stimulated to greater activity, and thereby advance the natural formation and eruption of the teeth.

During the fall of 1844, Mrs. G. called on us with her little daughter, who was suffering from alveolar abscess over the root of the right superior central incisor of the temporary set. The crown of this tooth was entirely destroyed by caries, and the root was rendered so sensitive by the existing periodontitis, that we were unable to effect its removal in its present state. We therefore scarified the gum, and sent her away with directions to call again when the inflammation had subsided. This, however, she neglected to do for more than a year, during which time she had several attacks of periosteal inflammation; and when she did call, absorption of the gum had taken place to such an extent that the fang was exposed its whole length. We removed it, and on finding the left central incisor loose, we removed that also, and to our surprise we found that the root of this tooth was entirely absorbed, while the root of the diseased tooth was whole. In a few weeks after, the right central incisor of replacement cut the gum, and when we last saw our little patient, the crown of this tooth was entirely through, beautifully and perfectly formed; but the eruption of the left permanent incisor had not then taken place.

Now, if the case of which we have just given a brief history, were an unusual one, it would mean nothing, but as all the circumstances connected with it are of the most common occurrence, we may safely draw from it the following inferences:

1st. That an increased but healthy deposit of dental structure may be produced by local irritation.

2nd. That there are absorbents expressly for the purpose of removing the roots of the temporary teeth, and that the action of these vessels may be increased by local irritation.

And lastly,—If the absorbents become too deeply involved in the disease, their operations will be entirely interrupted, and the root which it is their office to remove, will remain whole.

We have mentioned this case, because we think it goes far in explanation of the mysterious phenomenon of the shedding of the temporary teeth. There is no subject connected with our own branch of the healing art upon which writers differ so widely as upon this; even Professor Harris, to whose pen the literature of dental science is more deeply indebted than to that of any other author, leaves the matter still in doubt as to the manner in which this peculiar process is carried on. In offering our own views upon this subject, we are aware that we shall differ with men for whose opinions we have ever entertained the highest respect. We shall therefore submit them with some hesitation, yet with a firm conviction of their truth.

Mr. Bell calls the shedding of temporary teeth a process of anticipation, and believes that it is carried on independently of the necessities of the object for which the change is effected; or, in other words, that it is not the pushing forward of the permanent tooth, that causes the removal of the temporary root, but merely its presence is sufficient to produce it; but at the same time admits, that "it is not until the permanent tooth can no longer be retained in its own alveolus that the process of absorption commences to open the required space." Now, if this process be independent of the necessities of the permanent tooth, why does it, under ordinary circumstances, always commence at that moment when more room is required?—why is it carried on in the direction in which the tooth is inclined to grow, and why does it always cease with the growth of the tooth?

These facts certainly favour the argument that absorption is to a very great degree dependent upon the advancement of the permanent tooth. We have in our possession the inferior jaw of an adult which has the two wisdom teeth fully developed in its structure. Thees

teeth lay horizontally in the jaw, their grinding surfaces resting against the roots of the second molars, with their fangs extending under the *coronoid* process. Over these crowns no absorption took place; but according to Mr. Bell's theory, their presence should have been sufficient to open a passage, whether their growth pushed them in that direction or not. Yet this was not the case, nor is it ever the case under similar circumstances, and therefore we think it cannot be properly called a process of anticipation.

Mr. Fox tells us that the absorption of the temporary fang is induced by direct pressure of the permanent tooth upon it; but how can this be reconciled with the fact that dental structure contains no absorbents, and consequently when the tooth of replacement comes in contact with it, absorption by the direct action of vessels cannot take place, for the membrane which contained those vessels is destroyed; and therefore this process cannot, as he believes, be the result of direct pressure upon the substance of the fang. There are cases in which a total destruction of the temporary fang has taken place, while the tooth of replacement was yet confined in its bony follicle; and Mr. Fox himself mentions this fact as a conflicting argument to his own theory, without attempting to answer it. But we have seen, in the case mentioned that the absorption of the fangs of one tooth was induced by the irritation consequent upon the ulceration of another; and if we admit that the absorbents may be stimulated to action by irritation, we must not look for an explanation of such cases whenever we meet them.

The development of teeth in the solid structure of the jaw, affords abundant evidence that absorption of the bone is not induced by actual contact of the growing tooth. When, by accident, the tooth is prevented from pushing forward through the gum, it remains embedded in the jaw, and as it increases in length, by a deposition of dental bone from the pulp, the absorbents contained in the sac, or membrane which covers the pulp, carry away the jaw as fast as space is required for the newly formed fang, and so it continues to grow to precisely the same form and size that it would under the most favourable circumstances. It is evident, that direct contact in this case would not only prevent the excavation of the jaw, but it would render the growth of the tooth impossible, for the organs which perform these two offices could not exist at all.

Bourdet discovered what he supposed to be a distinct organ for the removal of the temporary teeth. This was afterwards noticed by Laforgue, who dignified it by the name of *absorbing apparel;* but this substance is nothing more than an altered condition of the outer membrane of the dental sac, and the peduncle or cord which leads to the gum. The alveolo-dental periosteum is also subject to the same change, and it always takes place, to a certain degree, where irritation is most severe; the membrane first becomes more vascular, and as soon as absorption commences, it becomes thicker, and the absorbents are undoubtedly more active where these membranes are most vascular. It has been urged, in proof of the agency of this fleshy tubercle in the removal of the temporary teeth, that when this substance "fails to be developed, or is destroyed by an injurious operation," the permanent tooth often remains in its socket. Now, instead of sustaining the opinion that these tubercles are necessary to the eruption of the teeth, this argument completely overturns it; for when the tooth of replacement cannot come forward, absorption must go on to a still greater extent, so as to make room for the newly formed fang, and this is done without the assistance of the absorbing apparel; therefore we are bound to believe that the change necessary to absorption may take place in any part of the alveolo-dental periosteum, for "it is certainly unphilosophical to attribute a phenomenon to two distinct causes, when one alone is sufficient for its explanation."

Dr. Goddard says, "the shedding of the temporary tooth depends chiefly upon its death, produced by a loss of arterial supply. When the permanent tooth," says the same author, "impinges upon the end of the fang of its predecessor, it cuts off its supply of arterial blood, thus producing its death." With how much truth he says this, we shall see by comparing it with certain facts connected with our subject, which are as follows: "Absorption of the root seldom, if ever, commences at its extremity, but generally at a considerable distance rom it, and often near its neck. The vessels of the tooth frequently remain entire, performing their natural functions in the crown, long after the fang has been absorbed, and thus they continue to carry their fluids to the remaining portion of the tooth, while everything else about them is swept away by the process of absorption. Therefore it cannot be true that the destruction of the fang depends upon its death, by the loss of arterial supply.

Many other theories have been advanced for the explanation of the peculiar process by which nature removes the first set of teeth, but none of them furnish that evidence of their truth which a correct theory should do. They do not account for exceptions, as well as general rules.

In consideration of the various phenomena of absorption in the buccal cavity, we are induced to believe that its causes, in young subjects particularly, are en-

tirely local, and in no way connected with constitutional influences. Admitting that irritation, or inflammation in one portion of the jaw, may stimulate to a greater degree of activity the absorbents in a neighbouring part, and we at once remove the stumbling-block over which nearly all former theories have fallen.

In the shedding of the temporary teeth, absorption is always the result of irritation produced as a general thing by the pushing forward of the tooth of replacement, though we have abundant evidence that it may be the result of causes more remote. In alveolar abscess, the absorption of this process is the effect of irritation produced by the death of the nervous pulp. In regulating the teeth of children, the absorption of the alveolus, is the result of pressure upon its periosteum.

The irritation produced by salivary calculus, badly constructed artificial teeth, etc., frequently causes absorption of the gums and jaw, to such an extent that the teeth fall out; and in all these cases the appearance of the alveolo-dental periosteum is the same, that is, it becomes thickened and more vascular.

Montreal, April 25, 1847.

## Art. VII.—CASE OF GUNSHOT WOUND AND EXCISION OF THE HEAD OF THE HUMERUS.

By Thomas Stratton, M. D., Edin.,

Lic. Royal Coll. Surg. of Edin., Surgeon R. N. and Member of Toronto Medico-Chirurg. Society.

*Proceedings of the Toronto Medico-Chirurgical Society,*

Abridged from the Edinburgh Medical and Surgical Journal for January, 1846, by the author.

On the 10th of August, 1844, Zavier Hebinks, aged sixty, one of Aisance's tribe of Chippewa Indians, was wounded in the left arm by a gun heavily loaded with duck-shot, which went off accidentally, he being at the time about six feet from its muzzle. He lives on Beau Soleil Island, eight miles from Penetanguishene, and the weather being too stormy for a canoe, it was some days before they could bring him to me, when he was seen by Dr. P. Nicolson, Army Medical Staff, and Mr. P. Darling, from Manatoulin.

August 16. At first sight the wound appears to extend along the outer side of the arm, from the shoulder to the elbow; but on re-applying a flap two inches long at its lower extremity, the wound is reduced to four and a half square inches. In the upper half of the arm, the soft parts are much injured, part of them seems to have been shot away, and in the margin of the wound there are several shot holes in the integuments; two inches of the shaft of the humerus is destroyed; there is a thin glairy discharge from the upper part of the wound, there is but little constitutional disturbance, the skin is cool, the tongue moist, and the appetite moderate. A part of the shaft of the humerus two inches long, and some other loose pieces of bone were removed, and also a quantity of moss which the Indians had applied to stop the bleeding, which they say was not great at the time of the accident. To take castor oil, and a cloth dipt in cold water to be applied over the wound.

17th. Accompanied by Dr. Nicolson, I proceeded to remove the head of the humerus. The patient was laid on a table, with his left shoulder projecting over its edge. Of the lower part of the humerus, the projecting extremity had been broken very obliquely, and on bending the arm at the wound, the sharp and almost pointed end I removed partly with a saw, and then with the nippers. I then took hold of the lower extremity of the upper part of the humerus, and with a small double-edged scalpel, cut along it upwards towards its head, from the side of which a small splinter was removed. The head I then turned out of the socket by using the scalpel around it, and turning the other end towards the chest; the part thus removed measured two inches; no vessels required to be tied. Search was made in the soft parts for any pieces of bone that might have been driven in by the shot; lint wet with water was for the day put in the socket, the soft parts were adjusted so as to make the breach as small as possible. With a sling the elbow was raised up so as to aid nature in shortening the arm, in order that the loss of bone might be less felt; a single turn of a bandage confined the arm to the side, and a cloth dipt in cold water was applied over the wound.

18th. Slept well, skin cool, some thirst; the lint is removed from the socket, and thin rags dipt in water are applied over the wound, which is five inches long, two and a half inches broad at its lower, and four and a half at its upper extremity.

30th. He continues to go on well, no pain except when moved; the wound is smaller, the end of the remaining part of the humerus is not now visible, nor is the glenoid cavity. Cloth dipt in a solution of the sulphate of zinc (a few grains to an ounce of water) to be applied to the wound.

Sept. 17. It is a month since the operation; he sat up in bed to-day, for the first time; there is great discharge, the wound is smaller. The fore-arm to be bent and extended on the humerus once daily, and the wrist joint to be exercised daily for a minute or two to prevent stiffness from non-use. Pieces of bone came away on September 18, October 15, October 23, and November 30.

Dec. 7. The wound is now closed, 112 days after the operation. He moves the left elbow forwards and backwards as freely and as far as before, and elevates it to within an inch as high as he can raise the right

elbow; the left arm is about two inches shorter than the right.

April 28, 1845. I saw Hebinks to-day; it is now eight months since the operation. He continues well, and has nearly as much use of the arm as before the accident. He uses the axe, and lifts weights easily; he moves the left arm as freely in all directions as the right, except that he cannot elevate it quite so high; when undressed and looked at behind, the left arm appears shorter, and the shoulder flattened; when he is dressed there is no observable difference between the arms.

*Remarks.*—The soft parts were so much destroyed by the gun-shot injury, that the long period of three months and a half was required for recovery; about four or six weeks of this delay was occasioned by the slow progress to the surface of fragments of bone which had been driven far into the soft parts. As the discharge was great, he had a small quantity of port daily for the first ten weeks. There was no use made of cataplasms, or of unctuous dressings, the applications being of water alone, or of sulphate of zinc; for a day or two a solution of chloride of lime (3 ss. to 1lb. of water) was sparingly used. Though rather more than one-third of the humerus was lost, nearly all the original power of the arm is retained. When the patient was brought to me, it was evidently a case for either excision of the head of the humerus, or amputation at the shoulder joint, but the limb has been preserved by that operation which in cases of caries has been so frequently performed by Mr. Syme. A wild Indian who lives by hunting and fishing would have great difficulty in finding a livelihood if he were to lose an arm; but in consequence of the relief afforded by this operation, Hebinks will be able to follow the usual Indian life.

Penetanguishene, C. W.

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ART. VIII.—CASE OF HYPERTROPHIED STATE OF THE SKIN. SUCCESSFULLY TREATED BY THE EMPLOYMENT OF THE SESQUIOXIDE OF IRON.

By J. D. M'DIARMID, Esq., M.D., Staff-Surgeon, Prescott.

The patient was a middle aged woman, the mother of children, having an infant at the breast at the time of her application to me, last summer; a farmer's wife, in a healthy situation in this neighbourhood; appearance sickly. The integuments of the neck, and shoulders, and, to some extent, down the arm, very much thickened; somewhat insensible, and a great impediment to the natural motions of these parts; no alteration in colour; no ulceration; and no tubercular appearance. The affection was, at the time, of more than a year's standing, I think—and had been treated in various ways, but was gradually extending, and the patient's mind was in a state of alarm that it was incurable, and would eventually extend over her whole body. The functions of the skin, generally, were evidently inflamed by the disease—and the surface felt harsh and dry; bowels sluggish. The entire surface of the body was directed to be rubbed with a wet towel, out of cold water, and then to be well dried every night and morning; a flannel vest to be worn. Diet, air, and exercise, as usual; no stimulants whatever—and a teaspoonful of the following electuary every night at bedtime, or as much as would act mildly on the bowels, once or twice a day; the dose to be regulated accordingly. In less than three weeks, I think, there was a marked improvement in the case—and at the end of about two months, the woman was in perfect health.

℞ Ferri Sesquioxid, recent prepar.
Jalapæ
Potassæ bitart.
Zingiber, *a a* ℥ss.
Thebiacæ, q. s. ut ft. electuarium.

Prescott, January 11, 1847.

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ART. IX.—EXPERIMENTS WITH THE SULPHURIC ETHER VAPOUR.

By HORACE NELSON, M. D.
Lecturer on Anatomy and Physiology in the School of Medicine and Surgery Montreal.

Having bestowed considerable attention to the consideration of the *modus operandi* of the sulphuric ether vapour, I enclose the following report of experiments performed with a view of ascertaining its physiological effects. In the month of January, a "chevalier d'industrie" visited Montreal, to speculate on the sale of the secret and apparatus. Both were purchased by my friend Mr. Webster, dentist, of Notre Dame Street. It was determined, that in presence of some friends, and of Jones, the vender, I should try the efficacy of the ether in a series of experiments. The dog was the chosen victim, and Jones administered the vapour. In the space of about four minutes, the animal was in a state of profound insensibility. I commenced my operations by cutting off a portion of one ear, which was followed by the removal of the whole organ, the dog, to all appearance, lying as if dead, no one confining him to the table. Next an incision was made from the hind leg, following the direction of the vertebral column, and continued as far as the middle of the neck, and with the greatest facility I removed the skin from that half of the body. I then proceeded to the amputation of one of the fore legs; but before completing the operation, was called to visit a patient. On my return, more than one half hour having elapsed, re-action had taken place, and I

found the dog perfectly recovered, expressing by his deep groans, the severity of his sufferings. In this state, I cut off one portion of the remaining ear, but the result was far different; his violent efforts and cries giving every one present to understand, that he was no more *sleeping*. To put an end to his sufferings, he was instantly strangled.

A few days after, I instituted another series of experiments, when I carried my operations to a still greater extent, to prove conclusively, if full confidence could be placed on the effects of the inhalation. The dog was once more the subject. In three minutes and a half, he was under the full influence of the ether. The skin being removed from the whole of the body, I passed over the quivering flesh a poker heated to whiteness. Several deep incisions were made in the muscles of the back, the right leg was entirely separated from the body, excepting the vessels and nerves, and I once more applied the poker to staunch the bleeding of several small arteries; not a moan was heard, not the least starting of a nerve was perceptible; the flesh smoked and the iron hissed. By means of a crucial incision, I laid open the abdominal cavity, and took out upon the table the mass of intestines; my students had then the advantage of a demonstration of the peristaltic motion of those organs, and could observe the rising and falling of the diaphragm, assisting most powerfully the respiratory act. The intestines were cut through in different places, the liver and spleen torn and wounded, every step followed by the application of the heated poker. Finally, the thorax was laid open, several of the ribs forcibly fractured, and the intercostal muscles lacerated.

The time occupied in performing this long and severe series of experiments, was nearly three quarters of an hour, during which the breathing tube was applied to the dog's mouth once every eight or ten minutes, on an average. By the aid of a little ice cold water poured down his throat, in a few moments he perfectly recovered, turned on his side, and endeavoured to lick his numerous wounds, and tried to rise, but was so much exhausted by the profuse loss of blood, that he fell back on the table. When the gentlemen present were perfectly satisfied with the happy results of these cruel and lengthy experiments, the dog was strangled.

In these different experiments, I was ably assisted by Dr. Regnier, demonstrator in the School of Medicine, in the presence of Dr. Munro, Messrs. Kreighoff, Webster, Jones, and Molloy, my office pupil, and several other students of medicine. I was now fully convinced of the deadening properties of ether on the animal, and it was but reasonable to conclude, that its action would manifest itself in the same manner on the human subject. Some weeks since, I had the pleasure of seeing my conclusions verified, on the occasion of the extirpation of a large growth from the upper part of the thigh. I assisted my father, Dr. Wolfred Nelson, in removing a tumour of two pounds weight, from a weak and debilitated woman. The ether was administered by Mr. Webster. In four minutes insensibility supervened; the tumour was quickly removed; the wound allowed to be exposed to the action of the air, to discover whether there might be bleeding from small arterial trunks; the ligatures, plasters, and bandages were applied; the patient meanwhile having no consciousness of our proceedings. During the last stages of applying the dressings, reaction slowly manifested itself; she seemed most happy, judging from her loud peals of laughter, but they were soon succeeded by sighs and tears, calling frequently for one of her daughters living in the country. The wound healed by the first intention, and in the course of one week, she was enabled to attend to her usual avocations.

I have extracted several teeth from old and young persons, and always with the same happy success. I have now reported experiments extraordinary by their severity, and much more so by their striking and conclusive results, and have not the least doubt, nor have any of my friends, and I trust my readers will coincide with me, that the action of this almost marvellous agent, by thus essentially destroying sensibility, is the greatest achievement which has ever taken place in surgical science. Before applying the remedy to the human subject, to determine as much as possible its mode of action on the system, I inhaled the vapour of ether over one hundred times, and as much as possible have carefully noted the symptoms it produced, and which were invariably the same in almost every trial.

The first or second inspiration generally produces a tickling of the throat, with hacking cough, and sensation of warmth in the chest, continuing for one or two more inspirations. A slight tremor of the whole body, something like a very mild electrical shock is felt, succeeded by numbness, cold and formication of the feet, with gradual loss of sensibility. What may be considered as a strange circumstance, is, that I am enabled, as was fully tested in the presence of the above named gentlemen, to follow the gradual subsidence of sensibility at each inspiration, and which is continued as far as the gluteal and femoral regions; consequently at those points where the sacral lumbar plexuses pass out of the trunk to be distributed to the anterior and posterior parts of the lower extremities. Though sensation is destroyed, voluntary motion still exists; there is an instinctive desire of stretching the legs, flexion and extension is performed, and when the foot is

raised from the pillow it seems of enormous size and weight; in fact, it is precisely the effect perceived by every one from long sitting on or pressing one foot, which is then said to be "asleep;" it can be moved but is not felt. At the moment that the two lower extremities appear to be under the influence of the vapour, as far as sensation is concerned, the same feeling is experienced in the fingers, propagating itself gradually along the forearm and arm, as far as the axilla; at that instant, the head feels as if swimming, sight is obscured, hearing is lost. all voluntary movement and sensation have passed away, succeeded by a most perfect and deep state of insensibility. In the course of two or three minutes, reaction takes place, consciousness, sensibility, and motion return, and I feel as if awakening from a long and pleasant sleep.

The symptoms of ethereal intoxication just described were observed in every trial, with one or two exceptions, the inhalation being repeated as often as four times in one afternoon; as also with slight alterations in the person of a highly intelligent young pupil, Mr. Molloy, who has frequently consented to inhale the vapour, that I might more carefully judge of the changes produced on the countenance, eyes, pulse, &c.

When under the full influence of ether, I have never been able to see, hear, or remember anything that had taken place, but when insensibility is only partial, the symptoms are far different, as will be detailed in another place.

I never was troubled with headache, dizziness, noise in the ears, sickness in the stomach, &c., subsequent to the inhalation; excepting in one instance, when having inspired the vapour for a longer period than usual before the full effects were produced, I had, for the space of some 15 or 20 minutes, complete paralysis of the right arm, accompanied with strong contractions of the fingers, which for some time resisted the efforts of a friend to extend them.

I shall not at present attempt to give a perfect explanation of the mode of action of the ether—suffice, that it appears fully explained by the reflex action of the spinal cord to the brain,—the posterior columns of the spinal marrow, from which arise the nerves of sensation, are in the first place affected: it is then transmitted to the motor tract on the anterior columns, which give origin to the nerves of motion, affecting then the whole brain and spinal cord; all parts of the body supplied by the nerves derived from that centre being under the will and consequently endowed with sensation, are the only parts affected.

In the course of the summer I intend instituting a series of experiments on different animals, with the view of determining physiologically the mode of action of the ether, and when resulting in death, as it will purposely be pushed to cause that effect, what are the appearances which are presented by examination of the brain and nervous system. These experiments will be published with the results observed, and what conclusions may be fairly drawn from them.

A partial effect is sometimes produced, in which the patient is entirely free from pain, but is yet conscious. I had one of the molar teeth extracted by Mr. Webster. The little quantity of ether this gentleman had in his apparatus, was but sufficient to moisten the sponge; in a few moments I was thrown into a very pleasant and humourous state, like that of a person under the influence of the nitrous oxide gas; perfect loss of sensation, but voluntary motion and consciousness not in the least impaired. I inhaled the vapour three times successively, and still with the same effect; being anxious to have the tooth removed, under any circumstances, though *quite awake*. I was in expectation of suffering the usual pain attendant upon that slight operation; but to my great astonishment, the tooth was quickly removed without the least pain; the slightest trembling of my features could not be observed. I watched every motion of the Dentist, passing some few remarks on the construction of his instrument, and what I thought to be the best mode of extraction with the least suffering, &c. I laughed, sung, and gesticulated in all ways, perfectly aware of my action, but unable to control them.

Here, then, is a case in point, where, though the patient is not dead asleep, still he can undergo the operation, feeling little, if any pain.

Montreal, May 14, 1847.

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ART. X.—REPLY TO MR. DEROTTERMUND.

By HENRY CROFT, Esq., Prof. of Chemistry, King's College.

SIR,—(1) In the last number of your Journal, received yesterday, I find a letter from Mr DeRottermund, purporting to be a reply to my criticisms on his report, published in the March number. This is probably the communication promised by Mr DeRottermund in the number for the previous month, and in which I had fully expected to receive a complete account of Mr DeRottermund's qualitative experiments—but in this I am most lamentably disappointed; for, as far as regards that gentleman's own researches. (with the exception of one experiment,) we remain exactly in *statu quo*.

By far the greater part of the letter is directed personally against me, and consists of good, strong, wholesome abuse; to which branch of polite literature I would recommend Mr DeRottermund to direct his entire atten-

tion, for he succeeds infinitely better with that than with chemistry.

I shall refrain from making any remarks on this part of his communication, and will confine myself to the scientific portions; and when I have proved Mr De Rottermund's utter and palpable ignorance, I will leave it to your unprejudiced readers to determine how much truth there may be in the allegations advanced against me.

(2) Mr DeRottermund's first attack on me is for not giving Bousingault's analysis of the water of Papayon in full. This was not done for two very good reasons, 1st, Because it was entirely unnecessary to mention more than had direct reference to the subject on hand; and secondly, Because I do not possess a full account of the analysis, having taken the numbers from Hoffmann's Physikalische Geographie. In paragraph 13, Mr DeRottermund says, (alluding to me,) "after having so flippantly remarked on the labours of another chemist, possessing more celebrity in the world, etc., etc." If by this Mr DeRottermund alludes to himself, I have nothing to say; but if he refers to Bousingault, he is guilty of a misstatement, to use the mildest word. It requires the acumen of a Mr DeRottermund to discover how quoting from the works of a great philosopher can be accounted "remarking flippantly on his labours."

(3) Mr DeRottermund then branches off at a tangent and attacks my use of carbonate of ammonia in testing for magnesia, "a mistake (as he calls it) unpardonable, even in a student of medicine," and he then gives me a lecture upon various points of analytical chemistry, which I will now proceed to elucidate. As, however, Mr DeRottermund requires to have conviction *forced* upon him, I have taken the trouble of referring him to certain portions in the works of Berzelius and H. Rose, hoping that the statements of the greatest chemist, and the most accurate analyst in the world, will have sufficient weight to convince even Mr DeRottermund.

(4) "Phosphate of soda (says Mr De R.) forms, with a neutral solution of magnesia, a double insoluble salt of phosphate of soda and of magnesia." This salt, I must allow, is entirely unknown to me. At page 304, vol. 4, of Berzelius' Lehrbuch der Chemie, you will find, "Phosphate of magnesia, $2\,MgO + P_2O_5$, is produced when hot solutions of phosphate of soda and sulphate of magnesia are mixed together, the salt crystallizes on cooling;" and words to a similar effect, in Rose's Handbuch der Analytischen Chemie, vol. 1, p. 41.

The fact mentioned by Mr DeR. is, therefore, not formed under such circumstances, and phosphate of magnesia which is produced) is tolerably soluble in in water.

"In acid solutions, ammonia is added to neutralize the acid, and facilitate the formation of the double phosphate." Now, if ammonia be added, another entirely different salt is produced, viz., the ammoniaco magnesian phosphate. Vide Rose, p. 42, and Berzelius, vol. 4, p. 305.

That either ammonia or its carbonate may be used in precipitating this latter salt, is mentioned by Rose and Berzelius in the same pages. "If in acid solutions, (says Mr DeR.) carbonate of ammonia be used, another salt of ammonia will be formed, and the carbonic acid being set free, will produce insoluble carbonates of lime, magnesia, and alumina." In the first place, every beginner is aware that such a thing as carbonate of alumina does not exist, (Berzelius, vol. 4, p. 333;) secondly, under such circumstances, carbonate of magnesia would *not* have been precipitated,—one of the fundamental rules in testing for magnesia, and of which Mr DeRottermund may convince himself by a simple experiment, (easy to one who possesses his vaunted *practical dexterity*). Let him make a solution of any salt of magnesia, add a few drops of acid to it, and then an excess of carbonate of ammonia—he will find no precipitate, owing to the formation of a soluble double salt; and, thirdly, had Mr DeRottermund taken the trouble of reading the experiment, he would have found that all the lime had been previously removed by oxalate of ammonia.

From this portion of the paragraph, we may deduce five conclusions with regard to Mr DeRottermund's knowledge, which I will presently enumerate.

(5) Mr DeR. also says, "He should have known that carbonate of ammonia yields white precipitates, with salts of baryta, strontia, manganese, alum, zinc, antimony, lead, tin, etc.; that as phosphate of soda gives white precipitates, with salts of manganese, *lithia*, baryta, alumina, iron, zinc, antimony, tin, lead, etc., and as he had previously added carbonate of ammonia, he might just as well have had a carbonate of lithia, alumina, etc., etc., (all the above bases,) as of magnesia.

It is scarcely necessary to remind your readers of certain facts unknown to Mr DeRottermund, viz., that salts of baryta and strontia are decomposed by sulphates, that lithia is not precipitated by phosphate of soda alone, that the oxides of iron, aluminum, tin, lead, and antimony, are precipitated by ammonia; and salts of zinc and manganese, by oxalate of ammonia.* But we may de-

* I adopted the usual plan in my analysis, first precipitating with ammonia, then with oxalate of ammonia, and afterwards with phosphate of soda and carbonate of ammonia, as is recommended in all good works on analysis; and yet Mr DeRottermund argues, as if all the above mentioned substances might have been still present.

duce nine more conclusions from this latter portion of the paragraph, which I will now enumerate, together with those already mentioned.

1. Mr DeRottermund is ignorant of the action of phosphate of soda on salts of magnesia.
2. Do do of the action of phosphate of soda on a salt of magnesia, when ammonia or its carbonate is present.
3. Do do of the action of carbonate of ammonia on acid solutions of magnesia.
4. Do do of the non-existence of carbonate of alumina.
5. Do do of, or cannot understand, the method of separating lime from magnesia.
6. Do do of the insolubility of the sulphates of baryta and strontia.
7. Do do of the precipitation of these earths by oxalate of ammonia.
8. Do do of the precipitation of alumina by ammonia.
9. Do do of the precipitation of oxides of iron by ammonia.
10. Do do of the precipitation of oxide of lead by ammonia.
11. Do do of the precipitation of oxide of tin by ammonia.
12. Do do of the precipitation of oxide of antimony by ammonia.
13. Do do of the precipitation of oxides of zinc and manganese by oxalate of ammonia.
14. Do do of the action of phosphate of soda on salts of lithia. Vide Rose, vol. 1, p. 16; Berzelius, vol. 4, p. 191.

We have here fourteen of the commonest facts, of which Mr DeRottermund, by his reasoning, shows himself to be utterly ignorant, and were I desirous of sparing myself much useless trouble, I might here conclude; for from the above, any one can form an estimate of the reliance to be placed on his assertions.

(6) In paragraph 4, he ridicules me for saying that the bed of the Brantford spring was volcanic, because I had found sulphates in the water; whereas Bous'ngault had found sulphuric and hydrochloric acids in volcanic springs. This assertion of Mr DeRottermund contains a double misstatement,—1stly, Because I not only found sulphates, but also free sulphuric acid; and 2dly, Because I never said anything about the Brantford formation being volcanic—but expressly stated that the sulphuric acid must have been produced differently from what it is in the springs of Java and South America. The plain fact was that having found free sulphuric acid in a mineral spring, I mentioned all others that I knew of containing the same substance—to which last I have now to add a spring in the Gennessee country, found to contain free sulphuric acid by Professor Eaton.

(7) In paragraph 5, I am blamed for not determining the residue left on evaporating a certain quantity of the water, a process which could not be adopted as it contains free sulphuric acid; and sulphates of iron lose part of their acid with the last traces of water; a fact which should certainly not have been unknown to the late chemist to the Geological Survey.

(8) In paragraph 6, I am accused of denying the possibility of antimony being discovered in springs—whereas, I not only mentioned some chemists who had never discovered it, but also proved that it was not present in the water then in my possession, as I have since done with several other specimens.

(9) Mr DeRottermund wants to know how I detected free sulphuric acid, and reads me a long lecture upon the way in which it should be done, viz., by calculation. If Mr DeRottermund had taken the trouble to read my paper, he would have found that this very process was adopted; but he does not appear to be so well off as those individuals to whom he compares me in his first paragraph, for he does not seem to be able to read, certainly not to understand a plain statement.

Let him calculate the whole of the iron as peroxide, (including the alumina, as in my first analysis;) let him, for the sake of brevity, add the magnesia to the lime, and calculate how much sulphuric acid these bases will neutralize, he will find it to be about 13 grains—the remainder is more than sufficient to supersaturate the small amount of alkali present; or, if he wishes a practical test, let him notice the violent corrosive action of the Tuscarora water on the teeth—a property which I do not believe any solution of alum, sulphate of iron, lime and magnesia, would ever possess.

It is scarcely necessary for me to explain why, in my first analysis, I found peroxide of iron, and a mixture of it with the protoxide in my later ones—I have done so already; but Mr DeRottermund takes every opportunity of neglecting some of my statements, and perverting others, according as it suits his own convenience.

(10) Paragraph 10, I must allow, is almost beyond my comprehension. If Mr DeRottermund wishes me to give a theory explaining the presence of zinc and antimony in the spring, I must beg to be excused, for I do not wish to attempt to account for things that cannot be found. A theory, as Mr DeRottermund says, "must be based on scientific knowledge," for which I would substitute "acquaintance with facts," a species of information in which he appears to be rather deficient.

(11) Mr DeRottermund says, that with nitrate of silver, I should have obtained a white precipitate of sulphate of silver. Now, as this latter salt is considerably soluble in cold water, if the solution tested be dilute, no precipitate will be formed, of which he may convince himself by a simple experiment, or by reference to Berzelius, vol. 4.

(12) He says, that in March, 1847, I found a white precipitate; another perversion, as my words were, "a scarcely perceptible opacity."

He insinuates that the yellow flame of alcohol, which I supposed was produced by soda, was owing to organic substances, while, if he had been able to read, he would have found that all organic substances had been previously destroyed; he requires that the soda should be separated in a state of purity before making the experiment, not knowing that if one part of soda be mixed with twenty or thirty parts of potash and burned with alcohol, the yellow flame will still predominate. Mr DeRottermund, in the same paragraph, shows that he is not aware that phosphate of silver is yellow and soluble in acids—that he is ignorant of iodide of silver not being white.

In paragraph 12, he blames me for not giving the quantities of water operated on in my analysis, while in the very line before, I had stated that the quantity in each case was one pint.

He states that I found 7.680 grains in one pint; mistaking, with singular obtuseness, the figures 7.680 representing the number of grains in a pint of water, for a part of the analysis: he states that *free sulphuric acid* is present in the most common substances, (for it was the presence of this substance that rendered my analysis similar to Bousingault's:) he states that, in 1847, I found "six additional bodies, different from all those discovered at first, which I had imagined to exist there exclusively," this is again a double misstatement. In my first paper, I mentioned the possible presence of alumina and alkalies, and my inability to test for them from want of material—the only additional substance is organic matter; and lastly, the statement that I retracted my former statements, is as unfounded as the remainder of the 11th paragraph, the part of the 13th which asserts my analysis to have been thrice contradictory, and in fact as the greater part of Mr DeRottermund's communication.

(13) In paragraph 17, we get the solitary experiment described. Mr DeR. seems to take great credit to himself for the same, and in the conclusion launches out into a brilliant eulogium on his own practical dexterity. I have already stated that I performed the same experiment with four specimens of the Tuscarora water, without finding a trace of antimony—a result owing (as Mr DeR. says) to my want of practical dexterity.

(14) In paragraph 16, Mr DeRottermund explains the presence of zinc in the water, (as I understand him,) by the fact that a double salt of sulphate of zinc and potassa can be prepared artificially; he makes no experiment to prove its presence; he does not tell us how he discovered zinc in the first instance—but he gives us a learned disquisition on halhydrates, which has nothing whatever to do with the subject.

In paragraph 18, he is very facetious about *broken eggs* in connection with *vegetable albumen*, and then proceeds to explain, or rather *not* to explain how resins got into the water. He adduces as a parallel case, (if I understand him rightly,) that soap boilers adulterate their produce with resin soaps. Most chemists are aware that some resins will unite with strong caustic alkalies, forming compounds analogous to soaps—but they are also aware that these bodies are very easily decomposed by acids, and by earthy and metallic salts. We must therefore suppose, that the resin soap has been formed, which is exceedingly improbable; and that it has not been decomposed either by the free acid or by the salts, which is more improbable still.

Lastly, in paragraph 19, Mr DeR. charges me with an assertion I never made, and excuses himself for errors he may have committed, etc., etc.

In conclusion, I must apologise to you and your readers for being so exceedingly prolix on so trifling a subject. Mr DeRottermund's reply is made, however, with such assurance, and with such loud-sounding abuse, that I hope you will excuse my retorting somewhat at length. For the abuse I care nothing; and, as far as regards the scientific objections, I think I have answered *them* in the preceding pages. And I will now leave it to your readers to judge my case—declining (should Mr DeRottermund still remain unsatisfied), any further communication on the subject. as I have neither leisure nor desire to occupy space in your valuable Journal, which might be devoted to better purposes than the continuation of so useless and futile a discussion.

Toronto, May 7, 1847.

## PRACTICE OF MEDICINE AND PATHOLOGY.

*Remarks on Delirium Tremens.* By William Francis Soltau, M. B., E. Coll. Ball. Oxon.—About three years ago, I published a case of delirium tremens, with certain remarks, in your periodical, and I then intimated it to be my intention, at some future time, to resume the subject. My attention having lately been directed to a case of a similar nature, presenting certain features of an anomalous character, I take the opportunity it offers me of fulfilling my promise, should you deem it and the accompanying observations worthy of a place in your columns.

It happened in the person of a man about 46 years of age, who, though filling a situation of trust, which exposed him to the temptation of drink, had for eighteen years borne the highest character for honesty and the strictest sobriety. For some weeks previously he had been complaining of loss of appetite, morning sickness, and other dyspeptic symptoms, but he was able to follow his usual avocations, till an attack of lumbago confined him to his bed. His medical attendant was then called in, who prescribed such remedies as soon relieved him; he became, however, from no apparent cause, very desponding about himself, could not sleep by day, and was restless and delirious at night. As, at the expiration of three or four days he did not improve, at the suggestion of his medical man, (who suspected the case to be one of incipient delirium tremens,) I was requested to see him late in the evening, when I found him in the following state:—Pulse 84, of good strength; skin soft but not perspiring; the conjunctivæ were much injected, but there was no pain in the head, or intolerance of light; urine was abundant, and very light coloured; tongue whitish and clammy; bowels were open. It should be here perhaps mentioned, that he was subject to periodical attacks of the gout, and that he had lately been much worried by family troubles. He had no appetite, his countenance was anxious, his spirits were dejected, and he said he was certain he should die; there was nothing hurried about his manner; he answered, collectedly, questions put to him; there was no tremor about any of the muscles, or that peculiar effluvium which occasionally emanates from the body of those labouring under delirium tremens. His great desire was that something might be given him, enabling him to sleep; he was ordered a drachm of laudanum immediately, which was to be repeated in four hours, provided he did not sleep; cold applications were ordered to the head.

The next morning we found him decidedly better; *he had slept for five hours*, after taking the first dose of the opiate, and awoke, as he said, *feeling quite well*. He passed the day very comfortably, slept at intervals, lost his desponding feelings, and was cheerful and natural in his manner; it was thought advisable to give him the opiate again, and at night a similar result followed.

At our next visit the following day we thought him so much better, after the many hours of refreshing sleep which he had had, that we determined to omit the opiates altogether, as he expressed himself to be perfectly well. We were, however, contrary to our expectation, summoned to him early the next morning, when we were disappointed to find that he had not closed his eyes during the previous night. He had not been delirious, but he said he was afraid to shut his eyes, as when he did so he saw black objects before him. We ordered him a moderate opiate, to be taken every four hours, and a small dose of castor oil to relieve the bowels; a drachm of Liq. Opii. sed. to be taken at bed-time, and repeated every four hours during the night if sleep did not follow.

The report which we received the next morning was very satisfactory. Our patient had slept for five successive hours after the second dose of the opiate. His manner was calm and collected, and his sleep had greatly refreshed him. He continued very comfortable through this day, sleeping quietly at times until 5 p.m., when he suddenly awoke, and imagined he saw a black person seated at the bottom of the bed, which so greatly terrified him that he dared not venture after this to shut his eyes. The contrast in his countenance between our morning's and evening's visits of this day was very remarkable. It had lost all the calmness which sleep had given it, and it was now scared and staring.

The night draught was ordered him as before. At our morning's visit, however, we found that it had been productive of little good. He had been very delirious and incoherent all the night He had slept altogether about an hour and a half. There was still that frightened look about him His manner was very hurried and busy. He complained of a sinking feeling, and was anxious to have some food. Pulse 80, of tolerable strength; urine free; no pain in the head. It was thought advisable to abstain from opiates during the day, holding them in reserve for the night. He was allowed a mutton chop for his dinner and a glass of pale ale. A drachm and a half of the Comp. Tinct of Gentian was given him every three hours during the day. In the evening he told us he felt better. He had slept for about an hour during the day, had enjoyed his chop, and had been more tranquil. He requested to be allowed some supper, and we therefore ordered him a beef sandwich and a glass of ale; after which he was to take Tinct. Opii, 3j. ex Mist. Camp. repet. 4tis horis, si non adesset somnus.

The report which awaited us the following morning was much worse. He had been delirious the whole night, fancying that persons were pulling at his extremities, which were constantly twitching. He answered questions rationally. Could not be persuaded but that persons had been ill-treating him during the night. He had not slept a minute. We now agreed, as opiates had failed, (for he had never refused to take his medicine as ordered) that we would try the sedative effect of a warm bath, in which he should remain twenty minutes. Previous to his leaving it, cold water was to be poured on his head. Our orders were immediately obeyed, and after the bath he was much quieter, lost the twitching of the muscles, and felt inclined to sleep; pulse 72. We gave him a little ether and sal-volatile, as he complained of a sensation of sinking, which frightened him. We also allowed him to have a little brandy and water should he wish it during the night, and beef-tea ad libitum. We agreed to omit the opiate as he felt he should sleep.

We paid him an early visit the next day, and were again to be disappointed. He had not slept. His manner was very excitable, and he imagined that persons were in the house waiting to murder him He had talked very incoherently, but knew those around him. During all this time there was no tremor or profuse perspirations. We immediately gave him a drachm of Liq. Opii Sed; continued the ether and sal vol.; ordered him a mutton chop, as his appetite remained good, and beef-tea. We visited him again at the expiration of five hours, and he then appeared better. He slept for an hour, had enjoyed his chop, and he told us he thought he should now do well. He had been kept perfectly quiet, and his room had been darkened. His pulse was 84, bowels regular, and urine abundant. We then gave him two drachms of tincture of Hyosciamus, purposing to see him again at 9 p m., when we again found him wild in his manner, his countenance flushed, and his eyes staring. We therefore determined to omit everything else, and give him a drachm of laudanum every three hours till he slept, with beef-tea if he asked for it. After taking two drachms he slept for about two hours. He talked much during the night about his work, and he fancied he was engaged in his usual avocations.

We thought him more collected when we paid him our morning visit, and he told us there was now nothing the matter with him. We made no alteration in our treatment, excepting that we increased the opiate to sixty minims at night, to be repeated as before.

On the following day we were pleased to find that our patient had slept for four or five hours. His manner and countenance were more natural, and he was able to tell us the proper day of the week, which he had been unable to do the four previous days. We allowed him a beef-steak for dinner, drachm-doses of hyoscyamus in camphor mixture every five hours, and enjoined perfect quiet.

At our evening visit we were again to be disappointed. It appeared that he had remained very quiet and rational up to 6 p.m., when suddenly he became excited and delirious. He did not know where he was. He imagined that persons were in his room, whom he saw dancing around his bed, and he heard voices below constantly calling him.—R. Tincturæ Hyoscyami, 3ij. statim et repetantur 3tiis horis Deinde si non adsit somnus capiat Tincturæ Opii drachmam. Beef-tea during the night.

Again at our morning's call we were received with the intelligence that our patient had not closed his eyes since our last visit. He had been incessantly getting in and out of bed, and fancied he was hard at work. He did not know that he was in his own house. He told us that he was perfectly well, and was very indignant that he was not allowed to go out. There was no apparent loss of strength or symptoms of failing vitality. Urine was plentiful; pulse 84 He had dressed himself twice during the night. His appetite was still good. He had taken his medicine as ordered. We ordered him small doses of morphia every four hours, and determined to see him again at 2 p.m., when we found him up and dressed. We were told that it had been found impossible to keep him in bed. He was talking incoherently, and looked very haggard. We agreed to give him another warm bath, and try whether this would calm his excited condition. It was immediately prepared for him, and at our evening visit we thought him decidedly better. He had not attempted to get up since the bath, and though still very delirious, his manner was less

excitable and hurried. He had slept for about half an hour. We now prescribed Morphiæ Hydrochloratis, gr. j.; Sp. Ammoniæ Aromat. 3j. ex Misturæ Camphoræ, 3iss. 3tiis horis.

At our early visit the following day he was sound asleep. We were told that he remained awake until three a.m., when the second dose of morphia was given him, and soon afterwards he fell into a sound slumber. From this he did not awake until half-past one p m., when he took some nourishment, and again fell into a calm sleep. We now left the case to nature, and discontinued all remedies. He had an excellent night's rest the following night, and awoke the next morning perfectly conscious, and calm and collected in his manner. He then told us what his feelings had been previous to his getting sleep. It appeared to him as though he had been in a dream from the first day of my visit till the hour when he awoke from the refreshing sleep which followed the second bath. He remembered nothing of what had happened, but felt that he now for the first time was himself again. From this time he continued to improve; he soon regained his strength, lost all his fanciful ideas, and after a fortnight's change of air resumed his usual business. At the latter part of his illness the urine was loaded with the lithates, and symptoms of gout showed themselves in the great toe, only, however, continuing twenty-four hours.

Such is an epitome of the case, the particulars of which have not been minutely described, as they would have occupied more space than the limits of your columns could afford them. The remainder of this paper will be devoted to the consideration of the subject in general in connection with the facts above detailed.

Now, it usually happens in delirium tremens, that if we can secure our patient a few hours of sleep, he rapidly gets well; in fact, we consider our end attained when this result has followed our treatment. From the above history, however, it will appear that the reverse was the case, for when we were congratulating ourselves that our patient was recovering, from the circumstance of his having had many hours refreshing sleep, both by day and night, for two consecutive days, then it was that the most marked and obstinate symptoms made their appearance. Instead of being better, he became worse than he had been at all. It is impossible to account for this, as every precaution was taken to keep him from anything which might excite him. It was on awaking from a sleep of two hours' duration that he first evinced the decided symptoms of what are very appropriately termed the "horrors," which were never more vividly depicted on any countenance. Twice after this he got continuous sleep for five hours, and though for a time he seemed better, yet the improvement was only temporary: for eleven days did the disease hold out against all remedies, and bid defiance to all treatment. Our only encouragement was the indication we received from the pulse that the vital powers of the system were not yet exhausted, and the fact, too, that our patient, during all his illness, never refused his food or medicine. The tremor of the hands was not constant, nor did it manifest itself until a late period. The busy manner, the look of apprehension, the constant reference to, and anxiety about his usual avocations, the peculiar illusions, the acute condition of every sense, were very characteristic throughout the progress of the case.

We must now offer a few remarks on perhaps the most important point connected with this subject, namely, the treatment of delirium tremens; and though we may have certain general rules to guide us, yet we are not to conclude that all cases are to be treated alike.

And first, as to the question of the abstraction of blood. None, perhaps, will question that general bleeding is to be deprecated under any circumstances, but as to the local abstraction of blood there may be cases where its use is indicated. Great caution is necessarily required in distinguishing where this remedy may or may not be safely used, and the following rules may somewhat guide us. If the patient under treatment be plethoric and of sanguine temperament, and complains of pain in the head, if there be much injection of the vessels of the conjunctivæ, if the countenance be suffused, and the head hot, and supposing the pulse does not exceed 90, and is of good strength, then a few leeches, or cupping-glasses applied to the temples, or behind the ears, may be productive of good. But under no circumstances are they to be used if the countenance be exsanguine, the pulse greatly accelerated, or if there be much tremor with profuse perspiration, and a determination on the part of the patient to refuse his medicine and food.

Secondly, with regard to opiates. Now, though this class of remedies are our sheet-anchor by which we trust, in cases of delirium tremens, to weather the storm, yet in their administration they require a careful attention to the symptoms and stage of the disease in order that they may not be productive of mischief. How are they to be given? at what time? and in what quantity? are three important questions in connection with their use. Of the several preparations of opium, none perhaps acts more speedily or more certainly than the Tinctura Opii of our Pharmacopœia: but supposing, after having given it a fair trial for forty-eight hours, our desired end is not attained, we must have recourse to some other preparation. Time, in all these cases, is of great value, for if we are not gaining ground we are losing it fast. The Liq. Opii. Sed. or the salts of morphia, if we can depend on the good quality of the latter, may be tried; and this leads us to say a few words on the quantity to be prescribed, and the time of their administration.

Large doses are to be given at the early stage of the disorder, so that if possible sleep may be procured without loss of time; but if, after a fair trial of opiates in their various forms, sleep does not follow, and, as it sometimes happens, the system, from want of rest, indicates symptoms of exhaustion, the pulse, for example, becoming 120, the countenance haggard and worn, with increased tremor of the muscular system, and profuse perspiration, then I would suspend them for a time, and for this reason, lest by their continued exhibition they should be productive of evil instead of good, in suddenly exercising their accumulative power on a system greatly weakened, and thereby unable to rally when depressed by their influence. Death may thus result from the remedy, and not from the disease. That this occasionally happens when opiates are largely given at the latter stages of delirium tremens, I cannot but believe, and having been particularly impressed with this fact in the sudden termination of one or two cases where this practice was adopted, I have thence drawn what I cannot but think is a wholesome caution on this point. In all cases of delirium tremens it becomes a subject of encouragement to us if the patient can be persuaded to take his food, for we are thereby able, to a certain extent, to supply the waste which the exhausting nature of the disorder produces in the economy, and thus sustain its vital powers. Under these circumstances opiates may be continued with safety; but, on the other hand, if we have given them largely, and no benefit has resulted from them, but we perceive that the strength of our patient is rapidly failing, as is often the case in this disease, then it is better, for a time at least, to turn our attention from this to some other remedy, and endeavour, if we can, to restore the failing powers; for it is better that a case should terminate of itself fatally, than that its end should be hastened, if not actually occasioned, by the remedies that may be administered.

With regard to stimulants, it is usual to select that which the individual has been accustomed to indulge in when in health, but it is very questionable whether their exhibition is indicated in all cases. Supposing the pulse continues firm, and there is no other sign of failing strength, they may be dispensed with altogether, and, in their stead, may be administered some form of tonic, as, for example, 3ij. of Comp. Tinct. of Gentian, in a bitter infusion, every three or four hours, a small quantity of laudanum being added to each dose; at the same time, nourishing diet is to be given, and attention paid to the state of the bowels, which are often confined. To relieve them, warm cathartics may be ordered in small doses, or a stimulating enema.

During the progress of delirium tremens it often happens that the patient becomes very restless, is anxious to go about his work, imagines that he hears voices summoning him to his post of duty, and cannot be persuaded to remain in bed. Under these circumstances how is he to be restrained? There are some who see no harm in his being permitted to follow his inclination to a certain extent, and they therefore would not object to his getting up and walking about his room, thinking that thus sleep may be induced. This, however, does not accord with my views, as, in my opinion, excitement and irritability, both of mind and body, would be thereby increased, rather than allayed. Instead of this, the room should be darkened, and we should first try what we can do by persuasion to keep our patient in bed; but if, in defiance of all our entreaties, he becomes more and more excited and self-willed,

meeting any opposition to his wishes with violence, then it becomes a matter of serious moment to know in what way we are to act. Now it is at this particular juncture that the strait waistcoat is put into requisition, but often, we believe, with most disastrous consequences; for what happens? Why the feeling of restraint increases the desire to overcome it; and, when he becomes conscious that he is conquered, the patient strains every nerve to release himself from his bondage. His anger calls to its aid all his remaining strength, and he makes one last and great effort to shake off his fetters. The less he finds his efforts available, the more excited does he become, and he continues vainly struggling with himself until his strength becomes gradually exhausted, and he sinks worn out. Believing, therefore, that evil, rather than good, follows the use of the strait waistcoat, we must look for some other remedial means wherewith to calm the excited condition above referred to, and we think that the tepid bath will be productive of the desired result. The patient may be easily induced to try it; and, having remained in the bath about a quarter of an hour or twenty minutes, he will leave it, less excited in his manner, with a desire to remain quiet. The sedative influence of the bath continues to shew itself for some time; and during this period, supposing there be no sleep, a large opiate may be given. With regard to the use of the bath in this disease, we think it may be always tried when opiates have signally failed in producing sleep or in tranquilizing the system, and its sedative influence will more than counterbalance its exhausting effect on the economy.

These are the few observations which I venture to suggest on the subject of *treatment* in cases of delirium tremens. Of its *causes*, its *diagnosis*, and *prognosis*, I shall not in this paper venture to treat, as I have already, I fear, been too prolix. The subject, however, is such an important one that I hope you will overlook this fault, and allow me in a future paper to consider the other points which have not here been discussed.

Plymouth, March 23, 1847.

—*London Medical Gazette.*

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*The Dangers of Etherization.* (*Extract from a Lecture by Dr. W. Tyler Smith*).—I know it is ungracious to take the part of an alarmist on such a question; but many fatal cases have now occurred after operations in which etherization was practised. The patient who underwent the Cæsarian operation died; another patient, on whom extirpation of the eyeball was performed, sank; a clergyman, whose leg was amputated, never rallied after the operation; two of the women delivered while under the influence of ether, by the Baron Dubois, subsequently died; and fatal collapse occurred in the case of a woman from whose thigh a tumour was removed. Probably other fatal cases have occurred, of which we have no information. It would be difficult to say in how many of these instances the ether contributed to the fatal results: in some, death would no doubt have taken place under any circumstances; but in others, it may be considered well nigh certain that its use was the chief, if not the sole, cause of death.

The morbid phenomena fairly attributable to ether, observed in cases which have recovered, have been—nausea, sickness, stertorous breathing, pulmonary and cerebral congestion, convulsions, and protracted failure of the heart's action. Now, the bare possibility of producing symptoms such as these by a remedial agent, however valuable, renders it imperative that we should be able to distinguish the cases in which the more serious of them are likely to occur, otherwise the agent itself must inevitably fall into disrepute. As is well known, digitalis may produce failure of the heart; opium, congestion of the brain; and hydrocyanic acid, convulsions: and consequently, caution is always observed in the administration of these still valuable remedies; but after etherization, we may have effects which resemble either undue narcotization, an over-dose of hydrocyanic acid, or the cumulative results of digitalis; so that it behoves us to be triply careful respecting its indications and its exhibition. In two fatal cases, a fluid state of the blood has been found after death.

As yet, very little has been done towards indicating the proper cases for resorting to ether, and those in which it should be avoided. There has been a general rush towards the operating room, such as the world has never before witnessed. Great numbers of cases were successful on its first introduction: and this gave an *éclat* to the subject, and induced a confident state of mind in patients, which has doubtless been an element in the successful results; but now that fatal cases have occurred, all that was mere prestige must fall to the ground; and unless the proper cases for etherization can be distinguished with something approaching to certainty, patients upon whom it may be used will go under the knife influenced by previous dread rather than confidence; and so an item of evil, not properly belonging to etherization itself, will come into play. Such is the constitution of the human mind, that a few fatal cases, even by the side of a great number of successful ones, will be sufficient to transmute hope into fear, confidence into timidity and mistrust. Probably the fatal cases which have become known have already produced this effect, and it is believed that many of our most eminent surgeons are declining the use of ether as much as possible. For the sake of etherization itself, then, something like a pause is required, otherwise it is to be feared that the old empire of pain will return, and if so, it will seem for the future doubly difficult of endurance, because of the hopeful promise that, in surgical operations at least, it was conquered for ever.

It may be said, that in the dangerous and fatal cases the ether was unduly or improperly inhaled,—and from an examination, it does appear that the ether was inhaled for a longer time than usual by some of the patients who died,—but in none does it appear to have been inhaled longer than was necessary to produce insensibility; and in Mr. Robbs' case, if we may believe that reflex movements were not mistaken for movements of volition, complete insensibility was not present at any time during the operation. It would appear as though the ether occasionally followed an erratic course, not, as is usual, affecting the brain at all, but still going on to poison the spinal marrow and the ganglionic system, and to alter the condition of the circulating fluid. Indeed so various have been the symptoms observed by different operators, that ether seems almost as volatile in its effects, as in its physical constitution.—*Dublin Medical Press.*

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*Effect of Ether Vapour on the Blood.*—M. Lassaigne found that in venous blood before inhalation the clot was to the serum as 65 to 34, while after inhalation it was as 59 to 40; hence there was a great increase of serum. The quantity of ether vapour absorbed is very small, being 0,0008 of the mass of venous blood, or, in 100 parts—

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|---|---|
| Venous blood | 99,919 |
| Ether | 0.081 |
| | 100 |

—*Dublin Medical Press.*

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*Modus Operandi of Bleeding in Thoracic Inflammation.*—By Dr. Zimmermann.—Bleeding is most distinctly indicated in plethoric subjects, and its curative operation consists in the vacuum it causes in the vascular system. So soon as a vein is opened, the flow of the capillaries is rendered stronger, while that in the larger veins is interrupted. This stronger flow from the venous capillaries is communicated to the arterial capillaries; and hence the vacuum is first felt in the arterial system. The left ventricle is thus enabled to receive, or rather suck in, more blood from the lungs through the pulmonary veins, and so the pulmonary capillaries are relieved from congestion. Further, the right ventricle can now transmit to the lungs the blood sent to it from the right auricle; and the vena cava, the root of the venous capillaries, pours its blood more freely into the right auricle, and then the suction power of the heart, augmented by the vacuum, increases, and is communicated to the whole capillary system of the organism. This explanation, Dr. Zimmermann argues, is supported by the mode in which the blood pours from the punctured vein, as first the blood is forcibly projected, because of the quantity collected below the bandage; then it flows with less impetus, and at last appears as if it would cease altogether; but after a while it is projected more forcibly, and when a few ounces have been taken, the impetus is so great as to render it not always an easy matter to stop it. This chain of phenomena is most observable in sanguineous apoplexy, and whenever it happens it is to be considered a good sign. Fainting occurs at two stages of bleeding; the first, when only two or three ounces of blood have been taken; the second, when the quantity amounts to twelve or eighteen ounces. Fainting in the first stage depends upon the action of the vacuum upon the left ventricle of the heart, and is a bad sign, because it shews that the exhaustive power has not extended to the pulmo-

nary veins and capillaries, and that the congestion there is permanent. Fainting in the second stage depends on anæmia of the brain consequent on the depletion, and is a favourable symptom. The re-establishment of the circulation in the pulmonary capillaries, consequent on the vacuum caused by the abstraction of blood, is followed by a restoration to healthy functions of the pulmonary tissue. The nerves act again normally; the air-cells, relieved from pressure, become again permeable; and the ingress of oxygen to the blood is facilitated, while the pseudo-plasma is re-absorbed, provided it be recently effused, and have not undergone transformation.—*Brit. and For. Med. Rev.*

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*On the Treatment of Poisoning by Acids.*—In poisoning by acids, the antidotal treatment alone suffices, if applied early. All toxicological writers advise the employment of magnesia, the alkaline carbonates, and soap, but these are not, according to M. Bouchardat, sufficient, and he thinks therefore, that he is entitled to some credit as having laid down a more definite treatment.

It is well to commence, he observes, with calcined magnesia in excess, but as a portion of the acid is absorbed, and tends to destroy life by producing coagulation of the blood, it is not enough to have neutralized the acid in the stomach, but some soluble antacid must be given, which may be absorbed, and so neutralize the acid which has reached the blood. The best substance to effect that purpose is the bicarbonate of soda. The author remarks, that it is of importance not to exhibit the soda in the first instance, as the disengagement of the carbonic acid may cause rupture of the coats of the stomach.

*Treatment of Arsenical Poisoning.*—M. Bussy has demonstrated that magnesia forms an insoluble compound with arsenious acid and may therefore be employed as an antidote to that poison. The treatment recommended by Bouchardat is the following:—

After having produced vomiting, give the hydrated peroxide of iron in excess, in combination with magnesia. If there be prostration of the vital powers, the surface is to be stimulated by sinapisms, frictions, warmth, &c. Finally, the expulsion of the poison is to be facilitated by purgatives and diuretics.

*Treatment of Poisoning by Lead.*—There are three circumstances to be considered in lead poisoning:—

1. The treatment of poisoning by the salts of lead in large doses.
2. The treatment of slow poisoning by the salts of lead.
3. The prophylactic treatment.

The antidote most relied upon by Bouchardat for the fulfilment of the first indication is the hydrated persulphuret of iron given in excess, mixed with syrup. Vomiting and purging may be solicited by large doses of croton oil. [The second and third indications are not touched upon.]

*Treatment of Poisoning by Opium and its preparations.*—1. Empty the stomach by emetics or the stomach-pump.

2. Give a solution of the iodide of potassium.

3. Give strong coffee, without sugar. The proportions recommended by Bouchardat are, an ounce and a half of coffee to half a pint of water, to which is added brandy, half an ounce.—*Annuaire de Therapeutique* 1847.

*Poisoning by Arsenic, Dating back Ten Years: Detection of Arsenic in the Bones of the Skeleton.*—A case of poisoning occurred in the village of Scamague, without the fact having reached the ears of justice. Ten years after, certain circumstances arose which led to the apprehension of four suspected persons. A medical inquiry was instituted, and a skeleton was discovered, which was recognised as belonging to the murdered individual, and who, upon the confession of one of the parties implicated, had died at the end of twenty-four hours, after having taken a large quantity of arsenic. The skeleton and the remains of the funeral appurtenances were submitted to chemical analysis, and arsenic was discovered to exist in repeated instances. The source of the poison was rendered more certain by the fact, that none was discovered in a skeleton which lay so close to the above, that it was at first mistaken for it.—*Cours d'Assize de la Haute-Vienne.—Gazette Méd., Janv.*, 1847.

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## SURGERY.

*Fatal Effects of Ether Vapour in a Case of Lithotomy.*—By Roger Nunn, Esq., Surgeon to the Colchester and Essex Hospital.—At a time when the attention of both the medical profession and the public is being called to the influence of ethereal vapour as an agent in deadening pain during surgical operations, you may probably consider the accompanying case of sufficient interest to be admitted into your columns.

On Friday, the 12th inst., I operated upon Thomas Herbert, ætat 52, the subject of stone in the bladder, in the presence of most of the medical gentlemen of the town and neighbourhood. The ether was exhibited by my colleague, Dr. Williams, who considered the patient to be sufficiently under its influence after having inhaled it seven or eight minutes, at the end of which time I commenced the operation. There was neither difficulty nor loss of time in cutting into the bladder; but having done so, some little delay occurred in grasping the stone, which was small, very flat, and lying in the posterior part of the bladder; the delay was also increased by the extremely relaxed state of the bladder itself which seemed to fall in folds on the forceps, and to cover the stone. The time occupied from the commencement of the operation to the period when the man was unbound, was ten minutes, during which the ether was administered at intervals. The patient was placed fully under its influence, and the breathing first became heavy, and ultimately stertorous. He recovered, however, from its effects after a short time, and continued in a quiet passive state, but without decided reaction, for twenty-four hours. At this period he had a chill, which lasted for nearly twenty minutes. Mr. Taylor (the house-surgeon) immediately gave him two ounces of brandy, with an equal quantity of water, after which the patient remained in a dozing state till eight o'clock, p.m., when the house-surgeon considered it necessary to send for me, as a state of complete prostration or collapse had ensued. I ordered small quantities of brandy and water (equal parts) with arrow-root, at intervals, wrapped him in hot blankets, placed hot bottles in the bed, &c. This treatment was kept up till nine o'clock the following morning, when ammonia was given alternately with the before-mentioned stimulus. The patient seemed incoherent from eight o'clock, p.m. of Saturday till nine a.m. of the following day, when symptoms of slight reaction appeared. At a consultation of the medical staff which was held at the time, it was determined that the same treatment should be continued (modified according to circumstances), and that, in addition, a stimulating injection should be administered. (The effects of the injection were to increase slightly the frequency of the heart's pulsation, but without exciting his nervous energies). From this time, he gradually sank, and died at five o'clock, p.m., being sensible to the last.

I should here mention that the small vessels which are necessarily divided in making the first incision showed much inclination to bleed, owing, I imagine, to their want of contractile power. I therefore, to prevent any unnecessary hæmorrhage, secured them immediately after the patient was put to bed, so that he did not lose much blood.

*Post-mortem examination sixty-seven hours after death.*—Membranous congestion of the brain, but no effusion: brain firm; lungs permeable throughout, anteriorly exsanguineous, posteriorly engorged; heart flaccid, of a natural size, and nearly empty; the left kidney pale; the right slightly congested. The bladder and the adjoining parts presented the usual aspect after an operation.

I would mention that the blood throughout the whole vascular system was in a perfectly fluid state.

It is not my intention or inclination to attribute the loss of my patient wholly to the influence of the ether which was administered in this case, nor hastily to decry its use under all circumstances connected with surgical operations; but still I feel called upon to bring before the notice of my medical brethren the effects which resulted from its exhibition in this instance, that the profession may judge, from the recital of an unsuccessful case, how far

it may be considered safe to employ ether generally as a means of preventing the pain otherwise inseparable from physical lesion. The suffused eye, livid lips, and stertorous breathing, accompanied, first, by convulsive struggles, and next by a sudden cessation of all motion, are often indicative of the effects of the vapour; and these were not altogether absent in the present instance; still I felt myself justified in employing it from the published accounts of many successful cases, and the sanction of my colleagues, and numerous friends around me. In prosecuting the operation, there was nothing peculiar to attract my attention, or to lead me to consider the patient's physical condition different from that of those on whom I had before operated, until I had reached the bladder, when I can but attribute the difficulty in seizing the stone to the apparently collapsed state of that viscus which had fallen in folds over the calculus, and so prevented its being grasped by the forceps. I must not, however, omit to mention the fact that the patient expressed no signs of suffering during the operation. Thus far therefore it may be said the ether fulfilled its intended offices; but I think another question is involved—viz., whether the artificial means thus employed may not produce very serious depressing effects on the nervous system, depriving a patient of that reactive power so necessary to the reparative process. Has not a patient, after the administration of ether, a double shock to overcome—that produced by the vapour superadded to that of the operation itself? Does not the history of the post-mortem examination bear out the suspicion of the depressing influence of this inhalation?—*positively*, from the still fluid state of the blood (although the body was not opened for sixty-seven hours after death) and from the flaccid state of the heart; *negatively*, from the fact that the inspection detected no indications of violence done to the parts that could explain the rapid dissolution which ensued, and that there was no evidence of nature having made the slightest effort towards local reparation. Pain is doubtless our great safeguard under ordinary circumstances; but for it we should be hourly falling into danger; and I am inclined to believe that pain should be considered as a healthy indication, and an *essential* concomitant with surgical operations, and that it is amply compensated by the effects it produces on the system as the natural incentive to reparative action.

I trust that the publication of this unsuccessful case may lead to the publicity of many others which have occurred, so that the profession may not be led away by the erroneous supposition that the prevention of pain is so vital a desideratum in operative surgery.

[Operators have hitherto fallen into the error of looking only to one side of the question. The profession is indebted to Mr. Nunn for placing in so strong a light the danger which may occasionally arise from the use of ether vapour. We have hitherto had a run of successful cases: it is now time that our correspondents should pause in their records of successful cases, and look to the possible danger.—*Medical Gazette.*]

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*Tetanus from a fall without external injury—Temporary relief from the inhalation of ether—Death on the fourth day after the accident.*—The following case was read by Dr. Thomas Brady:—Michael Gaynor, a strong healthy man, æt. 26, a skinner by trade, but employed for some weeks in sweeping the streets, when returning from work on the evening of the 8th of February, during the late severe frost, slipped, and fell with considerable violence on the broad of his back. Though much stunned by the fall, he did not lose his consciousness, was able to rise without assistance and to walk home, a distance of half a mile; he mentioned the accident to his family, but treated it as a mere trifle, and appeared as well as usual throughout the evening. The following morning he complained of feeling *stiff* and sore all over the body, and said he was unable to go to work, or to leave his bed; he, however, got up during the day, and even dined heartily, though complaining frequently of increasing stiffness, especially about the throat and neck. After passing a restless and uneasy night he at length fell asleep towards morning, but soon awoke in a fright, crying out that his jaws were closing, and begging for a spoon to keep his mouth open. From this time the symptoms continued to increase with fearful rapidity; the jaws became more closely approximated; the muscles of the neck more stiff and painful; the head was retracted; the painful rigidity extended over all the muscles of the back, and he began to suffer from most excruciating pain in the epigastrium, and extending from this point all round the body, so that this day and the succeeding night were passed in one continued agony, aggravated from time to time by frightful paroxysms of spasm, in which he shrunked with anguish. In this state he was admitted into Cork-street Hospital on the following day. The trismus and opisthotonos had by this time attained a great degree of intensity, though a knife or the handle of a spoon could be still introduced between the teeth; the abdomen presented to the eye the appearance of great fulness and tension, and felt as hard as a board; the pectoral muscles were rigid and swollen, forming by their prominence a deep furrow in the line of the sternum; the muscles of the extremities were not affected then, but the spasms subsequently attacked the calves of the legs. The pulse was small, hard, and frequent; the action of the heart weak; and the respiration feeble and languid; the bowels had been freely evacuated two days previously. Deglutition was difficult and very distressing, producing generally an attack of the paroxysms of spasm; but he spoke distinctly, and was able to give a detailed account of the accident and of the progress of the symptoms. Being unable to rest on his back, or to sit up for an instant, he lay upon his side constantly moaning and complaining, except when roused by a paroxysm of the spasms, when he writhed about and shrieked with pain.

Dr. Eustace, under whose care he was placed, conceiving that this distressing state of suffering might be at least alleviated by the inhalation of ether, proceeded to employ it, assisted by Surgeon Trant. In consequence of the retracted and painful state of the patient's neck and back, and his inability to sit up, some difficulty was experienced in getting him into a position in which he could inhale freely, and at his own suggestion he was placed partially resting on his knees and hands, and supported in that posture. When he had inhaled for about a minute and a half, his eyelids were observed to drop suddenly, and his face to assume an expression of repose, upon which the mouth-piece was withdrawn; and being asked how he felt, he said he was relieved; the mouth-piece was then reapplied, and he continued to inhale for one minute more, when those who were sustaining him, feeling him sink down, let him go, and he fell on his back on the bed, the spasmodic tension of the muscles of the back being so much relaxed as to admit of his lying in that position. No inconvenience whatever attended the inhalation; it did not even produce cough, or any irritation about the larynx. He lay thus in an apparently calm sleep for about four minutes, during which the affected muscles, if not completely, were very much relaxed, and he exhibited no feeling of pain even when the limbs were pinched. On recovering from this state, he exclaimed—"Where am I!" and being questioned as to how he felt, he said he had a "delightful dream," and proceeded with surprising volubility to describe what he had seen in it; he continued to talk in this way for a quarter of an hour, when stopping suddenly, he cried out the "cramps" were returning; a spasmodic attack soon followed, after which he remained in the same state as before the inhalation. Doubts had from the first been entertained by some present as to the propriety of employing the inhalation at all, in consequence of the intense state of spasm of the muscles of the throat and neck, and as its influence seemed so transient, it was now urged that it would be better to adopt more energetic treatment. To these suggestions Dr. Eustace yielded; a blister was applied along the spine, and the vesicated part dressed with mercurial ointment, a drachm and a half of the same ointment was rubbed into each axilla, and calomel and opium in the form of bolus, as he could not swallow pills, were given every third hour. No impressions, however, appeared to be made on the disease by these measures; on the contrary, after some time, the paroxysms of spasm began to occur more frequently, returning every ten or fifteen minutes. Throughout the night they continued not only more frequent, but more severe and prolonged, so that on one or two occasions he was supposed to be dying. During these attacks profuse exhausting sweatings bedewed his entire body. At eleven o'clock the following morning he was lying as usual crouched upon his side, looking languid, worn, and exhausted; his pulse was small, feeble, and rapid; the action of the heart was imperceptible by auscultation, and the bronchial tubes were loaded with mucous secretion; mercurial fœtor of the breath existed, and he was expectorating, or hawking up from time to time dark-coloured viscid sputa. It was at this time evident that if he did not die otherwise, he would be asphyxiated before many hours. Yet his mental faculties did not seem in the slightest degree impaired, and when not suffering

from the attacks of spasm, he conversed freely with those about him. Being asked if he recollected the inhalation on the day before, he at once said that it was the only thing had given him relief, and begged it would be repeated. Preparations were indeed made to gratify him in this respect, but as the apparatus was about to be applied, he was seized with a kind of convulsive twitchings or clonic spasms of the muscles of the face and neck, which had ushered in all the later paroxysms, and after a short spasmodic struggle he expired about twelve o'clock, being ninety hours from the time the accident occurred, and about seventy from the first manifestation of the symptoms.

An examination of the body could not be obtained.

Dr. Brady, in the course of some observations on the subject remarked, that though the report was thus necessarily imperfect, and that no very satisfactory conclusions could be arrived at with respect to the employment of the inhalation of ether in tetanus, from the limited extent to which it had been used in the present instance, yet considering all the circumstances connected with the case, he thought it deserved to be submitted to the profession. Tetanus resulting from a shock or concussion was, he believed, a very rare occurrence. In this instance, no other probable cause could be assigned. The man had no recollection of having received any other injury; no recent wound or cicatrix could be discovered on any part of the body by the most minute examination: his head was shaved on his admission into hospital, and no trace of contusion was visible on it or on any part of the back. On the other hand, he had not been exposed to cold or any other obvious general cause to which the production of the disease could be ascribed. It may be observed, that from the first decided manifestation of the symptoms the disease assumed a very acute form, and referring its origin to the accident, its course may be considered remarkably rapid. In reference to the preceding circumstances, it may not be undeserving of notice that the patient had been for some years subject, from time to time, to violent attacks of painful distension of the abdomen, accompanied with severe cramps in the calves of the legs. Indeed his family were so accustomed to witness his sufferings in these attacks that they seemed to have had no apprehension of danger on this occasion till the day they applied for his admission to hospital. The pathology of tetanus is involved in such complete obscurity that its treatment must be at present entirely empirical. The results of experience on this subject, however, go far to indicate that, whatever may be the proximate cause of the disease, (whether it be inflammatory, as some suppose, or not,) those remedial means that benumb the sensitive and relax the muscular systems, as tobacco, opium, and other narcotics, must always form an important element in the treatment. Of those agents the vapour of sulphuric ether promises to be the most prompt and efficacious: and when it is considered in what large doses it has been found necessary to exhibit the other remedies, for this purpose, it may be added that it will probably be found the most safe. The publication of this case may therefore not only suggest to others, the employment of the inhalation of ether in similar circumstances, but induce them to enter upon the use of it with more confidence and give it a fuller and fairer trial.

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*Academy of Sciences.—Physiological Effects of Ether.*—The effects of the inhalation of ether, and the mode in which they are produced, formed the prevailing subject of investigation and debate; and this, in some measure, to the neglect of other medical and physiological questions. Numerous have been the experiments performed upon the lower animals to determine the effects of ether upon the nervous centres, upon the blood, upon the fœtus in utero, and also upon the actions of the uterus itself, and lastly, upon some of the animal functions.

The chief experiments touching the action of ether upon the nervous centres are those by Baron Flourens, long celebrated for his researches into the functions of the several segments of the brain and spinal cord, by means of vivisection. From his recent experiments with ether, he concludes that its action upon the nervous centres follows a definite course; that it at first acts on the brain, properly so called, (the cerebral hemispheres,) and disorders the intelligence; in the next place, on the cerebellum, and disorders the equilibrium of the movements; it then acts on the medulla oblongata, extinguishing the principle of sensation and motion; and lastly, on the spinal marrow, and having extended its action thus far, extinguishes life. Baron Flourens also observes that hydrochloric ether produces the same effects as the sulphuric. He also considers the phenomena of etherization to resemble asphyxia. To show this, he placed some dogs in a certain confined portion of air, and thus asphyxiated them. He then exposed the spinal marrow, and pinched and pricked its sensory and motor columns, but no sensation was evinced, and there were but a few feeble muscular contractions.

M. Roux, on the contrary, from seeing the effects of ether on those operated on surgically, believes that there is not the sequence in the occurrence taught by Baron Flourens; but that they often occur simultaneously; and very frequently consciousness, a readiness in comprehending questions, and in answering them by voluntary gestures, remains till the moment complete insensibility sets in. Further, M. Roux would rather compare the phenomena of ether to intoxication than to asphyxia. M. Roux narrates a case of traumatic tetanus following upon the removal of a testicle. The ether was administered on the fifth day from the accession of the tetanus, and when that had gone on to great degree, there being trismus and opisthotonos, and the muscles of the abdomen affected, yet the pulse was tolerably full and regular; but the power of swallowing was lost, and the breathing was embarrassed. The ether-vapour soon brought on somnolency, but this was of short duration. At the moment of waking, which took place without agitation, cold water was sprinkled on him. The patient having regained his consciousness, it was thought there was some movement of the head, and that there was less stiffness in the muscles of the neck. But almost immediately, or at least after a few seconds, the respiration became short and rapid, the pulse enfeebled, and half an hour had hardly passed, when the patient was no more. His death M. Roux believes to have been hastened by several hours or more by the administration of the vapour of the ether.

M. Mandl communicated, in a note, some observations he had made respecting the action of ether on the peristalic movements of the intestines. Having produced complete insensibility in a dog, he opened the abdomen, when he observed that the peristaltic motion of the intestines had entirely ceased, nor did mechanical irritation reproduce it. The complete state of etherization lasted for ten minutes, when the dog moved, and his respiration became accelerated. He was then killed. Consemtaneously with this there was a general tremor, and some contractions of the cervical muscles: besides this, the peristaltic action of the bowels reappeared, although feebly, and continued for some time.

This seems to show that the ganglionic system may be influenced by the ether equally with the cerebro and spinal systems; and it also supports the hypothesis which regards the ganglionic system as independent of the functions of the spinal cord. Indeed, respiration and circulation, which, according to Baron Flourens, depend on the spinal system, continue, whilst the vermicular motions cease entirely.

*Effects of Ether on a Pregnant Female.*—M. Cardan sent to the Academy an account of a case of pregnancy in which the vapour of ether was inhaled. A young woman in the sixth or seventh month of pregnancy was submitted to the respiration of ether. Intoxication was long in being established; the pulse was hard, but the number of pulsations was not sensibly augmented. She was seized with a disorderly hilarity, as is often observed. After ten or twelve respirations, the infant made some struggles and convulsive movements, very painful to the mother; these movements became more violent, and succeeded each other with greater rapidity, in proportion as the ether became absorbed; but as the mother grew insensible at the same time, she evinced only a vague kind of consciousness. When the mother recovered herself from the effects of the ether, she complained of pain in the uterine region, such as might arise from blows and bruises.

The heart of the fœtus beat with extreme rapidity, so that the individual pulsations could scarcely be distinguished; it might be said, indeed, to be in a constant tremor. The rapidity of the pulsations appeared to be in pretty direct relation to the motions or struggles of the child. The placental bruit lost its simple continuous character, and took place in fits, which varied according as the strugglings of the fœtus were more or less rapid.

*Practical application of Ether to Medical Jurisprudence, to distinguish feigned from real disease.*—M. Baudens illustrates its application to this purpose by two cases:—1. A soldier who had been enlisted, applied for discharge, on account of spinal curvature, which was strongly marked. The man was placed on a table on his back; but from the dorsal curvature, which was like

a semicircle, all the weight of the trunk was thrown on the lumbar region. The vapour of ether was administered, and in four minutes insensibility came on, which was very soon succeeded by a relaxed state of the limbs. The cushion, which had previously been placed under his shoulders for support, was now removed, when his head and shoulders sank down flat on the table, and presently he lay quite prone, all curvature having disappeared. The deception the man practised was now clearly proved.

The other case was that of a young soldier recently enlisted, who entered the Val de Grace, presenting complete ankylosis of the hip-joint of the left side. When the limb was touched, a spontaneous contraction was felt, which seemed voluntary; and hence the disease was deemed to be simulated. He was put under the influence of ether, which produced somnolency in five minutes, and perfect insensibility in eight minutes; but relaxation of the muscles did not follow till after twelve minutes. Then the reality of the disease was manifested; a complete ankylosis of the hip-joint, allowing motion in no direction, and such that the pelvis was raised by an attempt to elevate the femur.

*Alteration of the Blood.—Ether in Midwifery.*—M. Ed. Robin states that when ether is inspired in sufficient quantity with atmospheric air, it prevents, in a remarkable manner, the transformation of venous into arterial blood. It so acts, that the red blood, which is the necessary stimulus to the various organs, becomes replaced by venous blood in a great measure, and which produces a stupifying effect. Hence the insensibility and other phenomena observed, where ether is effectual in its operation.

M. Robin would explain why the ether opposes the arterialization of the blood in this manner, both from its preventing the impregnation of the blood by the normal amount of air, and from its being burned by the proportion of oxygen which naturally should serve for the production of hæmatosin.

M. Stoltz, of Strasbourg, had recourse to turning in a case of transverse presentation, in a primipara. Now M. Velpeau thought that the inhalation of ether would facilitate the introduction of the hand into the uterus in the operation of turning. But M. Stoltz concludes from his case, in which he administered the vapour of ether for ten minutes, while he performed the operation, that it does not lessen the resistance of the uterus to the introduction of the hand into its cavity, nor facilitate the version or extraction of the child.—*Lancet.*

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*Inhalation of Sulphuric Ether to prevent pain during Surgical Operations.*—The following is a digest of the discussions of the learned societies of Paris concerning the properties of this agent, and of hospital reports, contained in the *Gazette des Hôpitaux* for the last month.

*Académie de Medécine, Meeting January* 12th, 1847.—M. Malgaigne announced that he had tried upon five patients the method proposed by the Americans, to render surgical operations painless. The first patient was a young man, aged eighteen, who was afflicted with an abscess at the lower part of the leg. He breathed the ether for two minutes, which sufficed to plunge him into a state of complete lethargy. The abscess was opened with a bistoury. In half a minute afterwards, the patient woke up, and affirmed that he had experienced no pain, and up to that time believed he had not undergone any operation, but wished it to be proceeded with.

The second, an Italian, a little older, who had a tumor in the neck, respired the ether for five minutes. By the time he had revived, the operation was finished. He said he felt that the tumor had been removed, but had not experienced any pain.

The third patient was a young woman, also having a tumor in the neck. She did not fall into a state of insensibility until she had inhaled the vapour for eighteen minutes. She did not feel the first incision; but woke up immediately afterwards, and suffered during the rest of the operation as though she had not been submitted to its influence.

The fourth was a man who had had his leg broken by a railway truck, and underwent amputation at his own desire. He was submitted to the vapour of either for seventeen minutes. On his coming-to, he said he had felt the operation, but had not suffered more pain than if he had lightly scratched his leg with the point of a knife.

The last, a young man, who was operated upon for strabismus, previously respired the ether for ten minutes without effect, and suffered during the operation as other patients would have done.

In answer to a question from M. Nacquart, M. Malgaigne explained the process as used by the American surgeons, which he had adopted for the first patient: but for the others he had introduced into one of the nostrils, the other being closed, a tube leading from a vessel, the bottom of which was covered with ether—the patient inspiring by the nose, and expiring by the mouth.

M. Velpeau questioned whether ether was altogether innocuous to the system. He feared it might produce some injurious effect upon the patient, counterbalancing the advantage derived from the absence of pain. Besides, as the influence only lasted for a short time, its use in operations of a long duration was doubtful.

M. Guibourt had no fear of a bad result from the employment of ether, his only anxiety was as to the certainty of its operation, he himself having frequently and for a long time inhaled air strongly charged with ether, without experiencing any ill effect; and on this point he was supported by M. Chevallier.

M. *Roux*, of the Hotel Dieu, detailed the particulars of a case of compound fracture of the leg in the *Gazette des Hôpitaux*, January 16th, 1847. The patient, who was about forty-five years old, breathed by the mouth the vapour for twenty minutes with great earnestness; in about ten minutes his eyes closed, but he still answered any questions put to him, and in ten minutes more the operation was finished; the pain thereof being evidently diminished, as the patient was not aware that the operation had been completed, until he was told such was the case.

*Hôpital St. Louis.*—A patient of M. Malgaigne—a man about thirty-five years old, of strong constitution, presented at the lower and internal part of the leg, about the level of the malleolus, a *phlegmonous abscess—was submitted to the influence of the* etherial vapour for two or three minutes, which short space of time sufficed to put him into the state necessary for the commencement of the operation, which can only be compared to drunkenness. M. Malgaigne addressed the patient, asking him whether he felt any particular sensation, or found his sight confused. The man having answered that his vision was imperfect, M. Malgaigne immediately used the bistoury, making an incision in the abscess and in a portion of the skin much supplied with nerve and considerably inflamed. He then pressed the pus from the abscess. On the termination of the operation, the patient appeared agitated; his face was red, his features contracted, his eye lids closed, and, in short, his whole muscles, particularly those of the face and superior extremities, exhibited symptoms of abnormal contraction. He seemed to be under the weight of painful feelings, which he wished to shake off. He had undoubtedly lost his reasoning power, for his conduct was outrageous; he closed his eyes, and foamed from the mouth. This state lasted but two or three minutes. He was aroused by the voice of M. Malgaigne, and on recovering his consciousness he declared the pain was slight, not more than a prick, but he directly afterwards complained of the smarting which resulted from the wound.

A second patient, a man aged forty-five, had necrosis of the bones of the finger, resulting from a whitlow. M. Malgaigne determined to remove the finger, at the articulation, and caused the patient to inhale the ether for about four minutes. The patient declared he was drunk and unable to see. The operation was performed in the usual manner. This patient also compared the pain he felt to a prick, afterwards experiencing the sensation of smarting over the surface of the wound. The pulse was carefully observed during the operation, and found to be eighty-eight during the inhalation of the ether, and ninety-two after the operation.

A young girl of eighteen, with an affection of the hand, requiring incisions, was submitted to the action of the vapour, and in four minutes she declared her sight to be confused. She compared the operation to a prick. It is remarkable that in this case there was a considerable want of sensibility in the wound for some time after the operation.

M. Malgaigne administered wine in each of the last cases, to effect a more speedy recovery from the stupor; and it may be worthy of notice that the air exhaled was impregnated strongly with ether, so that it was impossible to mistake the agent that had been employed.

At the meeting of the Académie de Medécine, on January 19, a letter was read from M. Meniere, respecting the successful employment of vapour of ether in cases of nervous deafness

hemicrania, paralysis of the facial nerve, complaints of the cavity of the cranium, &c.

M. Honore mentioned a case of intense neuralgia, which was alleviated by the breathing of the vapour of ether, placed in a vessel with a large mouth, held close under the mouth.

M. Malgaigne made the following important observations as to the consequence of the use of ether. In the case of amputation of the leg, he believed that there was less reaction than in ordinary cases; and another point, which he recommended to the attention of psychologists, was, that in most cases it appeared that the seat of sensation for pain was different from the seat of ordinary sensibility. Many patients retained perfect consciousness, understanding what was said to them, answering correctly, but feeling no pain; it really appeared to him that there were two centres of sensation.

A discussion also took place at the meeting of the Academy of Sciences, on January 18, when M. Velpeau stated that he had failed in obtaining a complete and satisfactory result from the use of the vapour of ether. One patient had proved unmanageable. In another, the sensorial functions were evidently disturbed; but he had suffered pain while being operated on. A third had suffered in a like manner; but declared that he was plunged into such a state of ecstasy, that he was unable to complain. In short, it appeared that it succeeded with certain persons, and failed with others; and that it was not proved to be altogether without danger.

M. Dunas said that he had been led, from some experiments, to believe that the ether possessed a cataleptic power.

On the 22d of January, M. Velpeau, at the *Hôpital du Charité*, having used an apparatus constructed by M. Charrière, succeeded perfectly in removing a tumor without pain. The ethereal vapour was inhaled by the patient about four minutes, after which time complete insensibility and relaxation of the muscles were manifested.

M H. Larrey, who assisted at the operation, suggested the valuable assistance that the agent would render in the reducing of difficult luxations.

At the *Hôpital du Midi*, a case occurred in which the sensibility seemed to have been exalted by the inhalation.

The influence of the vapour has also been tested by M. Guersant, at the *Hôpital des Enfants*, on two children. One child, whose finger was amputated, declared that she felt pain, but was totally unable to cry out. The other, on recovering from the state of insensibility into which she had been thrown, declared that she had no recollection whatever of the operation.

At the *Hôpital du Midi*, M Ricord, in injecting in a double hydrocele, employed the inhalation with success, though he was obliged to renew its influence twice during the operation. A second patient, afflicted with single hydrocele, after respiring vapour for thirteen minutes, fell into a complete state of insensibility; the limbs were relaxed; the pupils contracted; the conjunctiva was injected; and the pulse not affected. A third patient, who was apparently perfectly under the influence of the ether, suffered the usual amount of pain during an operation for removing a tumor from the rectum.

In the first two cases, a state of intense exhilaration preceded that of insensibility. In the last, the use of the ether was followed by sickness and fainting.

At the meeting of the *Societé de Chirurgie de Paris*, January 13, 1847, M. Malgaigne mentioned a case in which the inhalation having been continued for too long a time, caused sinking of the pulse and coldness of the extremities to such an extent, that fears were entertained for the life of the patient.

At the meeting of the *Académie de Medécine*, January 26, 1847, M. Landouzy called attention to a case, where hæmorrhage, after removal of a small tumor from the mastoid process, did not come on till half an hour after the performance of the operation; and suggested that surgeons should be on their guard lest accidents might happen from the arteries not being secured.

M. Honoré stated, that he had succeeded in relieving a patient afflicted with most obstinate neuralgia of the face, by the inhalation of ether vapour for about two minutes.

*Académie des Sciences*, meeting January 25.—M. Gerdy related several experiments with the vapour of ether, the results of which had been satisfactory in the highest degree.

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From the above it will be seen, that the success which our neighbours have met with has been varied; but we think that in most of the cases in which the ether failed to produce its stupifying effect, that fault was clearly in the instrument used for its administration. At first they attempted to use this agent by causing the patient to inspire by the nostrils, and respire by the mouth, and *vice versâ*; but afterwards they found it requisite to close the nostrils while respiration was carried on by the mouth alone.

The fact announced by M. Malgaigne, that some of the patients retained their consciousness, but felt no pain while being operated on, is most interesting, and we leave it to be commented on by physiologists; but the statement requires confirmation by other observers.

The influence, also, over the power of *expression* of pain, is also very curious, but seemed to be quite an uncommon result; for we only find that this was the case in two out of the numerous cases quoted.

The continued lethargy, with failing of the pulse, and coldness of the extremities, is certainly a most awkward complication to deal with in treating the shock of an operation, and one which should make us cautious in the employment of the vapour of ether. In this country, in more cases than one, this unpleasant effect followed its use.

If the vapour of ether prove an efficient therapeutic agent in the treatment of neuralgic affections, then, indeed, will its introduction prove a boon to society. And we much regret that M. Honoré did not give a more detailed account of those cases in which he employed this remedy.—*London Lancet.*

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*Tabular Arrangement of all the Cases of Femoral and Popliteal Aneurism which have been treated by pressure on the Femoral Arteries in Great Britain and Ireland.*

| No. | Date. | Surgeon. | Locality. | Descript'n of Aneurism | Age of Patient. | Result. |
|---|---|---|---|---|---|---|
| 1 | 1820 | Mr. Todd | Dublin | Popliteal | 30 | Fem. Art. tied |
| 2 | " | " | " | " | 27 | " |
| 3 | 1825 | " | " | " | 36 | Cured. |
| 4 | 1824 | Mr. Duggan | " | Femoral | 33 | " |
| 5 | 1826 | Mr. Cusack | " | Popliteal | " | Fem. Art. tied |
| 6 | 1813 | " | " | " | 55 | Cured. |
| 7 | 1814 | " | " | " | 26 | " |
| 8 | 1846 | " | " | " | 33 | " |
| 9 | 1830 | Sir P. Crampton | " | Femoral | 36 | " |
| 10 | 1812 | Mr. Hutton | " | Popliteal | 30 | " |
| 11 | 1843 | Dr. Bellingham | " | " | 32 | " |
| 12 | 1844 | " | " | Femoral | 35 | " |
| 13 | 1816 | " | " | Popliteal | 40 | Doubtful. |
| 14 | 1813 | Mr. Liston | London | Femoral | 30 | Cured. |
| 15 | 1841 | " | " | " | 53 | " |
| 16 | 1843 | Dr. Harrison | Dublin | Popliteal | 29 | " |
| 17 | 1814 | Mr. Kirby | " | " | 28 | " |
| 18 | " | Mr. Allen | Haslar Hos. | " | 32 | " |
| 19 | " | Mr. Greatrex | London | " | 27 | " |
| 20 | " | Mr. Porter | Dublin | " | 29 | " |
| 21 | 1845 | " | " | " | " | " |
| 22 | 1844 | Mr. Jolley | Torbay | " | 23 | " |
| 23 | 1843 | Mr. Harrison | Bristol | " | 42 | Fem. Art. tied |
| 24 | 1845 | Mr. Dartnell | Chatham | " | 39 | Cured. |
| 25 | 1846 | Mr. Mackern | Litherland | Femoral | 30 | " |
| 26 | 1845 | Mr. Storks | London | Popliteal | 32 | " |
| 27 | 1846 | " | " | " | 24 | " |
| 28 | 1845 | Mr. O'Farrell | Dublin | " | 32 | " |
| 29 | 1846 | " | " | " | 37 | " |

Thus 29 cases of aneurism—6 femoral and 23 popliteal—have been treated by pressure upon the artery leading to the sac; in 4 the femoral artery was tied, chiefly from want of confidence in pressure, on the part of either surgeon or patient, and in 25 instances this mode of treatment was successful. Mr. Todd's three cases, Sir Philip Crampton's case, Mr. Duggan's case, Mr. Cusack's case in 1826, and also that of Dr. Molloy and Mr. O'Farrell's two cases, have not been before introduced into any of the notices or tables of this operation which have appeared in the periodicals.

In ten instances, local pressure on the aneurismal tumour by means of pads and bandages was used, in addition to the pressure by the instrument. An examination of the published cases will show how irregularly the pressure was applied; and it is quite apparent that its removal at a particular time, even for a few minutes, and allowing the flow of blood through the sac again to take place, will undo all that had been before effected. It is, moreover, very possible, that in many instances the pressure has

been continued far longer than was necessary.—*Dublin Quarterly Journal.*

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*Varicose Veins.*—Having marked the veins to be cured with ink, apply a small caustic, of five parts quick lime, and four parts potassa, mixed up with spts. wine, (Vienna paste,) over each projecting vein. When in the horizontal position, insulate each place of application of the caustic with a circle of plaster three or four thicknesses, the internal space being not more than one-quarter or one-third of an inch in diameter. Remove the caustic in half an hour, and dress in the usual way, applying a bandage. From six to twelve applied at one time will be sufficient. (Mr. Skey.)—*Braithwaite's Retrospect.*

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*Aneurism by Compression.*—On this subject we notice the accidental discovery, by a patient of Dr. Harrison, of the application of a number of clamps (such as used by joiners and cabinet-makers, to secure their glued wood-work), along the course of the artery, proving it not to be necessary completely to arrest the pulsation in the tumour; but by causing a lessened current of blood through it, produce coagulation and a contraction of the sac. (Mr. Wilde.)

Dr. Bellingham applies two compressing instruments upon separate parts of the limb, one tightened, the other not; and by thus alternating the pressure, producing the same effect as if constant compression were maintained at one point, the patient being enabled to bear it for a much longer period than other instruments.—*Braithwaite's Retrospect.*

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## MIDWIFERY.

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*Rupture of the Uterus Terminating Successfully.*—By Mr. Thomas, at the Sheffield Medical Society, Nov. 26.—October 22, 1846. He was summoned at 2 p.m., to attend a lady in labour of her first child. She is tall, thin, and well proportioned, aged 30, of bilious temperament, and calculates that she is eight months and a week advanced in pregnancy: has enjoyed good health during the period, and yesterday drove five miles and back in a shaking dog-cart; keeps a favourite canary, which hangs in a cage from the dining-room ceiling; this she has often lifted down by standing upon a chair, and reaching it at full stretch. She did so yesterday, but is not conscious at any time of having felt inconvenience from the effort. She had had slight pains every ten minutes or quarter of an hour since 10 a.m. The os uteri was found about the size of sixpence, membranes ruptured, presentation natural, pelvis well formed. He saw her again at 7 p.m., when she had slowly advanced, but had occasionally felt slight faintness, without any assignable cause; he therefore slept in the house, but was not disturbed during the night; the pains gradually increased, but never became severe, at no time exceeding four throes each, and rarely two. The successive stages of labour advanced naturally until 2 p.m., on the 23rd, when the head arrived at the outlet of the pelvis and was dilating the perineum.

He now received an urgent message to visit an old gentleman three miles off, and left his assistant in the house until he returned at a quarter past 3 p.m. He was too warmly welcomed, and on hastening up stairs, found his patient sitting bolt upright in an easy chair, complaining of a most distressing sense of suffocation at the pit of the stomach. Countenance exceedingly anxious; pulse 120; *no uterine action.*

The nurse stated that ten minutes before he returned, the patient, feeling restless, *would* be got into the easy chair, (the pains having regularly recurred since his departure,) and was in the act of raising herself up by the arms to return to bed, when she fell back into the chair, screaming—"Oh, nurse!" put her hand to the pit of her stomach and gasped for breath. His assistant, hearing the scream, ran up stairs, and tried to lay her down upon the bed, but was compelled immediately to raise her up from fear of suffocation. He applied hot fomentations to the epigastrium. Mr. Thomas found the region from the ensiform cartilage to the umbilicus distended with a firm, unyielding, non-resonant mass, scarcely tender to the touch, but not tolerating pressure from the dyspnœa it produced, the contents of which could not clearly be detected, but they most resembled the omentum, and a quantity of loaded intestine pushed up into one solid lump. The uterine tumour below was flaccid and ill-defined (though previous to his departure it was well marked); the head of the fœtus still remained impacted in the outlet of the pelvis, and she had once tried ineffectually to vomit.

He immediately sent for forceps and to request a consultation with Dr. Branson, Mr. Turton, and Mr. H. Jackson. They all arrived before five, and agreed with him in regarding the case as rupture of the uterus, and probably at its fundus, and decided on immediate delivery with the forceps. The epigastrium had now become tender to the touch; breathing less hurried; pulse 120; no uterine action whatever. At half-past 5 p.m, she was laid down very gently, and he applied the forceps, and by ten minutes past six the perineum was safely dilated and the head born. The uterus now contracted, and the child was quickly expelled alive, vigorous and fully grown. Mr. Turton efficiently supported the abdomen and tumour (which the patient described as grateful,) and he distinctly felt the tumour subside as delivery was effected, and it then entirely disappeared; but a sense of soreness at the upper and right side of the uterus was complained of. The uterus remained high up, but, aided by moderate pressure, it contracted a little, and in about twenty minutes the placenta was removed, followed by tremendous flooding. Mr. Thomas immediately introduced his hand, and felt a *rent* at the upper right side of the fundus of the uterus, in the antero-posterior direction, admitting (in the then half-contracted state of the organ) three of his fingers to move easily: no intestine protruded, and the sides of the rupture were in contact. He now felt the uterus contracting, and withdrew his hand, but the flooding continued; it yielded, however, in about ten minutes to the diligent application of external pressure and cold water; only slight faintness supervened; pulse 140; gave a little brandy and water, and applied a firm abdominal bandage, with compress over the uterus; the oppression of breathing was now quite relieved.

Capt. tinct. opii, dr. j., cummist. camph., dr. vj., statim.

7 p.m. Free from pain; feeble; breathing easy; no flooding. He left her very comfortable at half-past 9 p.m., in charge of Dr. Branson, for the night. Pulse 140, feeble; soreness felt in the right hypogastric region; low diet; most absolute rest of body and mind. To take a pill containing two grains of opium, if sickness or pain should come on during the night.

24th, 8 a.m. Was sick at midnight, when she took her pill, after which three or four hours sleep; sick again at 5 a.m, and dozed since; three or four clots have passed per vaginam., uterus contracted, but little epigastric tenderness; abdomen more distended than natural; pulse 146, less feeble; tongue moist; has passed water twice, but not freely. ℞ Pil. opii, gr. ij., quartis horis.

3 p.m. Vomited a pint or more of brownish soupy fluid at midday, with sensible relief; has slept a great deal; pulse 136, fuller; some milk in the mammæ; catheter evacuated a pint and a half of urine, producing some benefit. ℞ Pil calomel. cum opii, gr. ij., quartis horis.

9½ p.m. Has slept much; abdomen smaller; epigastrium tender; pulse 132, less full; the child has drawn some milk; slight discharge; head free; tongue moist.

25th, 9 a.m. Slept five hours; slight catching in breathing on the right side of the epigastrium; passed water once, but not freely; catheter brought away one pint; pulse 122; abdomen tympanitic; tongue furred but moist; some natural discharge, and decided milk; no stool. Cont. pil. Enema communis statim.

8½ p.m., Slept several hours during the day; bowels twice moved, but not freely; feels comfortable; has lost the catching in the right side; slight soreness on the upper and right side of the uterus; no decided peritoneal tenderness; less tympanitic distension; discharge moderate and fœtid, but natural; pulse 125, soft; has been slightly turned towards the left side (as the first movement,) this afternoon, forty-eight hours after the rupture. Cont. pil calom. et opii.

26th, 8 a.m. Passed a good night; tongue moist; pulse 120; swelling of abdomen less, and tenderness slight; made water freely: no stool, Cont pilula. ℞ Ol. ricini. dr. v.; tinct. opii, gt. x., statim et in sextis horis si opus sit.

8½ p.m. Slept much all day; no stool; pulse 132, but more compressible than at 3 p.m.; discharge and milk natural. Rept. ol. ricini et enema; omit. pil. calom. et opii.

27th, 9 a.m. Several hours sleep, but less soundly than when taking the pills; felt too squeamish to repeat the oleum ricini, and at 2 a.m. vomited about a pint and a half of brown mucous fluid, which afforded much relief, and was followed by a copious fœculent stool; passed water freely; slight occasional hiccough; pulse 118, rather wiry; tongue moist and furred; abdomen rather more tympanitic; has taken one dose of calomel and opium after the sickness. To have groat gruel or arrow-root with milk. Rept. pil. calom. et opii, quartis horis.

8½ p m. Bowels twice freely moved; better in all respects; has slept a little; countenance good; pulse 112; enjoys her food; milk and discharge natural; no longer feels the soreness in the upper and right side of the uterus, which has been gradually tracked downwards, as the organ has descended into the hypogastrium.

28th, 9 a.m. A good night; no pain; abdomen still tympanitic; pulse 120; tongue moist; bowels open; water passed freely; enjoys her arrow root; not any solid food yet; feels rather stronger; always lies with her feet down, and has done so from the first. Cont. pil. calom. et opii, octavis horis.

29th, 9 a.m. Slept well; no hiccough; bowels open; secretions natural; pulse 115, soft; less abdominal tension; tongue cleaner. To have beef-tea or chicken broth. Cont. pil., octavis horis.

30th Changed her night-dress for the first time last evening, the seventh day, which she bore well; going on well; bowels freely opened; two mercurial stools; abdomen nearly natural; pulse 100. To have the wing of a partridge. Omit. pil. calom. cum opio. Capt. pil. opii., gr. ij., hora somni.

31st. Report favourable in all respects; pulse 104. Capt. pil. opii, gr. iss., hora somni.

November 1st. A good night; no complaint: pulse 100; slight sensibility in the right hypogastrium; discharge slight and natural; appetite good. Capt. pil. opii, gr. j.

2d. Slept well; pulse 96; appetite good; takes game daily; bowels open. Bed made for the first time on the eleventh day by lifting her upon a couch. No medicine.

6th. No complaint except flatulency; bowels open naturally; tongue nearly clean; pulse 96; makes a good nurse, and is not conscious of any uneasiness about the uterus; spends several hours daily upon the couch, and can turn gently in bed.

16th. Improving satisfactorily; for the first time tried to walk from the bed to the couch, but could not stand erect; it produced pain in the lower part of the bowels.

22d. Advancing daily; can now stand erect, and with the aid of two arms walked into an adjoining room with tolerable ease.

26th. Well.

Mr. Thomas considered that this case presented several points of interest in addition to its happy termination, as distinguishing it from most of the instances of this fearful lesion on record: —

1. In the moderate character of the uterine action, and the precise period of the rupture.
2. The epigastric tumour.
3. The opiate treatment, favouring which there was a most calm, imperturbable, and obedient patient.
4. The rapidity of the reparative process, most probably by the modelling action of Macartney, since (though carefully searched for,) there was never any evidence of purulent secretion from the uterus.—*Dublin Medical Press.*

THE

# British American Journal.

MONTREAL, JUNE 1, 1847.

*College of Physicians and Surgeons, Canada East.*—In the course of a few days the Provincial Legislature will be in session, having been summoned for the despatch of business on the 2d inst. The proposed scheme for the incorporation of a College of Physicians and Surgeons in this part of the Province, will be shortly submitted to the Parliament; and the Profession of Lower Canada, especially that part of it possessing degrees from British Universities and Colleges, require to be on the alert, lest by supineness, at this critical moment, they cause those Universities and Colleges to suffer a degradation, in the persons of those who may hereafter arrive in this country for the legitimate pursuit of their profession, by compelling them to undergo a second examination, *as a test of competency to practice*, before an inferior tribunal. We have on a previous occasion entered lengthily into this question. The object sought for is one against which every British graduate and surgeon, jealous of the honour of his own *alma mater* or college, is bound in honour to protest; and we doubt not that if the measure is *seriously* proposed, and the clause compelling holders of British diplomas to submit to an examination acquires an actual embodiment in the bill, the British graduates and British surgeons practising in this district at least, will not be found wanting in their too obvious duty. We are satisfied we need not say more on this matter at present; beyond this, that as a circular, signed by Dr. Arnoldi, requesting authority to append the names of parties to whom it has been sent, has been distributed throughout the Province, a copy of which we subjoin, we think that the Profession generally, at least that part of it to which we have already adverted, should withhold their assent, until something more definite is known of the measure, or at least, until they are satisfied that it has been purged of its objectionable features.

The proposed Bill for Canada West, which we published in a preceding number, has received some amendments; and as it appears to be accepted by the Profession generally of the Upper Province, will, we sincerely hope, receive the sanction of the Legislature. It is high time, certainly, that measures were adopted to regulate the study and practice of medicine in this Province. Only a few days ago, an inquest was held in this city on the body of an infant, poisoned by the exhibition of opium, which had been given to its mother in its crude state by a Thompsonian practitioner of Upper Canada, *for the purpose of being made into pills of a certain size* for the infant. Such practices should be, must be, for the safety of the public, arrested, and the sooner the better; and the only method is by Legislative enactment.

We do not see any substantial reason why the Medical Bill, proposed last year, should not be reintroduced, with such modifications as would harmonize its provisions with the wishes of the Profession *generally*. The penal clauses, especially those which

related to illicit practice, were scarcely adequate to the necessities of the case. These should be amended, and the rights of country practitioners effectually guarded. The introduction of such a measure cannot affect the Bill for incorporating the Profession into a College of Physicians and Surgeons; while, should the latter fail in its progress through the Houses, the Profession would in that case have its wants at least temporarily supplied by the provisions of a measure of a less specific character. We repeat the conviction, which we have already expressed, that the Legislature will pause before according to *any men* the unlimited power which the proposed College Bill solicits. We think it would be most dangerous to the Profession at large, to have its interests controlled, in the manner contemplated, by a few, to whatsoever medico-political party they may belong; and we consider that this demand, apart from all other considerations, will prove dangerous, if not fatal, to the project.

The following is the circular alluded to in the early part of these remarks:—

CIRCULAR.

Sir,—I beg to inform you that in conformity with a resolution passed at the general Convention of the Medical Profession, held at Three Rivers, on the 14th October last, "a Petition will be presented to the Legislature, at its ensuing session, signed by all the members of the Medical Profession, resident in Canada East, who may feel disposed to become parties to it; based upon the inadequacy of the existing laws to regulate the Practice of Medicine, Surgery and Midwifery, in this section of the Province; to establish a certain and fixed course of study previously to obtaining license to practice these branches; and to regulate druggists and others vending or distributing medicines by retail. It shall pray for the repeal of all the existing acts or portions of acts referring to these subjects; and it shall further pray for an Act of Incorporation, by which the persons, whose names are appended to the said petition, shall be embodied and incorporated into a College, to be styled, "The College of Physicians and Surgeons of Canada East," and that the said persons constitute the original Corporation of the said College.

That the Corporation of the said College be instituted h all the usual powers and privileges granted to other corporate bodies, in regard to holding landed and other property, making by-laws, having a common seal, &c. &c.

That power be granted to the Corporation to legislate in all matters affecting the Medical Profession, whether in reference to education, practice, the protection of its members from inroads of unlicensed practitioners, the regulation of the practice of midwifery, the supervision of druggists' establishments, and the protection of the public health, in regard to Medical Police and Hygiene."

I further beg you will be pleased to inform me, without delay, and by letter, whether you concur in the objects of the Convention, and if so, to authorise me to subscribe your name to the petition.

I have the honour to be, Sir, your most obedient servant,

Dr. Arnoldi, Jun.

Montreal, May 6, 1847.

N. B.—Please communicate the above to your neighbouring fellow practitioners, lest their names may have escaped my knowledge.

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*United States National Medical Convention.*—Some of our exchange journals, lately received, contain abridged reports of the proceedings at the adjourned session of this body, held on the 5th inst., in the Hall of the Academy of Natural Sciences at Philadelphia. About 300 delegates were present, and a committee having been appointed of one from each State, to nominate officers for the permanent organization of the Convention, the following were reported—Dr. J. Knight, Connecticut, President; Alex. H. Stevens, New York; G. B. Wood, Philadelphia; A. H. Buchanan, Tennessee; J. Harrison, Louisiana, Vice-Presidents; and R. D. Arnold, Georgia; A. Stillé, Philadelphia; and F. C. Stevens, New York, Secretaries. A report on the formation of a National Medical Convention, to be called "The American Medical Association," was read, and accepted; as also was another urging the States governments to adopt a uniform plan for the enregistering of births, marriages, and deaths. On the question of an elevated standard for the degree of M.D., the following important resolutions were carried:—

Resolved, 1st. That it be recommended to all the colleges to extend the period employed in lecturing from four to six months.

2d. That no student shall become a candidate for the degree of M. D, unless he shall have devoted three entire years to the study of medicine, including the time allotted to attendance upon the lectures.

3d. That the candidate shall have attended two full courses of lectures, that he shall be 21 years of age, and in all cases shall produce the certificate of his preceptor, to prove when he commenced his studies.

4th. That the certificate of no preceptor shall be received, who is avowedly and notoriously an irregular practitioner, whether he shall possess the degree of M. D. or not.

5th. That the several branches of medical education already named in the body of this report be taught in all the colleges; that no less than 100 lectures be delivered by each Professor, and that the number of Professors be increased to seven.

6th. That it be required of candidates that they shall have steadily devoted three months to dissections.

7th. That it is incumbent upon Preceptors to avail themselves of every opportunity to impart clinical instruction to their pupils; and upon Professors to connect themselves with hospitals, whenever it can be accomplished, for the advancement of the same end.

8th. That it is incumbent upon all schools and colleges granting diplomas fully to carry out the above requisitions.

9th. That it be considered the duty of Preceptors to advise their students to attend only such institutions as shall rigidly adhere to the recommendations herein contained.

A report was also read on the preliminary education of students of medicine, and the following resolutions received the sanction of the Convention:—

*Resolved*, That this convention earnestly recommends to members of the medical profession throughout the United States to satisfy themselves, either by personal inquiry or the written certificate of competent persons, before receiving young men in their offices, as students, that they are of good moral character, and that they have acquired a good English education, a knowledge of natural philosophy, and the elementary mathematical sciences, including geometry and algebra, and such an acquaintance, at least, with the Latin and Greek languages as will enable them to appreciate the technical language of medicine, and read and write prescriptions.

*Resolved*, That this convention also recommends to the members of the medical profession of the United States, when they have satisfied themselves that a young man possesses the qualifications specified in the preceding resolution, to give him a written certificate, stating that fact, and recording also the date of his

admission as a medical student, to be carried with him as a warrant for his reception into the medical college in which he may intend to complete his studies.

*Resolved*, That all the medical colleges in the United States be, and they are hereby recommended and requested to require such a certificate of every student of medicine applying for matriculation; and when publishing their annual list of graduates, to accompany the name of the graduate with the name and residence of his preceptor, the name of the latter being clearly and distinctly presented, as certifying to the qualification of preliminary education.

A report on a code of medical ethics to govern the Profession generally, was read and adopted.

On the third day of session, a report on the organization of an American Medical Association was, after a good deal of discussion, adopted; while the subject of the separation of licensing from teaching by the same persons, after a debate of great interest, was referred to a committee to report at the next meeting of the Association. The Convention finally resolved itself into the American Medical Association, and the following gentlemen were returned by a committee selected for the purpose as its officers—Dr. Chapman of Philadelphia, President; Drs. Knight of Newhaven, Stevens of New York, Moultrie of S. Carolina, and Buchanan of Tennessee, as Vice-Presidents; Drs. Stillé of Philadelphia, and Dunbar of Baltimore, Secretaries; and Dr. Hays of Philadelphia, Treasurer. The next meeting is to be held in Baltimore. The whole proceedings were characterized by good feeling and sincerity of purpose. We regret to see, however, that our esteemed Boston contemporary, is beginning first to roll the ball of opposition against the six months lecture terms. The terms in this country and in Great Britain are generally six months for all the important branches of medical education; and, considering that our climate is just as fickle as that of New England, we have no difficulty in completing it; nor are we aware that the lecturers or the students "loathe the sight" of each other, albeit we have experience in the matter ourselves. The great advantage of the six over the three months' courses resides in this, that the branches must be more efficiently, because more minutely, taught—an inducement quite sufficient, we should think, for students who desire something more than a mere superficial acquaintance with the various branches, and who study not for the degree, but for practice, and seek for minute knowledge, that they may be the better prepared for the active and responsible duties in which they are to engage. Although, however, it may be retorted upon us, that this is a point in which we have no right to interfere,—and we are sensible of the delicacy of our position,—we cannot help thinking that the institutions which carry out the resolutions of the Convention in this matter, will, so far from "drooping and dying," on the contrary be well supported by the community, upon the grounds which we have advanced. Will our contemporary excuse this difference of opinion with him, on this important subject?

*Coalition between the Faculty of Medicine of M'Gill College, and the Incorporated School of Medicine.*—A coalition has taken place between these hitherto rival institutions, which will secure to both parties great advantages, and be the means of conferring great benefits on the Franco-Canadian medical students of this Province. They have urged, and not without some shadow of propriety, that being unable to appreciate lectures on medical science, delivered in the English language, they were debarred from profiting by those delivered at the University, and were consequently shut out from graduating in medicine, in this colony, in the only institution capable of conferring degrees. The coalition has removed this impediment; and in order to secure the object, the tickets of the lecturers of the School of Medicine will be acknowledged by the University, and their students may graduate upon the fulfilment of the simplest University regulation—that of completing one *annus medicus* in the University, the examination for the degree being moreover conducted in the College Hall by the Lecturers of the School of Medicine themselves, and in the French language. Although this coalition has been effected, the two institutions are yet perfectly distinct; the Faculty of Medicine of the College, being nominally the English lecturers under the charter of the School of Medicine, while University privileges are extended to the tickets of the lecturers of the same institution who will restrict themselves to the French language. The *Lancette Canadienne* has announced that Dr. H. Nelson has resigned his lectureship of Anatomy in the School of Medicine. The arduous duties which devolved on him from the delivery, during the session, of two courses on Anatomy, one in French and the other in English, proving too much for his physical capability, a resignation that gentleman's part was contemplated, but, in consequence of the coalition, he continues his charge, which he has hitherto carried on with such credit to himself and advantage to his class. Our contemporary does not appear to have been fully informed on this subject.

As far as regards the coalition of the Schools, we have been informed by several of the most respectable of the Canadian practitioners in this city, that the measure has given general satisfaction.

*Action for Slander.*—Our readers may recollect that in the number of this Journal for November, 1845, we noticed the report of an action at the Gore District Assizes, for slander, in which Dr. Alfred Digby, and Dr. Marter, figured respectively as plaintiff and defendant, when a verdict was obtained by the former of £25 damages. Very recently a copy of the *Hamilton Spectator*, of May 5, 1847, has been handed to us, in which we find the full report of another action for the same offence—at the same assizes—and between the same litigious gentlemen—with the mere difference of change of position—Dr. Marter, Plaintiff, and Dr. Digby, Defendant; in which damages were given in favour of the plaintiff to the amount of **£125** 1s. The circumstances of this case are briefly as follow:—A boy of the name of Alex. Sharpe, in falling from a tree fractured his femur above the condyles. Dr. Marter was called in, and, recognising the injury, with a splint and bandage adjusted the fractured extremities of the bone. Reaction did not set in; but, after directing the limb to be kept cool by an evaporating lotion of whisky and water; stating, moreover, his

intention of obtaining a fracture box for the limb, prepared for the next morning, he left with the instruction, that when the boy awoke, if suffering pain, he would require to be bled; and that for that purpose they might advise him, or get some one else to do it as he lived at a distance of five miles. So much for Dr. Marter's action in the matter. To exhibit Dr. Digby's conduct in the affair, we will quote from the report of the trial itself the evidence as given by the boy's mother.

In about half an hour, Dr. Digby came: there was no person present then save witness's mother and herself. He enquired if Dr. Marter had been there, and what he had done: he further enquired if the boy had been bled—said that Marter should have bled the boy himself: enquired what was the matter with the boy, to which witness replied, in Dr. Marter's words, that it was a displacement of the bones near the knee joint.—is sure she told this to Dr. Digby, who immediately said, that Marter should have got the fracture box made, and placed the limb into it before he left. Dr. Digby proposed to go and procure the box, to which witness at first objected, as Dr. Marter promised to have it there on the following morning; but she afterward said, that if he could do any thing for the boy he might do it. Witness enquired what she would do with Dr. Marter, who had already been there, and would be repeating his visits, to which Dr. Digby replied "never mind, I'll fix that." He also told her that Dr. Keist would be there in a few minutes, and that she could have her choice of the three: supposes he meant Marter, Keist, and himself. This was before the boy was bled: Dr. Marter had left orders to have him bled, if he awoke in pain, he was asleep when Dr. Digby came; when Digby said that Dr. Marter should have bled the boy, witness said if he has done wrong, take the boy and do the best you can for him.

When Dr. Keist arrived, he asked what was the matter with the boy, and Dr. Digby said it was dislocation of the patella, (knee-pan) he had not examined the limb nor removed the bandages when he said this. Both the Doctors left together to procure the fracture box, returned in about 2 hours, brought the box and some cotton wadding. After they left, the boy felt pretty easy for about half an hour, when he began to feel great pain, continued to get worse during the night, witness did not observe the shape of the limb after Dr. Digby left. Dr. returned on the following day late in the afternoon, the boy always suffering great pain in the limb, the Dr. slit open the bandage all the way up, and it fell off into the box Does not recollect that he examined the limb at that time; did not apply any other bandage or splints; ordered the leg to be kept wet with whiskey and water; said nothing of the nature of the injury; called again in 2 or 3 days, boy in great pain all the time, his leg and thigh very much swollen. The Dr. lifted it out of the box and laid it on a pillow, then lightened the cotton wool, and replaced the limb in the box again; put on no bandage nor splints; called again in about three days, the limb then seemed distorted, was indented on one side—the same treatment was continued. The Dr. called every two or three days for 21 days and always took the limb out of the box and lightened the wadding. He then took the limb entirely from the box and laid it on a pillow, it seemed quite crooked, and was hollow on one side, near the knee, Dr. said it was getting strong and the box was of no more use, and that he would be able to step on it in about 8 weeks The Dr. called again at the request of witness's husband, to whom he admitted that the bone of the boy's thigh was broken; witness and her husband requested him to break the bone over again and set it straight. Dr. said he could not as the fracture was so near the knee; he said, "that's the way that d——d Marter always sets his bones." This was ten or twelve days after the leg was finally taken out of the box. Witness understood by Dr. Digby's observation, that Dr. Marter had not set the bones right. Digby left, said there could be nothing done. The boys leg was quite useless:—it continued crooked: the swelling had abated: The boy was attacked with scarlet fever about a month afterward. Dr, Digby was called in to attend him, witness asked him to look at the boy's thigh, he did so, but said the boy's constitution could not stand an operation. Applied to Dr. Craigie on the same subject, and afterward to Dr. Parke of Simcoe.

Having thus presented our readers with an insight into the nature of the grounds for the action, we have now to state, that we envy not the notoriety or the position which Dr. Digby and Dr. Marter assume towards the profession. That a rankling and unworthy jealousy of each other is at the bottom of the two actions cannot be doubted. Neither of them is free from the imputation of having grossly violated the plainest rules of medical ethics, and it would be well, if the effects of such conduct could be restricted to the parties concerned alone. But, while the profession of medicine, as a profession, suffers to a certain extent in its character, in consequence of such unseemly quarrels, we must take this opportunity of stating, that such cases are exceedingly rare with us, and that Drs. Digby and Marter stand alone, in all the glory, which such exhibitions can possibly secure to them. We consider the whole proceedings as disgraceful to the parties concerned, and as casting a stain on the annals of the profession of this Province.

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*The Quarantine at Grosse Isle.*—If this establishment was ever of use, which we much doubt when we consider its origin, that use is unquestionable now. A very large immigration is daily arriving, with an unusual amount of sickness; one vessel losing as many as 70 on the passage alone. The principal diseases are small-pox and typhus, of the latter of which the ship fever is a malignant modification. By a letter received from Dr. Douglas, the medical officer, we learn that there are 700 sick at the present moment on the island. The duties proving too onerous for one, he has lately received the assistance of three other physicians. Tents have been sent down for the accommodation of 10,000 persons; and infected vessels are compelled by an order of Council to serve a quarantine of ten days, during which a thorough ventilation and cleansing are at the same time effected.

As far as this city is concerned precautionary measures are being adopted. Although we may be permitted to doubt whether we will have during the summer more than the average of typhus which prevails among the immigrants, yet prudence has caused the erection of temporary hospitals at the "sheds" for the especial accommodation of such fever cases as may arrive at our port.

We have heard of an attempt to form a Board of Health for the city; we think that such a scheme is a praiseworthy one, and hope that it will be soon organised. It was our intention to have devoted some space to the consideration of the general hygienic measures which should be adopted in the city, but our limits prevent anything more than a mere allusion to it at present. We may probably take this subject up in our next.

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*Resident Physician at the Beauport Lunatic Asylum.*—We are happy to learn that Dr. Von Iffland, lately of Yamaska, has received the above appointment. A resident medical officer, at this institution, which is situated several miles from the city of Quebec, was imperatively required, and we are glad that a selection has been made of one, who, from his well known talents, is so well qualified to discharge with ability the important trust confided to him.

*Convocation at M'Gill College.*—At a convocation of this College, held on the 26th instant, the following gentlemen were admitted to the degree of Doctor of Medicine and Surgery. Opposite to the name of each is the subject of the thesis, composed in compliance with the regulation of the University:—

| | | |
|---|---|---|
| James Duncan Macdiarmid, | Prescott, | Iodine. |
| Peter A. M'Dougall, | Cornwall, | Amenorrhœa and Dysmenorrhœa. |
| William Mayrand, | River du Loup, | Peritonitis. |
| Peter Warren Dease, | Montreal, | Scarlatina. |
| William H. Browse, | Matilda, C.W., | Pericarditis. |
| Alphonse B. Larocque, | Beauharnois, | Variola. |
| John Fisher, | Montreal, | Bronchitis. |
| Alexis Pinet, | Varrennes, | Hernia. |
| Samuel B. Schmidt, | Montreal, | Labour. |
| William Irwin Breslin, | Kingston, | Gonorrhœa. |

The Honorary degree was afterwards, by a unanimous *placet*, conferred on James Douglas, Esq., of Quebec; Christopher Widmer, Esq., of Toronto; and James Samson, Esq., of Kingston.

*Natural History Society,*—At the Annual Meeting of the Natural History Society, held on Tuesday Evening May 18, 1847, the following gentlemen were elected office-bearers for the ensuing year:—

President—Dr. David,
1st Vice-do—Dr. S. C. Sewell.
2nd Vice-do—W. M. B. Hartley, Esq.
3rd Vice-do—J. H. Joseph, Esq.
Corresponding Secretary—Dr. W. Fraser.
Recording Secretary—Dr. C. H. Payn.
Treasurer—A. Larocque, Esq.
Librarian and Cabinet Keeper—T. S. Hunt, Esq.

COUNCIL.

Dr. Crawford. Jno. Ostell Esq.,
E. L. Montizambert, Esq., Geo. Futvoye, Esq.,
W. C. Crofton, Esq.

*Distribution of Prizes at McGill College.*—The following Prizes were awarded by the Lecturers in the following branches in the Faculty of Medicine of McGill College, at the close of the present term:—

INSTITUTES OF MEDICINE.

Senior Prize—Mr. R. P. Howard.
Junior do —Mr. Christie.

MATERIA MEDICA.

Senior do —Mr. Wm. Mayrand.
Junior do —Mr. R. P. Howard.

CHEMISTRY.

Senior do —Mr. Wm. Wright.
Junior do —Mr. R. P. Howard.

*Medical Board of the Montreal General Hospital*—At a meeting of the Board of Governors of this institution, held on the 11th inst., the medical staff of this institution was increased to the number of twelve, by the election of the six following gentlemen:—Drs. Arnoldi, Badgley, Sutherland, M'Culloch, Fraser, and Scott. The medical staff now, stands as follows:—Consulting Physician, A. F. Holmes. M.D.: Attending Physicians, O. T. Bruneau, M.D.; A. Hall, M.D.; G. W. Campbell, M.D.; J. Crawford, M.D.; S. C. Sewell, M. D.; R. S. MacDonnell, M. D.; Francis Badgley. M.D.; F. C. T. Arnoldi, M.D.; W. Sutherland, M.D.; M. M'Culloch, M.D.; W. Fraser, M.D.; and W. E. Scott, M.D. Dr. George E. Fenwick, was appointed apothecary to the institution, in room of Dr. G. D. Gibb, who retires.

*Canada Botanic Medical Examiner.*—We notice in one of our exchanges, the *Canada Christian Advocate*, published at Cobourg, the Prospectus of a semi-monthly Journal, to be published in that city under the foregoing title, "to be devoted to the improvement of medical science! and the exposition, defence, and advancement of the botanic, or reformed medical principles and practice!!" We are moreover informed that it is to be published at the rate of one dollar per annum *in advance*, and is to be edited by Richard H. Clark, editor and proprietor. We think, from experience, that Richard H. Clark is quite right in demanding *pre-payment* for his *scientific* Journal, and as we are fond of curio-ities, and think ourselves not so well crammed with knowledge, as to be yet above learning, we shall be happy to receive a specimen of his forth coming work. One thing strikes us as not a little singular, and it is this, that the Prospectus, as far as we have seen, is honoured only by notice in the *Christian Advocate*, although it winds up with the following significant clause—"all editors throughout the country favourable to this enterprise, will please give this Prospectus a few insertions, and their *kindness will be reciprocated when occasion may require.*" This is really rich; but it does not appear to attract, cash being preferred to Lobelia and Cayenne, which Richard H. Clark doubtless has found to be "the unkindest cut of all."

*T. Hooker & Co., Herbalists, &c.*—Montreal is evidently advancing in civilization, and as a proof of it, we insert the following, as well for the benefit of T. Hooker & Co., as for that of suffering humanity. T. H. & Co. evidently seek notoriety, and we shall indulge them in their laudable desire for it. The secluded spot on which they "waste their sweetness" is, we have been informed, the Quebec Suburbs. *We* will spread their fame and their renown over the continent. It were a pity that a "pent-up Utica should contract their powers," or that their matchless skill should be wasted on such a plebeian district:—

T. HOOKER & Co., Herbalists, from London, take this opportunity of returning their respectful acknowledgments to the inhabitants of Montreal and its vicinity, for the liberal support they have received since they commenced business at No. 8, Notre Dame Street, near Dalhousie Square.

Their almost unparalleled success in the removal of numberless distressing Chronic Diseases, which have long baffled some of the most eminent of the faculty, has hitherto insured them the most liberal encouragement. They are happy to state that they can give a great number of references to persons from whom they have been successful in removing the most obstinate and distressing diseases of every description, by Herb or Vegetable Medicine, particularly those incident to Females and Children of every age.

That distressing Disease, SCROFULA or KING'S EVIL, they will effectually cure, without the use of Calomel or any deleterious Drug. No person afflicted with this disease ought to neglect any opportunity of having it eradicated, as it is likely to run from generation to generation.

Family Vegetable Pills for Bile, Head-ache, Flatulency, Heartburn, &c. Cough and Consumption Pills for Asthma and Short-

*Licentiates of the Medical Boards.*—Montreal, May 1,—His Excellency the Governor General has been pleased to grant a License to James John Dickenson, Esquire, M. D., to enable him to practise Physic, Surgery and Midwifery in that part of the Province of Canada heretofore called Lower Canada.

Montreal, May 8.—His Excellency the Governor General has been pleased to grant Licenses to John Mahaffy, of West Gwillimbury, Surgeon, and John A. Harvey, of Kingston, Gentleman, to practice Physic, Surgery and Midwifery in and throughout the Province of Canada.

Montreal, May 24.—His Excellency the Governor General has been pleased to grant Licenses to John Clarke, William Cox Allen, Jay Clinton Butler, Agapite Douaire Bondy, John E. Johnstone, John W. Montgomery, John Thompson Newton, David P. Yeomans, Esquires, to enable them to practise Physic, Surgery and Midwifery in that part of the Province of Canada heretofore called Lower Canada.

Montreal, May 29.—His Excellency the Governor General has been pleased to grant a License to Dr. Henry Lord, of Lacolle, to practise Physic, Surgery and Midwifery in this Province.

## *NOTICE TO CORRESPONDENTS.*

*We have received the letter of "A Student," reflecting upon the remarks of the Lancette Canadienne on the late appointments to the Montreal General Hospital. We decline publishing the letter, as the author has not furnished his name, although we approve of the principles which it avows. We must confess that there is no pleasing some parties. Perhaps the editor of the Lancette Canadienne will condescend to inform the public, and ourselves, on what substantial grounds the governors should have elected a medical officer with a Canadian name, for their offence appears to consist in this. He may, perhaps, be able also to enlighten the public in the particular sums or amounts contributed to the funds of the hospital by the Canadian population of this city; and should it appear that the Canadian public, in proportion to their numbers, contribute almost nothing, we should like much to know on what particular grounds the Canadian physicians of the city should receive any very great amount of consideration at the hands of the governors. That they do receive some, and their share, is clear. The late Dr. Vallee was, and Dr. Bruneau is, a Canadian; and the appointment of Drs. Badgley, Arnoldi, and Sutherland, are from a school, supported in an especial manner, by the Canadians. The election of these, we should have supposed, would have satisfied every scruple, and was, indeed, an act of homage to the party by which they are sustained, and which they may be fairly said to represent. But the Lancette Canadienne has scruples which nothing but Canadian names can overcome. We regret much to perceive the attempt to foster national antipathies on the part of our contemporary; and we think that his calmer judgment must condemn the insinuated motives of an improper character, which he supposes swayed the governors of the hospital in their late election. The insinuation of "low intrigues" will be found, if our contemporary examines well his position, unworthy of it, and the elevated end for which the Lancette was, at least ostensibly, commenced. We regret to be compelled to condemn our contemporary in the course he has chosen to adopt in this matter.*

*We acknowlege, also, the receipt of a communication from Dr. Gosset, (Toronto,) and from Professor Croft, a second paper, being part second of his "Critical Remarks." Dr. Rees's request is complied with.*

## REPORT OF THE MONTREAL GENERAL HOSPITAL FOR MARCH AND APRIL, 1847.

DR. CRAWFORD AND DR. MACDONNELL, Attending Physicians.

| | | | |
|---|---|---|---|
| Remained, | 101 | Discharged cured, | 170 |
| Admitted, | 150 | Irregular, | 1 |
| | | Died, | 8 |
| Total treated, | 251 | Remaining, | 82 |
| | | Total, | 251 |
| IN-DOOR PATIENTS. | | OUT-DOOR PATIENTS. | |
| Belonging to Montreal, | 136 | Belonging to Montreal, | 315 |
| Immigrants, | 14 | Immigrants, | 17 |
| Seamen, | 0 | Seamen, | 0 |
| Total, | 150 | Total, | 332 |
| Males, | 81 | Males, | 174 |
| Females, | 69 | Females, | 158 |
| Total, | 150 | Total, | 332 |

DISEASES AND ACCIDENTS.

| | | | |
|---|---|---|---|
| Abscessus, | 1 | Lumbar Abscess, | 1 |
| Acne, | 1 | Lepra Vulgaris, | 1 |
| Ambustio, | 1 | Lagatoma, | 1 |
| Amenorrhœa, | 2 | Malingering, | 1 |
| Anasarca, | 1 | Marasmus, | 1 |
| Apthœ, | 1 | Monomania, | 1 |
| Bronchitis, | 5 | Morbus Brightii, | 1 |
| Bronchocele, | 1 | " Cordis, | 2 |
| Bubo, | 1 | Mucous Pastules, | 1 |
| Bursitis, | 1 | Neuralgia, | 1 |
| Caries, | 3 | Œdema, | 1 |
| Catarrhus, | 1 | Ophthalmia, | 7 |
| Cerebritis, | 1 | Palpitatio Cordis, | 1 |
| Conjunctivitis | 1 | Paronychia, | 1 |
| Constipatio, | 1 | Periostitis, | 2 |
| Contusio, | 3 | Pityriasis, | 1 |
| Chlorosis, | 2 | Pleuritis, | 1 |
| Debilitas, | 3 | Pleurodynia, | 1 |
| Dysenteria, | 1 | Phagadena, | 1 |
| Dyspepsia, | 5 | Prolapsus, | 1 |
| Ectropion, | 1 | Prurigo, | 3 |
| Epilepsia, | 2 | Phthisis, | 2 |
| Erysipelas, | 1 | Pneumonia, | 4 |
| Erythema, | 1 | Porrigo Favosa, | 1 |
| Febris Com. Cont., | 25 | " Furfurans, | 1 |
| " Intermit, | 1 | Purpura, | 3 |
| " Typhus, | 5 | Rheumatismus, | 5 |
| Fractura, | 4 | Scarlatina, | 2 |
| Gastritis, | 1 | Schirrhus, | 1 |
| Gelatio, | 2 | Scrofula, | 1 |
| Gestatio Uterina, | 1 | Subluxatio, | 2 |
| Hemorrhois, | 1 | Synovitis, | 1 |
| Hepatitis, | 1 | Syphilis | 3 |
| Hydrocele, | 1 | Ulcus, | 6 |
| Icterus, | 2 | Vulnus, | 1 |
| Iritis, | 1 | Total, | 150 |

ALEX. LONG, M.D., House-Surgeon.

## Bill of Mortality for the City of Montreal, for the month ending April 31, 1847.

| Diseases | | Male. | Female. | Total. | Under 1. | 1 & under 3 | 3 — 5 | 5 — 10 | 10 — 15 | 15 — 25 | 25 — 35 | 35 — 45 | 45 — 55 | 55 — 75 | 75 upwards |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Epidemic or Infectious, | Small Pox, | . | 2 | 2 | . | . | . | 2 | . | . | . | . | . | . | . |
| | Scarlatina, | 3 | . | 3 | . | 2 | . | . | 1 | . | . | . | . | . | . |
| | Measles, | 1 | 1 | 2 | . | 2 | . | . | . | . | . | . | . | . | . |
| | Fever, | 4 | 6 | 10 | 4 | 3 | . | . | . | . | 1 | 1 | . | 1 | . |
| Diseases of Brain and Nervous System, | Convulsions, | 1 | 5 | 6 | 3 | 3 | . | . | . | . | . | . | . | . | . |
| | Dentition, | 5 | 5 | 10 | 3 | 7 | . | . | . | . | . | . | . | . | . |
| | Apoplexy, | 2 | 1 | 3 | . | . | . | . | . | . | . | . | . | 3 | . |
| | Paralysis, | . | 1 | 1 | . | . | . | . | . | . | . | . | . | . | 1 |
| | Water on Brain, | 1 | . | 1 | 1 | . | . | . | . | . | . | . | . | . | . |
| Diseases of Respiratory Organs, | Consumption, | 17 | 16 | 33 | 6 | . | 1 | 1 | . | 6 | 5 | 6 | 5 | 3 | . |
| | Croup, | 2 | 3 | 5 | 1 | 2 | 1 | 1 | . | . | . | . | . | . | . |
| | | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| | | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| Diseases of Abdominal Viscera, | Dropsy, | 2 | 2 | 4 | . | . | . | . | . | . | . | 1 | . | 3 | . |
| | Jaundice, | 1 | . | 1 | . | . | . | . | . | . | . | . | . | 1 | . |
| | | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| | | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| | | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| Other causes and Diseases, and Diseases not specially designated, | Still-born, | . | 2 | 2 | 2 | . | . | . | . | . | . | . | . | . | . |
| | Inflammation, | 4 | 10 | 14 | 8 | 1 | . | 1 | . | 2 | . | 1 | . | 1 | . |
| | Unknown, | 4 | 1 | 5 | 2 | 1 | . | . | . | . | . | 1 | . | 1 | . |
| | Debility, | 2 | 3 | 5 | . | . | . | . | . | . | . | . | . | . | 5 |
| | Accidental, | . | 1 | 1 | . | . | . | . | . | . | . | 1 | . | . | . |
| | Sudden Death, | . | 1 | 1 | . | . | . | . | . | . | 1 | . | . | . | . |
| | | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| | Total, | 49 | 60 | 109 | 30 | 21 | 2 | 5 | 1 | 8 | 7 | 11 | 5 | 13 | 6 |

## MONTHLY METEOROLOGICAL REGISTER AT MONTREAL FOR APRIL, 1847.

| Date. | Thermometer. | | | | Barometer. | | | | Winds. | | | Weather. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 A.M. | 3 P.M. | 10 P.M. | Mean. | 7 A.M. | 3 P.M. | 10 P.M. | Mean | 7 A.M. | Noon. | 6 P.M. | 7 A.M. | 3 P.M. | 10 P.M |
| 1, | +11 | +55 | +20 | +33.– | 29.86 | 29.95 | 29.80 | 29.87 | N. W. | N. W. | N.W. | Fair | Fair | Fair |
| 2, | " 20 | " 45 | " 31 | " 32.5 | 29.60 | 29.47 | 29.49 | 29.52 | N. W. | N. W. | N. E. | Fair | Snow | Fair |
| 3, | " 30 | " 43 | " 35 | " 36.5 | 29.49 | 29.54 | 29.59 | 29.54 | N. E. | W. | W. | Fair | Fair | Fair |
| 4, | " 31 | " 53 | " 34 | " 42 – | 29.59 | 29.41 | 29.45 | 29.48 | W. | S. WbyW. | N. E | Fair | Fair | Sleet |
| 5, | " 36 | " 50 | " 36 | " 43.– | 29.57 | 29.73 | 29.76 | 29.69 | W. | W. | S. W. | Fair | Fair | Fair |
| 6, | " 38 | " 41 | " 37 | " 39.5 | 29.70 | 29.47 | 29.37 | 29.51 | S. | S. by E. | S. by E. | Fair | Rain | Rain |
| 7, | " 43 | " 50 | " 41 | " 46.5 | 29.30 | 29.42 | 29.62 | 29.45 | W. | W. | W. | Fair | Rain | Fair |
| 8, | " 42 | " 45 | " 36 | " 43.5 | 29.62 | 29.43 | 29.31 | 29.50 | W. | S. | S. | Fair | Rain | Rain |
| 9, | " 37 | " 47 | " 37 | " 42.– | 29.33 | 29.50 | 29.51 | 29.45 | S. S. W. | S. S. W. | W. | Snow | Fair | Fair |
| 10, | " 38 | " 45 | " 34 | " 41.5 | 29.25 | 29.14 | 29.48 | 29 29 | W. | W. | N. E. | Snow | Rain | Cloudy |
| 11, | " 25 | " 38 | " 31 | " 31.5 | 29.46 | 29.52 | 29.59 | 29.52 | W. N. E. | W. | W. | Fair | Fair | Fair |
| 12, | " 34 | " 37 | " 34 | " 35.5 | 29.50 | 29.35 | 29.43 | 29.43 | N. W. | W. | W. by S | Fair | Snow | Cloudy |
| 13, | " 29 | " 51 | " 33 | " 40.– | 29.58 | 29.65 | 29.63 | 29 62 | W. | W. | W. | Fair | Fair | Fair |
| 14, | " 40 | " 48 | " 37 | " 44.– | 29.57 | 29.58 | 29.61 | 29.59 | S. W. | W. | W. by S. | Fair | Fair | Fair |
| 15, | " 29 | " 49 | " 30 | " 39.– | 29.60 | 29.60 | 29.58 | 29.59 | N. E | N. E. | N. E. | Snow | Fair | Fair |
| 16, | " 28 | " 42 | " 34 | " 35.– | 29 58 | 29 57 | 29.56 | 29.57 | W. | W. | W. | Fair | Fair | Fair |
| 17, | " 36 | " 43 | " 31 | " 39.5 | 29.34 | 29.43 | 29.42 | 29.10 | W. S. W. | W. | W. | Snow | Fair | Fair |
| 18, | " 21 | " 32 | " 23 | " 26 5 | 29.54 | 29 86 | 30.00 | 29.80 | NW by W | N Wbv W | N WbyW | Snow | Fair | Fair |
| 19, | " 24 | " 45 | " 37 | " 34.5 | 29 80 | 29.89 | 29,90 | 29.86 | S. W. | S. W. | S. W. | Fair | Fair | Fair |
| 20, | " 38 | " 53 | " 39 | " 45.5 | 29.90 | 29.89 | 29 87 | 29.89 | W. | W. | W. | Fair | Fair | Fair |
| 21, | " 37 | " 40 | " 34 | " 38 5 | 29.67 | 29 56 | 29.66 | 29.63 | N WbyW. | N WbyW. | N.W.byN | Rain | Rain | Cloudy |
| 22, | " 34 | " 43 | " 38 | " 38.5 | 29.64 | 29.74 | 29.83 | 29.74 | N. | N. E. | N. E. | Rain | Cloudy | Cloudy |
| 23, | " 34 | " 42 | " 34 | " 38.– | 29.85 | 29 95 | 30 00 | 29.93 | N. E. | N. E. | N. E. | Snow | Fair | Fair |
| 24, | " 31 | " 52 | " 36 | " 41.5 | 30.09 | 30.05 | 30.01 | 30 02 | N.E by E | N.E.by E. | N.E.by E | Fair | Fair | Fair |
| 25, | " 37 | " 56 | " 46 | " 46.5 | 30.00 | 29.72 | 29 59 | 29.77 | S. | S. | W by S. | Fair | Fair | Fair |
| 26, | " 46 | " 58 | " 43 | " 52.– | 29.47 | 29.43 | 29.57 | 29.49 | W. | W. | W. | Fair | Fair | Fair |
| 27, | " 42 | " 35 | " 27 | " 38.5 | 29.36 | 29 55 | 29.70 | 29.54 | N. W. | N. W. | N. W. | Rain | Fair | Cloudy |
| 28, | " 30 | " 41 | " 34 | " 35 5 | 29.69 | 29.77 | 29.73 | 29.73 | N. W. | N. W. | N. W. | Fair | Fair | Fair |
| 29, | " 30 | " 43 | " 35 | " 36.5 | 29.17 | 29.40 | 29.44 | 29.44 | W. | N. E. | N.WbyW. | Fair | Rain | Fair |
| 30, | " 37 | " 53 | " 36 | " 45.– | 29.43 | 29.51 | 29.65 | 29.53 | W. | W. | W. by N. | Fair | Fair | Fair |

Therm. { Max. Temp., +58° on the 26th.
Min. " +11° " 1st.
Mean of the Month, 39°,36.

Barometer, { Maximum, 30 09 Inches on the 24th.
Minimum, 29.14 " " 10th.
Mean of Month, 29.613 Inches.

# MONTHLY METEOROLOGICAL REGISTER AT H.M. MAGNETICAL OBSERVATORY, TORONTO, C. W.—APRIL, 1847.

*Latitude* 43°. 39′.4. *N. Longitude* 79°. 21′.5. *W. Elevation above Lake Ontario*, 108 *Feet.*

| Day. | Barometer at Temp. of 32°. | | | | Temperature of the Air. | | | | Wind. | | | Rain in. on surf. | Weather. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 A.M. | 3 P.M. | 10 P.M. | Mean. | 7 A.M. | 3 P.M. | 10 P.M. | Mean | 7 A.M. | 3 P.M. | 10 P.M. | | |
| 1, | 29.914 | 29.715 | 29.517 | 29.684 | 14.1° | 32.5° | 30.1° | 28.1 | Calm. | E. by S. | E. by S. | * | Clear to 7 am. Halo round sun 9 am. |
| 2, | 29.420 | 29.441 | — | — | 37.1 | 37.2 | — | — | Calm. | W. N. W. | —— | — | Snowing from 6 pm to midnight. |
| 3, | 29.588 | 29.581 | 29.565 | 29.615 | 31.2 | 40.5 | 30.0 | 35.8 | Calm. | Calm. | Calm. | — | Clouded all day. |
| 4, | 29.457 | 29.350 | — | — | 38.2 | 40.5 | — | — | E. | Calm. | —— | — | Gen. cl'd. Auroral light 9 pm. |
| 5, | 29.743 | 29.767 | 29.617 | 29.643 | 35.9 | 39.1 | 35 3 | 37.5 | Calm. | E. by S. | E. by N. | — | Light passing clouds. |
| 6, | 29.279 | 29.073 | 29.326 | 29.260 | 38.0 | 48.0 | 41.5 | 43.0 | E. by N. | E. by S. | W. by S. | 0.055 | Unclouded to 7 am. Rem. overcast. |
| 7, | 29.531 | 29.627 | 29.665 | 29.620 | 41.8 | 55.1 | 37.2 | 44.0 | W. | W. | Calm. | 0.015 | Cl'd. L'tng & r'n 1 to 6 am & 2 to 9 pm |
| 8, | 29.575 | 29.264 | 29.401 | 29.414 | 41.1 | 55.3 | 40.5 | 44.9 | E. | Calm. | N. by W. | — | Cl'd am. Uncl'd pm. Aurora from 7 pm |
| 9, | 29.659 | 29.616 | 29.466 | 29.5?9 | 34.5 | 45.9 | 36.2 | 39.3 | N. N. W. | S. by W. | S. W. | not ap | O'rc't. Halo 2 pm. Slight rain 7 and 8 pm. Auroral light 11 pm. |
| 10, | 29.341 | 29.458 | 29.626 | 29.441 | 43.7 | 43.8 | 35.8 | 40.4 | W. N. W. | N NW 2.5 | Calm. | — | Generally clear. Very fine day. |
| 11, | 29.772 | 29.690 | — | — | 34.2 | 41.3 | — | — | N.W. | S. by W. | —— | — | Mostly cl'd to 6 pm. Clear from 8 pm |
| 12, | 29.301 | 29.510 | 29.675 | 29.554 | 35.7 | 47.0 | 35.6 | 39.6 | E. | NWbyW" | Calm. | — | Clear am. Clouded pm. |
| 13, | 29.747 | 29.627 | 29.580 | 29.648 | 36.0 | 45.3 | 35.3 | 39.0 | S W by S. | S. S. W. | Calm. | — | Clouded to 8 am. Rem l't pass. cl'ds. |
| 14, | 29.683 | 29.598 | 29.574 | 29.615 | 34.6 | 45.1 | 35.0 | 38.3 | Calm. | E. S. E. | N. by W. | — | Gen. cl'r. Light haze. Very fine day. |
| 15, | 29.632 | 29.661 | 29.722 | 29.687 | 32.2 | 38.1 | 28.6 | 31.7 | W. N. W. | N. | N. by W. | 0.040 | Mostly cl'd. R'ng sl'tly from 9 to 11 pm |
| 16, | 29.740 | 29.465 | 29.375 | 29.492 | 28.7 | 35.6 | 33.2 | 34.2 | N W by W | S SW. 2 0 | Calm. | — | Detach cl'ds gen. Hail shower at noon |
| 17, | 29.452 | 29.546 | 29.711 | 29.668 | 32.6 | 32.2 | 23.4 | 30.0 | N.W. | WNW 2.0 | N. W. 3.5. | — | Cl'r to 8 am. Rem cl'd. Sl't sn. 2 & 3 pm |
| 18, | 30.077 | 30.058 | — | — | 20.8 | 31.0 | — | — | N.W. | S. W. | —— | — | Cl'd to 6 pm. Rem cl'r. Part. of sn. 7 pm |
| 19, | 29.972 | 29.836 | 29.852 | 29.872 | 30.6 | 43.9 | 36.3 | 36.5 | W. S. W. | S. W. | Calm. | — | Detach. cl'ds am. Cl'r & uncl'd pm. |
| 20, | 29.837 | 29.740 | 29.628 | 29.685 | 35.2 | 43.1 | 43.9 | 42.2 | Calm. | S. E. | E. by S. | — | Dens. cl'd to 2 pm. Rem. part. cl'd |
| 21, | 29.540 | 29.499 | 29.522 | 29.516 | 41.0 | 65.0 | 59.1 | 55.1 | Calm. | W. S. W. | N. | 0.150 | Aurora light 1 to 4 am. Thunder, lightning and rain from 7 pm. |
| 22, | 29.592 | 29.682 | 29.709 | 29.695 | 49.5 | 45 1 | 40.1 | 43.5 | S. E. | N. W. | N.N.E. | 0.760 | Dens. o'rct. R'n, thun. & l'ng am & pm |
| 23, | 29.884 | 29.938 | 29.970 | 29.951 | 35.6 | 45.5 | 31.9 | 35.8 | N.E.by N. | N. W. | Calm. | 1.070 | Th, l'tng & r'n to 3 am. R'ng from 9 am |
| 24, | 30.005 | 30.006 | 29.978 | 29.882 | 33 7 | 44.2 | 33.4 | 40.5 | N. | S. S. E. | Calm. | — | Raining slightly to 4 am. Clouded to 2 pm. Remainder clear. |
| 25, | 29.886 | 29.664 | — | — | 43.3 | 51.2 | — | — | S. by E. | S. by E. | —— | — | Uncl'd. Hazy round hor. Very fine day |
| 26, | 29.490 | 29.407 | 29.225 | 29.320 | 48.7 | 56.1 | 44.1 | 50.3 | Calm. | S. | Calm. | — | Gen. clear. L't cl'ds dispersed. Fine. |
| 27, | 29.190 | 29.449 | 29.523 | 29.446 | 44.0 | 43.3 | 30.2 | 36.0 | N. W. 2.0 | NNW 2.5. | N. by W. | — | Overcast. Light clouds and haze. |
| 28, | 29.628 | 29.449 | 29.260 | 29.397 | 32.9 | 38.8 | 33.7 | 35.9 | Calm. | E. | E. N. E. | — | Pass. clouds to 9 am. Rem. cl'r. Fine. |
| 29, | 29.169 | 29.110 | 29.272 | 29.195 | 34.7 | 44.6 | 34.7 | 37.4 | Calm. | N E by N. | Calm. | 0 450 | Cl'r to 7 am. Rem. cl'd. Shower of hail 3 to 4 pm. Th, l'tng & r'n 7 to 9 pm. |
| 30, | 29.348 | 29.392 | 29.607 | 29.489 | 36.3 | 47.7 | 34.9 | 37.5 | NNW. | N. W. 2.0 | Calm. | 0.330 | Densely o'rc't. Occa. showers dur. day Gen. clouded. Slight rain 4 and 5 am |
| Mean | 29.594 | 29.561 | 29.575 | 29.573 | 36.1 | 44.8 | 36.0 | 39.06 | | * 3.5 lb. | | 2.870 | * Snow, 1st, 4.0 in. 16th & 17th not ap. |

*In consequence of an error in the Wet Bulb Thermometer, the amount of which has not yet been ascertained, the columns of the Elasticity and Humidity of the Air require for the present to be omitted. The Thermometer was first registered in March, and has undergone one of those spontaneous changes to which thermometers with large bulbs are known to be liable, but to a greater degree than usual. The mean values for this month will be communicated at an early period.*

Highest Barometer, 30.077 at 9 a.m. on 18th. Lowest do. 29.073 at 3 p.m. on 6th. } Range 1.004
Highest Temperature, 65°.1 on 21st, 2 pm. Lowest do. 9°.3 on 1st, 5 a.m. } Range 55.8
Mean Daily Range, .. 14°.0.2
Extreme Daily Range, 25°.8 from 4 pm, 8th to 5 am, 9th.
Toronto Bay clear of ice on 19th.

Proportion of Wind from each Quarter—

| | | | | |
|---|---|---|---|---|
| N.W. | 171 | Total. | | |
| S.W. | 94 | Winds, | 437 | |
| S.E. | 87 | Calms, | 163 | |
| N.E. | 85 | | | |
| | | Obser., | 600 | |

Mean force, 0.59 lbs; Max. force, on 6th, at 5 pm, 10.5 lbs.

Temperature for April.

| Year. | Mean. | Max. | Min. | Range. |
|---|---|---|---|---|
| 1840, ..... | 42.7° | 68.7° | 22.8° | 45.9° |
| 1841, ..... | 39.4 | 61.8 | 19.9 | 44.9 |
| 1842, ..... | 43.4 | 89.8 | 20 1 | 69.7 |
| 1843, ..... | 41.29 | 71.6 | 14.7 | 56.9 |
| 1844, ..... | 48.11 | 74.6 | 14.9 | 59.7 |
| 1845, ..... | 42.13 | 66.7 | 15.5 | 51.2 |
| 1846, ..... | 44.11 | 81.8. | 24.2 | 57.6 |
| 1847, ..... | 39.06 | 65.1 | 9.3 | 55.8 |

| Rain. | | Wind. | | Days. |
|---|---|---|---|---|
| No. Days. | Inches. | Winds. | Calms | Mean force. | Snow. |
| 14 | 3.420 | | | | 2 |
| 3 | 1.370 | 212 | 88 | 0.61 | 3 |
| 8 | 3.740 | 227 | 85 | 0.67 | 2 |
| 7 | 3,185 | 330 | 246 | 0.46 | 3 |
| 10 | 1.515 | 294 | 306 | 0.24 | 1 |
| 11 | 3,290 | 481 | 143 | 1.00 | 4 |
| 10 | 1.300 | 408 | 190 | 0.55 | 2 |
| 8 | 2.870 | 437 | 163 | 0.59 | 3 |

Under the head of Tension of Vapour, is given the elastic force of the Aqueous Vapour in the Atmosphere at each Observation, in decimals of an inch of Mercury, or the proportion of the Barometric pressure due to its presence.
Under the head of Humidity of the Air, is given the proportion the Aqueous Vapour bears to the quantity the air is capable of sustaining at the existing temperature, saturation being represented by 1.00.
The Instruments are Standard Instruments. The Rain Gauge is 27 f'et above the soil.—The Means entered are the Means by 24 hourly Observations, from 6, a.m., to 6, a.m.
The quantity of Rain received for the last 24 hours, is noted at 9, a.m.
The Observations entered at 7 a.m., on Sundays, are actually taken at 9 a.m. The two Observations taken on Sundays are not included in any of the means.