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THE

# BRITISH AMERICAN JOURNAL.

## ORIGINAL COMMUNICATIONS.

ART. XXVII.—*The Correlation of the Vital and Physical Forces.* A Prize Thesis for the Degree of M.D., C.M. By R. MAURICE BUCKE.

"The one spirit's plastic stress
Sweeps through the dull, dense world, compelling there
All new successions to the forms they wear
Torturing the unwilling dross that checks its flight
To its own likeness as each mass may bear;
And bursting in its beauty and its might
From trees, and beasts, and men, into the heaven's light."

Although the subject upon which I have undertaken to write is not strictly a medical one, I shall make no apology for having selected it; for in the first place, it is not to be expected that a man so little read in medical science as a student must necessarily be, and who, at the same time, has had no experience at all, could advance new views of any value, or relate any facts (except in rare cases) not known before; for this reason, I say, it can make but little difference upon what he writes.

But secondly, and on the other hand, if he could write anything of any value, if he could add anything to the stock of positive facts or opinions possessed by the medical world, then certainly there is no subject upon which information should be more acceptable, and on which it is more wanted, than the nature of life; a phenomenon which has so often been considered to be an ultimate fact, and philosophic inquiry into the nature of which, has consequently until lately been almost entirely neglected.

Furthermore, the subject I have chosen though not strictly a medical one, yet must be acknowledged to lie at the basis of all branches of medicine; to be in fact the trunk of the great medical tree; for as it has to do with the nature of life, so it is the very ground work of Physiology and Pathology, and as such underlies the whole subject of the practice of medicine; and I think it is not too much to say, that until we have some clearer understanding of life than we at present possess, the great blank which lies between the knowledge of the nature of medicines on the one hand, and their obvious actions on the other, will never

be much encroached upon; and until our knowledge *covers* this, the practice of medicine can never be truly a science.

The theories of life have been constantly changing from the earliest times until the present day. This was to have been expected from the fact that thinking men are not apt to rest satisfied with the knowledge of any truth, but seek to explain it by a reference to other truths; to endeavour to establish, in short, some relation between all things that seem in the least degree analogous to one another.

Thus in the middle of the seventeenth century, we see a sect of medical philosophers, headed by Sylvius, holding the iatro-chemical doctrines;* which were supposed to be justified by the discovery of the fact that many of the chemical actions going on within the body were analogous to others observed in the inorganic world.

At the same time and later flourished the iatro-mathematical school, founded in the first place by Borelli,† and afterwards extended by Bellini.‡ The doctrine of these philosophers was based on the observation that many of the vital actions are governed by mathematical laws.§

The insufficiency of these hypotheses gave rise in turn to that of the *Archeus* of Van Helmont, the *Anima* of Stahl, and the *Vis Medicatrix Naturæ* of Cullen.

Still later than this a belief became somewhat prevalent of so monstrous a nature, that, did we not know by daily experience the almost unlimited extent of human belief, we could never suppose it to have been entertained. It was that all the vital force required to build up any organism was stored up in the cell from which the plant or animal originally proceeded, so that all the force by which an oak, a whale, or an elephant was built up, was capable of being confined within the compass of a microscopic cell, of which thousands, or perhaps millions would lie upon the point of a penknife blade.

Still later, when it was believed that the vital forces existed in a dormant state in all matter capable of undergoing organisation, light and heat were regarded as vital stimuli or forces which possessed the power of calling these forth from the latent condition. This theory cannot be said to be absurd, it involves no contradiction, and could not be logically denied while it was held that a dormant magnetic power was possessed by iron, that latent heat existed in steam, and the like; but when with Grove we deny the existence of such a property in iron, of such heat in steam, and the presence of latent force in every other case where it is said to exist; we have also a right to deny to carbon, hydrogen, oxygen, &c., the dormant power that is by this theory attributed to them.

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* Bostock's "History of Medicine," pp. 157-8. Francis Delabac Sylvius, a Dutch physiologist and chemist, was born 1614, and died 1672. "Cyclopædia of Biography," p. 917.

† J. A. Borelli, an Italian philosopher, was born 1603 and died 1679. "Cyclopædia of Biography," p. 111.

‡ L. Bellini, a celebrated anatomist, was born 1643 and died 1702. "Cyclopædia of Biography," p. 89.

§ Bostock's "History of Medicine," pp. 164-5.

Until the time that Fowler * wrote, I do not know that any steps were taken attempting to prove any closer relationship between the vital and physical forces than is expressed in the term vital stimuli. Since then, however, the belief in the mutual convertibility of these two sets of forces—the vital and physical—has been steadily gaining ground, and is at present held by some of the most distinguished physiologists.

Now it has never been doubted, so far as I am aware, that however unlike in almost every way they may be, the matter which enters into the composition of any organised structure is the same as that met with in the mineral kingdom, but with its elements combined together in different relative proportions;† the forces that bind them in any one whole, whether chemically or physically, are also known to be the same as those we see in the world of dead matter, namely, chemical affinity and attraction of cohesion. But what is generally supposed to separate, by a well marked line, the living from the dead, is, that in the former is perceived the operation of certain forces which do not exist in the latter; which forces, under the name of functions, are most of them exhibited in common by the members of both the animal and vegetable kingdoms, while in the vegetable kingdom, and peculiar to it, we see displayed a power of organizing mineral matter; and in the animal kingdom, and peculiar to *it*, two distinct forces, the nervous and muscular, with special structures provided for their evolution; while at the same time in the inorganic world, are certain dynamical agents such as light, heat, electricity, &c., which specially belong to it, and which although they have always been allowed to have very similar actions upon living beings, and to be of vital importance to them, yet are not considered as belonging to them in the same sense as they do to the mineral kingdom. Now the question which I am about to consider may be thus stated—Is this line of demarcation, which I have attempted to point out, real or only apparent? Are these forces, or rather these two groups of forces, distinct and separate the one from the other, or are the forces which we see manifested by organized beings another and modified form of the forces existing in the inorganic world, borrowed from it, and when used again returned to it; just as the matter of which living beings are composed is taken from that by which they are surrounded, and when used, again returned to the dead world from which it was taken? It is the object of this paper to shew that, abstractedly considered, no such line can be drawn;‡ that in fact there is no difference between these two groups of

* I refer to the notice of a paper by R. Fowler in the Report of the British Association for 1849, called "If vitality be a force having correlations with the forces, chemical affinities, motion, heat, light, electricity, magnetism, so ably shown by Prof. Grove to be modifications of one and the same force."

† "The elements of organic bodies are the same as those that constitute the inorganic world, *save that the relative proportions are different.*" Encyclopædia Britannica, eighth edition, Vol. VI, p. 501.

‡ Compare Buckle's "History of Civilization in England." He says, "What we call the divisions of nature into 'organic and inorganic' have no existence except in our own minds." Vol. II, p. 402. He is speaking of Sir John Leslie, who as early as the end of last century, seems to have had the same idea. He says, "All forces are radically of the same kind, and the division of them into living and dead is not grounded upon just principles." Leslie on heat, p. 133.

forces except in the mode of their manifestation, and that *this* is due to the difference in the material substratum through which they in each case manifest themselves. That in short, the vital and physical forces are correlated the one to the other.

And before proceeding further it may be well to state clearly what is meant to be implied in the following pages by the term "correlation." It may be thus defined,—one force, A, operates upon a certain form of matter and disappears, but in its place a second force, B, is developed; again, B is made to act upon some other form of matter, and in its turn disappears, and now A is reproduced, or perhaps not A, but some other form of force, C, D, or E.

Now this conversion of one force into another, if such we like to consider it, necessarily implies a definite quantitative relation existing between the forces thus capable of being changed the one into the other; that is, a certain amount of force A is equal to, and will produce a certain amount of force B, which in its turn shall be capable of reproducing the same amount of force A as originally existed. Thus a certain quantity of zinc is oxidated in the cells of a galvanic battery and a certain quantity of electricity, the result of the oxidation passes along the wires connected with the battery; but as as a second consequence of the chemical action heat is evolved, so that we cannot have all the chemical force continued as electricity; nevertheless a remarkable relation has been shown to exist between these two, for if the electricity be employed in the decomposition of water, it will be found that for every equivalent of zinc that has undergone oxidation in each cell of the battery, an equivalent of water is decomposed;* so that the oxygen that disappears in one place reappears in the other, and the force that is set free in the union of the oxygen with the zinc is again taken up in the act of decomposing the water.

It is rarely, if ever, that we can reproduce so as to measure in another form all the force which has in any case thus merged itself; still in the case of some of the physical forces it has been determined, at least approximately, how much of one is required to produce, or be equal to, a certain quantity of another. Thus the experiments of Mr. Joule,† which Prof. Grove considers the most reliable that have been made upon the subject, show that the heat necessary to raise one pound of water through one degree Fahr., is equivalent to the motor force required to raise 772 pounds one foot.

This theory of the correlation of forces, followed to its consequences, naturally leads to the idea of the conservation of force, which supposes that as with matter so with force, there is a certain quantity in the universe, of which none is ever annihilated, and to which none is ever added, that in every case where one form of force disappears, another takes its place; and in like manner every force, which is in any case evolved, is so from an antecedent force which has been converted into it; and as this is true of every form of force so no one of these stands first more than another, and so no one can be said abstractly to be the cause of

* Faraday "On definite electrolysis." Phil. Tran. 1834, p. 77.

† Joule "On the mechanical equivalent of heat." Phil. Tran. 1850, p. 61, and quoted by Grove. "Correlation of physical forces," p. 130.

the rest, for though it may produce any of the rest, yet any of the others may also produce it.*

As for the abstract nature of matter and force, and their relation to one another, it matters little what view we take, and whether following Boscovich,† we conceive matter to be made up of mathematical points without form or size, acting on each other by attractions and repulsions; whether with Grove‡ we consider all forces as properties of matter, and therefore inseparable from it; or taking the more generally received opinion, we suppose matter to be one distinct entity, and force another acting upon it, the question before us remains the same and unaffected.

Now the whole subject of the correlation of forces naturally divides itself into three parts, as follows: 1. The correlation of the physical forces; 2. The correlation of the vital forces; and 3. The correlation of the vital and physical forces.

The first is often considered as proved,‖ and there can be no harm in taking it as a postulate, and as such using it in the argument before us. Of course it would be impossible to enter into the proofs of it in this place, and after Prof. Grove's treatise on the subject, anything that I could say would be probably something worse than superfluous.

Though the second division, the correlation of the vital forces, does not properly form part of my thesis, yet for the sake of making the latter more complete than it would otherwise be, I shall say a very few words upon it before proceeding to the main object of inquiry.

The growth of all organized beings, from the simplest vegetable to the most complex animal, essentially consists in the multiplication of cells; all organized beings originating in this, the most simple structure endowed with life. All the forces of every kind which are manifested by organized beings are evolved through the instrumentality of cells, or by tissues which have originated in these, and retain, more or less completely, their cellular character; and further, all the most active vital operations are performed by tissues which retain, with little or no change, the perfect cell as their chief constituent.§ This has given

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*"It," the conservation of force, "must be considered as a necessary truth, and as such is a sound basis of deductive reasoning." Prof. Joseph Leconte. "On the correlation of vital and physical forces." Amer. Jour. of Science and Art, Vol. XXXVIII, p. 305. Though in this instance I quote from Prof. Leconte's paper, it will be readily seen by consulting it that on the most important points I differ from him very materially. On the conservation theory see also Dr. Wood, Phil. Mag., Vol. III. p. 46, 1852. Buckle's "History of civilization in England," Vol. II, p. 384, where he also quotes from Faraday's "Discourse on the conservation of force." "Faraday," says he, "agrees with those who admit the conservation of force to be a principle in physics as large and sure as that of the indestructibility of matter."

† Boscovich's theory of the universe. Ency. Brit. Seventh edition, Vol. I, p. 606.

‡ Grove "Correlation of the physical forces." Third edition.

‖ As by *Faraday* in his "Discourse on the conservation of force," *Buckle*, "Hist. of civilization in England." Vol. II, p. 384. *Wood*, Phil. Mag. Vol. III, p. 64, 1852. *Leconte*, Amer. Jour. of Science and Art. Vol. XXXVIII, p. 305, &c., &c.

§ Carpenter's "Elements of Physiology," p. 49.

rise to the term "Cell force," which term expresses every form of force put forth by organized beings; according to this, therefore, the relation the cells bear to each other, will be also the relation which the different forms of cell force (vital forces) bear to each other.

Now this much being granted, it will be seen by the following considerations what an exceedingly close relationship this must be; for firstly, in the simplest forms of life there is no division of either structure or function, we have but one form of cell by which all the functions of the plant or animal are performed, that is by, or through which, all the forms of cell force put forth by such plant or animal are evolved; so that here the same cell liberates several forms of vital force. Secondly, in the highest organisms, although a particular form of cell is provided for the evolution of each force, yet they are all lineally descended from the single primordial cell in which the animal originated. Thirdly, although when a form of cell is once set apart for the evolution of any particular kind of force, it generally continues to evolve that and no other, yet it is a curious circumstance, and one that is hardly explicable upon any other view than that here taken, that under special conditions a form of cell may cease to liberate the form of force for which it was designed, and give off another quite different from it. Thus mucous membrane and skin are convertible into one another by a change in their external condition; and either (in the case of the conversion of skin into mucous membrane) the epidermic cells are altered in their function so that they secrete mucous, or else there is an earlier change in the direction of the force, by which means true mucous epithelium is grown upon the basement membrane which was the cutis vera. Just the same may be said of the change of mucous membrane into skin, and, in fact, of all such cases of conversion.

Innumerable other instances of this kind could easily be given. Thus the little hydra, or fresh water polype, may be turned inside out, and that which was the external surface will perform the office of digestion as well, or nearly so, as the membrane originally provided for that purpose; the gastric juice being poured out by its cells and absorption taking place through it, in a manner apparently quite normal.* Again in the case of the gemmæ of Marchantia polymorpha, to be noticed again in another connection, the external influences determine entirely the respective sides that shall furnish the stomata and the roots. It is needless further to multiply instances, and I shall only remark that all cases of vicarious secretions † must be looked upon in the same way, and proceed to the fourth consideration, which is, that cell action in one place can, in virtue of its correlation with all other forms of this same force, control cell action elsewhere; and on this view we can most readily explain the influence of the nervous system over all the other portions of the body; for as electricity, developed by chemical

* Carpenter's "Elements of Physiology," p. 253.

† On the subject of vicarious secretion, which my space does not permit me to dilate upon, see Carpenter's "Human Physiology," pp. 303-5, also p. 823. Todd and Bowman's "Physiological Anatomy," p. 700. Draper's "Human Physiology," p. 190. That instances of vicarious action should be rare in the higher animals, as man, should excite no surprise, for in them the cells have (so to speak) grown a long way apart from one another, but in some of the lower animals it seems to cost scarcely any effort

action in one place, controls chemical change in another to which it has been conducted, so cell force in the form of nervous agency being conducted by its proper medium, nerve fibre, can accelerate, check, or alter cell action in other parts of the body;‡ and in this way we can understand how any sufficient cause acting through nervous agency, may, as in the case of shock, altogether stop some action essential to life, and so cause the death of the individual;* or if not stop the cell action, so pervert it that it shall be incompatible with a continuance of vitality.

Now of course it will not be supposed that when I speak of cell force I mean to express that the cells have the power of originating that force; further on it will appear whence I consider it to be derived. My idea of the agency of cells, as such, is simply this, that whereas any force in its origin, *as that force* must be produced by the conversion of some other into it, and that for this purpose some particular material substratum must exist in the passage through which the change takes place; so I believe the cell is the form of matter through which the physical forces, in the ordinary course of nature, pass in their conversion to those which we call vital.

The subject which I have, perhaps rashly, undertaken to treat of,—"The Correlation of the Vital and Physical Forces,"—I shall examine in three parts, which division is of course arbitrary, the subject itself being properly one and indivisible; but for convenience of writing and thinking upon it, such partition will be found to be of great consequence.

The three parts are, (I) firstly, where the conversion takes place in the ordinary processes of life, through the chemical force; (2) secondly, where the physical forces pass into the vital, and conversely the vital into the physical, by direct contact with living or recently dead tissue; and (3) thirdly, the influence of the physical forces, principally light and heat, upon the living plant or animal in the ordinary state of nature.

*To be continued.*

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ART. XXVIII.—*Acute Articular Rheumatism, treated by the Tincture of the Boletus Laricis Canadensis.* By D. McGillivray, M.D., Fellow of the Botanical Society of Canada.

January 9, 1862, I was requested to visit Mrs. H———, aged 30, of spare habit of body and delicate constitution, suffering from an attack of acute articular rheumatism. Two months previously she gave birth to her first child; shortly after her confinement, inflammation of the left breast set in and resulted in suppuration. On seeing my patient at this time, she was confined to bed in a helpless condition, suffering from severe pain in her arms, elbow and wrist joints, in the articulations of the fingers, and in the corresponding parts of the lower extremities. On examining the parts affected, I found them considerably swollen,

‡ Carpenter's "Human Physiology," pp. 739-743.

* Carpenter "On the mutual relation of the vital and physical forces." Phil. Tran. 1850.

hot, red and painful; the joints, though affected with constant and excruciating pain, could bear gently rubbing them without causing much uneasiness, but on the contrary, it seemed to alleviate the patient's sufferings, giving temporary ease. Tongue white and coated; profuse perspiration at night; thirst; a hard full pulse at 98; bowels costive; urine high coloured. The following mixture was given:

℞. Potassæ Nitrat,..... ʒ ij.
Potass. Iod.,..... grs. xxxvj.
Tinct. Hyoscyami,..... ʒ iij.
Aquæ,..... ℥ viij.

Fiat mistura. Capiat cochleare amplum ter in die. Dover's powder at night, and a full dose of Castor oil the following morning.

Third day.—Bowels relieved; pulse 92; pain in joints still severe. Ordered hot fomentations to be applied to painful joints. This treatment was pursued for several days without producing any apparent benefit in either alleviating the patient's sufferings, or arresting the progress of the disease, as now the hip and shoulder joints had become affected, and the other joints more painful and swollen.

January 16.—Discontinuing the above mixture, I gave the Tinct. Boleti Laricis Canadensis as prescribed by Dr. Grant:

℞. Tinct. Bolet. Laricis Canad., ℥ jss.
Aquæ puræ, ℥ viij.

Fiat mistura. Capiat cochleare amplum quaque tertia hora. ℞. Morphiæ muriat. gr. ½ at bed time.

January 18.—She says she feels a good deal better; lies with more ease and comfort for a longer time in one position; pain in joints only on moving her limbs; pulse 79.

January 20.—Pain and swelling in the affected parts decreased; perspired profusely through the night, sleeps little, and wakes up in fright; pulse 80; bowels regular. Ordered hot fomentations to painful joints.

January 21.—Is troubled with a flying pain in her chest, but no symptom of the heart being affected; pain only in knee and ankle joints; less distension in those parts; pulse 80; urine more copious and pale.

January 23.—Finds herself considerably better; perspired freely during last night; feels stronger and free from pain; can walk about without the least discomfort or uneasiness; pulse 70; skin of natural heat; bowels regular; declares herself quite well and able to resume her household labour.

Note.—This case is interesting chiefly from its containing a contrast between the results of the eliminative treatment and that by the Boletus Laricis Canadensis. The patient deriving little benefit from the former, while the latter rendered her quite convalescent in the same period of time. Should this remedy be found as satisfactory in the treatment of Rheumatism in other cases as in this, it will no doubt prove an invaluable acquisition to the Materia Medica.

Chelsea, C. W., May 1st, 1862.

ART. XXIX.—*A case of recovery after symptoms of severe injury of the brain.* By A. D. STEVENS, A. M., M.D., Dunham, C.E.

I place this case before the readears of this journal, not because of any apprehensions of adducing novelties, either of a pathological or therapeutical character, but simply for the reason that I consider the recovery remarkable, and consequently not without interest. I might also remark, that the report is not at full length, on account of my desire to occupy as little room as possible.

On the 14th of January last, a messenger came for me to visit one David S. B———, who, I was told, had received several blows upon the head in a quarrel the afternoon previous, which caused him to fall backwards, forcibly striking his head and body upon the ice or frozen ground, the immediate effects of which were slight symptoms of concussion of the brain, which soon passed away, and he travelled a distance of about five miles, talking, &c., as usual. On arriving at the house, I found him to be a man of about thirty-five years of age, tall and thin, and of previous good health; his pulse hard, irregular and accelerated; jaws closed; great frothing and blowing at the mouth; strong convulsive movements at short intervals; unconscious; no control over sphincter of bladder; imperfect paralysis of left limbs and side of body, (though more perceptible after forty-eight hours) eyelids closed, and pupils somewhat dilated. After searching for a fractured or depressed portion of skull, and failing to discover any such injury, I proceeded to take as much blood from his arm as I deemed admissible. I should here observe, however, that I found the parts lying over the right temple swollen and slightly contused. The bleeding having been finished, several vain attempts were made to introduce a few drops of Croton oil into his mouth, but as often were rejected on account of the frothing and blowing at the mouth. Next, a large blister was placed on the back of his neck, and retained as well as his convulsions would admit, sinapisms to the feet, the hair cut closely, the head elevated, and cold applied to it. This constituted the principal treatment for about forty-eight hours, when the foaming and blowing had so much subsided as to allow the introduction of five drops of Croton oil into his mouth; but this proving insufficient to act upon his bowels, four more were given, which produced a free alvine evacuation. Shortly afterwards, a little improvement was discernible in his powers of deglutition, &c., so much so that I succeeded in giving him, during the subsequent twenty-four hours, four doses of calomel, containing five grains each.

On the next day, consciousness began to dawn upon him, but his limbs (more particularly the right) were hardly controllable, from their almost incessant motions (*quasi* convulsive).

During the next week, the following were among the symptoms noticed, though of course they did not all appear at the same time, or on the same day: delirium, though generally extremely drowsy and hard to arouse; dropping of right eyelid and suffused conjunctiva; hearing morbidly acute; pulse soft and at times feeble; intense burning thirst with great difficulty of swallowing; constipation; typhoid tendency; dry tongue; flushed countenance, still no authority over bladder; restlessness and prostration of strength; can talk a little,

and says he has pain in front and sides of head. Treatment expectant or nearly so, paying attention to his bowels, with small doses of chlorate of potash, alternated with the nitrate of potash.

On Thursday of third week he fell back into a comatose state, with its usual accompanying symptoms. These were a second time relieved by a sharp purgative of Croton oil, a blister to the upper part of the spine, and back of neck, cold to the head, sinapisms and hot bricks to feet. After this, recovery gradually supervened, during which time there were observed troublesome pain in the head, thirst; silliness; constipation; dropping of right eyelid; perverted temper; double vision; nervous excitability, &c., &c., &c. He is now, April 7th, able to attend to his ordinary duties.

Dunham, C. E., April 20th, 1862.

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ART. XXX.—*Case of Resection of the Ankle Joint.* By W. CANNIFF, M.D., M.R.C.S., England, Professor of Surgery and Pathology, University of Victoria College. Formerly House Surgeon to the Seamen's Retreat, N.Y.; and late acting Assistant Surgeon to Her Majesty's Forces; Physician to the City Dispensary, Toronto.

The following case of resection of the ankle joint will probably be interesting to the profession in Canada, and it may be to the profession at large, while it will add one more to those cases in which conservative surgery has proved a success.

Resection of the knee joint, the hip joint, and also of the elbow joint, has frequently been performed, but I believe that of the ankle joint has been practised but a few times, indeed I can find only five such cases, all of which were by Mr. Hancock of Charing Cross Hospital. Not having access to the American surgical reports I cannot say whether or not this has been practised in America, but believe at least it is the first such operation in Canada.

For the history of the case prior to my acquaintance with the patient, I am indebted to his brother-in-law, Mr. B———, who is a student of medicine.

Mr. G———, æt. 21, of the County of Elgin, on the 4th July, 1861, was thrown from a carriage and received an injury in the left ankle. On examination, which took place soon after the occurrence, the foot was found *dislocated outwards;* the "fibula" broken about two inches above the "*malleolus,*" and a large prominence presented itself on the inner side of the *os calcis.* Reduction was attempted by extension and counter-extension, which was continued for some time with partial success.

A prominence was now found just at the posterior and inner angle of the Scaphoid, which was the anterior part of the *astragalus.* This was not replaced. Short splints were used. The limb was placed in a fracture box, and cold water applied. In about three weeks nearly the whole of the dorsum of the foot began to slough, as well as the part around and in front of the internal *malleolus.* Cold was then discontinued, and poultices used instead, and in a few days the foot bones were bare. The protruding fragment of the *astragalus* was now adjusted, and strong hopes were entertained of a speedy recovery. And from this

time externally there was an improvement; cicatrization commenced and went on rapidly, repairing in a short time nearly the entire breach. A small spot, however, at the upper and inner part of the *os calcis* remained open, and through this, about the tenth week, was thrown off the "lesser process" of this bone. Soon after *pus* was detected immediately in front of the external *malleolus*. A deep incision was made reaching the inner space between the *os calcis* and *astragalus*, forming a free communication with the opening on the opposite side. This remained; a constant discharge was kept up, and a second piece of bone was thrown out. By this time the patient by the help of crutches began to get around. But the part being still *poulticed* and allowed to hang, the swelling became great, and the pain increased. Things continuing thus for some months, the patient's spirits sank, and hopes of recovery were quite abandoned. He resolved however on making another trial and seeking aid elsewhere. Consequently, on the 19th February, 1862, he came to Toronto and placed himself under my care. Upon examination I found the foot and lower extremity of the leg very much swollen and evidently ædematous, which condition I concluded was due to long continued passive congestion. There were two *sinuses*, one on the inner side just anterior to the internal *malleolus*, the other on the outer side below the external *malleolus*. In front of the inner *sinus* was a long *cicatrix*, presenting a very unhealthy appearance. By passing a probe into the inner opening, I found the anterior part of the *astragalus* in a necrosed condition. Directing the instrument downwards upon the *os calcis*, the superior surface of this was found to be in a softened and disorganized state. The probe could also readily pass to the lower extremity of the *tibia*, which was evidently dead, and the lower end of the *fibula* on examination through the external opening was also found affected. I ordered the limb to be kept in an elevated position, and a bandage to be applied to the foot, the skin of which was in a state of great irritation.

This treatment was continued for a few days with marked benefit; the patient in the mean time becoming more cheerful, and the pain somewhat subsiding.

A consultation was held, at which the question of amputation or resection was considered. It was finally determined to adopt the latter procedure. Consequently, on the fifth of March last, assisted by Dr. Lawlor of this city, I performed the operation as recommended by *Hancock*, which I give you in his words.

"Commence the incision about two inches above and behind the external *malleolus*, and carry it across the instep to about two inches above and behind the internal *malleolus*. Take care that this incision merely divides the skin and does not penetrate beyond the *fascia*. Reflect the flap so made and next cut down upon the external *malleolus*, carrying your knife close to the edge of the bone, both behind and below the process; dislodge the *peronei tendons* and divide the external lateral ligaments of the joint. Having done this with the bone nippers, cut through the *fibula* about an inch above the *malleolus*; remove this piece of bone dividing the inferior *tibio-fibular* ligament and then turn the leg and foot on the outside. Now carefully dissect the tendons of the *tibialis*

*posticus* and *flexor communis digitorum* from behind the internal *malleolus;* carry your knife close around the edge of this process, and detach the internal lateral ligament; then grasping the heel with one hand, and the front of the foot with the other, forcibly turn the sole of the foot downwards, by which the lower end of the tibia is dislocated and protruded through the wound. This done, remove the diseased end of the tibia with the common amputating saw, and afterwards with a small *metacarpal* saw placed upon the back of the upper articulating process of the *astragalus*, between the process and the *tendo achillis*, remove the former by cutting from behind forwards; replace the parts "*in situ;*" close the wound carefully on the inner side and front of the ankle, but leave the outside open, that there may be a free exit for discharge; apply water dressing; place the limb on its outer side on a splint and the operation is completed."

I found the lower extremity of the *fibula* very much enlarged and somewhat softened, while bony material had been deposited on the outer surface of the periosteum, consequently I experienced some difficulty in dislodging the tendons of the *peronei* muscles. The fibula was easily divided by the bone pliers, but the piece was not easily removed, because of the new *osseous* material already mentioned. Turning the foot on the outer side, I proceeded to dislodge the tendons from the groove on the posterior surface of the tibia, and here also the ostroid growths proved exceedingly troublesome. Having divided the internal lateral ligament, I removed the anterior portion of the *astragalus* which was in a state of *necrosis*, and had evidently been broken from the other portion. I then seized the foot in the manner recommended by Hancock, and with very little force turned out the end of the *tibia*. Next I removed the remaining portion of the *astragalus*, which was in a state of disorganization. I then, with the ordinary amputating saw, removed about three quarters of an inch of the *tibia*. That portion removed was found softened and *carious*. The tibia proved to be more seriously involved than had been anticipated. After a hasty consultation, it was resolved to remove another portion of the bone; so extending the section in the integument about an inch and dissecting the soft part from the bone, I removed nearly an inch and a half more both of the *tibia* and *fibula;* I then gouged away a portion of the *os calcis* until the diseased structure was all removed. The operation was now completed; but it must be confessed the prospect of saving the foot did not appear very bright. There was an hiatus of more than three inches; but as a source of hope there was the fact, that neither the anterior nor the posterior *tibial artery* had been divided. The blood consequently circulated as freely in the foot as before.

The limb was placed in a fracture box, the flap having been secured by a few sutures and adhesive straps. Proper support was given to the foot, and cold water dressing applied. The loss of blood had been very slight. The patient had remained under the influence of *chloroform* during the whole of the operation, which was necessarily long, upward of an hour, quickness in operating having been no consideration. The patient passed a restless night, suffering constantly from *nausea* and vomiting, caused probably by the quantity and inferior quality of the chloroform used. The part was also somewhat painful.

Very little inflammation followed, but that portion of the flap where the cicatrix was, sloughed away, leaving a very large opening, but cicatrization quickly commenced and progressed rapidly. The discharge was at no time very great. The patient was able to get around on his crutches within one month.

At the end of nine weeks, the limb presents the following appearance: A healthy looking and limited cicatrix, marking the incision through the integument; a very small opening internally, where the most sloughing was; the foot reduced to almost its natural size, and in a natural position. There is by admeasurement not more than an inch and a half shortening. The bones of the foot have not yet joined with those of the leg. The foot can be moved passively in any direction; yet there is a comfortable degree of firmness, which has been constantly increasing. The patient can move the foot and toes in a natural manner. In a word there is every prospect of an excellent joint. His health has improved, and as a matter of course he is very thankful that his foot has been saved.

At the expiration of a year I shall take occasion to inform the profession of the final result.

Toronto, May 16th, 1862.

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## HOSPITAL REPORT DEPARTMENT.

Edited by FRANCIS W. CAMPBELL, M.D., L.R.C.P., London.

*Excision of part of the Inferior Maxillary Bone.* Under the care of Dr. Hingston. Reported by Mr. Kenneth Reid.

Patrick Carey, a robust, healthy-looking man, 60 years of age, was admitted for epithelial cancer of the lower jaw, into the St. Patrick's Ward of the Hotel Dieu Hospital, on the 17th of January, 1862.

The patient about 18 months before entering the Hospital, had submitted to an operation for the removal of the diseased part from the lower lip. The disease was then confined to the soft parts, but since its return had involved the bone, and was about the size of a full blown rose. The patient up to this time had held a good situation on the Grand Trunk Railway, but owing to the spread of the disease, and the pain and fetor accompanying it, was obliged to leave off work. On this account he was urgent for its removal, although only promised temporary relief.

Accordingly on the 23rd the operation was performed by Dr. Hingston in the following manner:—The patient being under the influence of chloroform, a thick ligature was passed through the tongue, to prevent it from falling back upon division of the sub-lingual muscles, and entrusted to an assistant; the left bicuspid and right first molar were then extracted, and the soft parts divided by two incisions forming an isosceles triangle. The bone on either side was afterwards sawn through by means of the chain and Hey's saw; when by dividing the attachments of the genio-glossi, and genio-hyo-glossi, the whole was removed. The two sides of the maxilla were then brought within half an inch

of each other, and the edges of the incisions were drawn together, and united by means of three twisted sutures supported by plaster.

The patient made a very rapid recovery, union taking place almost entirely by the first intention. He was at first forbidden to speak, and his diet confined to soups. On the 3rd of March he was discharged from the Hospital, and resumed his situation.

1st May. The deformity scarcely perceptible; speech not affected, and the slight retraction of the chin is concealed by a large *imperiel.*

*Excision of Phalanges and Metacarpo-phalangeal Articulations.* Under the care of Dr. Hingston. Reported by Mr. F. Paré, (translated).

William Riley, æt. 19, suffering from frightful laceration of the right hand, was admitted into the St. Patrick's Ward of the Hotel Dieu, on the 15th of November, 1861. The hand was greatly swollen; the injured parts suppurating and exhaling an extremely disagreeable odour; the bones of the thumb and little finger had been severed; the first and second phalanx of all the remaining fingers had been cut through and splintered by three successive revolutions of a circular saw, four days before. The skin, extensor, and flexor tendons were severed at the corresponding parts, and the fingers were hanging by narrow necks of skin on the palmar surface. Immediately after the occurrence of the accident, a medical practitioner had been called in and had advised amputation of all the fingers and part of the hand, but the patient would not consent to the operation.

Dr. Hingston formed a flap for the thumb and small finger at their metacarpo-phalangeal articulations. He then made a resection of the second articulation of the index, middle, and ring fingers, and afterwards removed the first phalanx of the middle and ring fingers. Seventeen pieces of bone were taken away, varying in size from a whole phalanx to a mere spiculum, and the torn tendons having been shortened were all restored to their places.

The hand was then loosely bound to a large piece of paste-board, and under the usual treatment the parts healed rapidly. On the 21st of December the patient was able to extend his index finger, and on the 24th there was extensory movement of the ring finger with flexion of the index. Since that time the mobility of the fingers, which are much shortened, increased every day up to his discharge on the 27th of January.

May 1st. Motion in index and ring fingers entirely restored, and flexion in middle one. The patient being a labouring man, the hand is in every respect a serviceable one.

*Excision of the Elbow Joint.** Under the care of Dr. Hingston. Reported by Mr. Kenneth Reid.

Catherine Lynch, a strong, healthy-looking girl, æt. 23, suffering from extensive caries of the right elbow, was admitted into the Hotel Dieu Hospital, on the 14th November, 1860, and in the following March on its removal to the new building at Mont St. Famille, she was admitted into St. Bridget's Ward, under the care of Dr. Hingston. On her admission the joint was very much enlarged and painful; the skin red and shining; and two sinuses communicated with

the interior of the joint. Through these a probe could be passed with ease. The limb was anchylosed in a straight position.

On the 23rd April, resection was performed in the following manner:—An H shaped incision 5 inches in length was made along the back of the joint, the flaps were dissected back, and the olecranon process having been freed with the knife was removed with the bone pliers. The joint was then opened—the radius removed down to the tubercle for the attachment of the biceps, and the corresponding part of the ulna together with the condyles, and all the shaft of the humerus below the condyloid ridges. The hæmorrhage was inconsiderable. Union took place by the first intention, except at the sites of former fistulous openings; through these a moderate discharge was kept up for three or four weeks. There was no pain or febrile disturbance. The arm was placed in a straight position, and in this way remained for ten days. Passive flexion was then begun; an inch a day till a right angle was reached; again gradually returned to a straight position, and as gradually flexed until the hand was made to rest against the cheek. Two months after the operation active motion was partially restored.

15th January, 1862. Patient was discharged to day fit for service. All the usual motions of flexion, extension, supination, and pronation are entirely restored; the patient can knit, scrub, sew, and do all sorts of house-work.

1st May. Patient called to say that she experiences no inconvenience whatever in using her arm, and is earning her living at a sewing machine.

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## PARIS CORRESPONDENCE.

The following remarkable case of the cure of lockjaw is related by the *Italian Medical Gazette* of Milan. A hair-dresser of that city accidentally received a cut with a scythe on the palm of his left hand, near the wrist. This occurred about the beginning of March 1861. The wound healed in six days, and it was not until the 30th following that, in rising from his bed, he felt some difficulty in opening his mouth, besides contractions in his left hand, which he could not stretch out, and pain in the right hip and thigh. During these first days, the phenomena disappeared on going to bed, but commenced as soon as he rose and exposed himself to the open air. On the 10th of April the symptoms becoming more intense, he was taken to the hospital. On the following day a spasmodic contraction of the muscles of the lower jaw and rigidity in those of the neck were observed; the left hand experienced a contraction every time it was taken from under the bed-clothes, and the pain on the right side continued—the pulse was very slightly agitated. Sixteen grains of Muriate of barytes, dissolved in a pound of distilled water, were prescribed, to be taken in the course of 24 hours. This treatment was continued until the 21st, when the symptoms of lockjaw having nearly entirely disappeared, the dose was reduced to eight grains a day, and the remedy entirely left off on the 26th. Two days later, the patient left the hospi-

* This case was mentioned in a short foot note to "Return of cases treated in St. Patrick's Hospital in June last."

tal in perfect health. I must add, however, that Dr. Gherini of Milan affirms that he tried this remedy without success in the case of a wounded soldier during the war in Italy—on the other hand he admits that Dr. Gnecchi of the same city, has several times successfully administered it in cases of traumatic lockjaw, and that Dr. Tussani, also of Milan, counts one cure by this salt. Another case is related as having occurred at Venice, where a young girl of 16 received a slight wound in the wrist, which appearing very insignificant, was neglected. Symptoms of lockjaw appeared on the following day, which were successfully treated by 24 grains of aconite in strong laurel-water, a table-spoonful being administered every hour. The dose of the aconite was afterwards raised to 36 grains, and in the course of two days the patient was cured.

At a recent sitting of the Académie des Sciences, Dr. Velpeau related the case of a woman who had died suddenly at the Hospital of La Charité of a clot of blood which had been formed in the pulmonary artery. She was under treatment for a fracture of the right leg. Dr. Velpeau entered somewhat minutely into the question of the origin of blood clots causing death by the obstruction of the vessels. Some of these are formed during the period of the agony which precedes death; at other times they have their origin in some morbid state or inflammatory process, in which case the blood is coagulated in the large arteries, while a plastic exudation contributes to the obstruction of the vessel. In such a case death ensues more or less rapidly, but not suddenly. It is particularly in the veins of the abdominal regions, the head or the neck, that the cause of these coagulations must be sought. As soon as the blood, a living fluid, ceases to circulate, and coagulates in a vessel, it is *dead blood*, a dead body in a living one, a most dangerous inmate. If in a dilated vein clots of blood are formed, they may cause but slight perturbation; for one vein thus stopped up, a dozen will be developed in the vicinity and the circulation will not suffer any interruption. But let a fragment of this clot be detached from the principal mass, it will be carried away by the current into other vessels. From the femoral vein it will enter the *vena iliaca*, and thence the *vena cava* and the heart. Its effects will necessarily depend upon its shape and size—if it is small enough to stop in one of the secondary divisions of the pulmonary artery, the lungs will suffer, but death will not ensue. But if it be voluminous enough to stop up both branches of the great artery, filling its trunk, it will extinguish life by stopping both sanguinification and respiration. The veins are not alone subject to such coagulations—they may take place in the arteries—in which case, however, other foreign bodies circulating with the blood such as a fragment of a tubercle, of pus, etc., must be taken into account. Dr. Velpeau concluded with expressing his conviction that such substances, circulating with the blood, must be considered as the cause of various diseases in the human frame.

Gen. Morin has also addressed an interesting paper to the Academy of Sciences on the subject of ventilation in hospitals and other establishments where many persons are congregated together. After various theoretical considerations, our author remarks that the system of ventilation at present in use may be reduced to two kinds, viz: that which determines a draught in an upward direction by a fire lighted at the top of the edifice—and that which places the fire in the cellars

to produce a draught in the opposite direction. Gen. Morin recommends a third system between the two, which consists in keeping up a fire on a level with the floor of the room to be ventilated. Experiments prove that an upward draught is the most unfavourable of the three, the quantity of air thus evacuated being inferior to that carried off under the other systems. The latter are much on a par as regards the effect produced, but the third deserves the preference on account of its cheapness and simplicity. The author, in examining the question of the introduction of pure warm air into a room, finds that the supply under the ordinary system is inferior to the quantity evacuated, a defect which he proposes to obviate by enlarging the orifices of the stoves destined to furnish it. The Hôpital Lariboissière has a peculiar system which produces good effects. It consists of eight pavilions, of three storeys each, every story containing a sick-ward with 22 beds, and a small room with two beds. The vitiated air is carried off on each floor by nineteen evacuation flues, which unite into one in the garrets, where a draught is obtained by a large vessel containing hot water. The quantity of foul air thus evacuated in a second is about one cubic metre and one fifth—but a greater result might be attained were the circulation less complicated, since the unevenness of the surface of the flues, a circumstance, the effects of which can hardly be attenuated except by a diminution of length, causes a loss of velocity of more than one-seventh.

Mr. Renault, member of the Academy of Sciences, has presented to that learned association, a highly interesting communication on the subject of hydrophobia. He shows that the precautionary measures taken by the police are far more efficacious in preventing hydrophobia than the tax on dogs. This tax had been introduced more with a view to diminish the number of dogs than to derive a revenue from that source, and yet strange to say, the cases of hydrophobia have been rather on the increase since that time than otherwise. Thus, it is proved that at Paris, where the average number of dogs was about 60,000, the tax has only reduced it by 6,000. It is true that the number of vagrant dogs has greatly diminished, but this is rather owing to greater strictness on the part of the police, than to the operation of the tax. However that may be, certain it is that the number of human beings carried off by hydrophobia has never been so considerable as it has been during the last three years. The precautions which appear to be most effectual are: 1. The muzzling of dogs, when not shut up or otherwise secured; and 2. The immediate destruction of those which present the slightest symptoms of approaching hydrophobia, or have been bitten by mad or unknown dogs. Mr. Renault does not subscribe to the opinion that permanent muzzling may of itself cause hydrophobia on account of the constant irritation it produces; he declares, on the contrary that he has been unable to discover a single well-authenticated case of madness from that cause. As for the tax, it has existed in Prussia since 1829, but although its amount is 12 fr. ($2.40cts.) a year, the number of cases has not diminished; on the contrary, they in 1852 and 1853 increased to such an extent that the police of Berlin, in their anxiety, ordered that all dogs, not secured should be permanently muzzled. Since then, this rule has been strictly observed there, and with the best results. The following table

shows the number of cases of hydrophobia per year from 1845 to 1853 at the veterinary establishments of Berlin:—

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|---|---|---|
| 1845.....32 | 1848.....17 | 1851.....10 |
| 1846.....18 | 1849.....30 | 1852.....68 |
| 1847..... 3 | 1850.....19 | 1853.....82 |

or 278 cases in all, giving an average of 28 cases a year, for the veterinary school only, exclusively, therefore, of those which must have occurred in the city, and were not registered. But from 1854 a total change is perceptible. In that year only four cases occurred, and that because the order to muzzle the dogs permanently was not promulgated until the lapse of the first few months; in 1855 and 1856 the number of cases both in town and at the school did not exceed *one* a year and from 1857 to 1861 inclusively, *there has not been one single case of hydrophobia at Berlin.* Hence Mr. Renault concludes—1. That spontaneous hydrophobia is exceedingly rare; 2. That muzzling dogs permanently and universally is an efficacious measure for the prevention of the disease or its propagation; and 3. That it is a mistake to believe that the constraint caused by the muzzle may tend to develop madness in dogs.

Dr. Goyon related a case of a family in the West Indies, the eldest son of which had died of tuberculous leprosy, while the second and the daughter already bore symptoms of the commencement of that dangerous malady. Dr. Goyon being consulted, advised the parents to arrest the progress of the disease by a change of climate, which they accordingly did, and in 1826 settled in France. Since then, the leprosy had remained perfectly stationary, the points where it had manifested itself in the shape of red spots with an apparent modification of the tissues, had not spread although they continued to be perfectly insensible. The two young people having grown up, married in course of time in France, and their issue of both sexes is remarkable for their healthy state and good constitution. The leprosy had been accidental in the family, and not hereditary. From all this Dr. Goyon concludes that leprosy which is still very common under the tropics, as well as in Portugal and in the Islands of Greece, may, although incurble, be arrested in its progress by a change of climate.

Dr. Langier has brought to light a new mode of treating gangrene. It having been ascertained by Dr. Réviel that gangrene is occasioned by the diminution or total elimination of the oxygen necessary to maintain tho vitality of the part attacked, Dr. Lagier conceived the idea of keeping the gangrenous part in an atmosphere of oxygen constantly renewed. The two cases treated by him in this manner have both ended in a complete cure, although the patients were both of the age of 75 or upwards.

Dr. Despres has presented a communication on the nature of erysipelas, which he considers to be a disorder which has its seat exclusively in the superficial capillary lymphatic net-work. Spontaneous erysipelas, in his opinion, is the same as traumatic erysipelas, although the latter is occasioned by wounds. The former, it is true, generally selects the face for its seat, but in that case, Dr. Desprès contends there is a local irritation which plays the same part as a wound; nay, there are cases in which a real wound exists, although so slight that the patient has not remarked it. Out of 68 cases of spontaneous erysipelas treated at La

Charité in 1861, 60 had attacked the face; out of 62 cases of traumatic erysipelas, ten occurred around sores which it had been attempted to close immediately; 22 resulted from wounds not regularly dressed; and even in cases in which there were two wounds, the erysipelas selected that which had been neglected. In the other cases the disease was owing either to intemperance or constitutional weakness, chronic inflammatory diseases, etc. Dr. Desprès concluded by declaring that erysipelas is not contagious.

Dr. Guirette had sent to the Academy of Sciences an *inhaling apparatus* of his invention by means of which a larger proportion of air may be introduced into the lungs than would be inhaled by the patient, under certain pathological circumstances. The methodical use of this apparatus has, according to the inventor, produced excellent results in certain cases of consumption, in the hands of various physicians of Paris, Pau, and Brussels.

The amphitheatre of the Hôpital de la Charité, was lately filled with medical practitioners and students in expectation that the Japanese doctors attached to the embassy would attend, to witness Dr. Velpeau perform the operation of amputating the leg of a patient. Their expectations were however disappointed for those foreign disciples of Esculapius did not attend, and the doctor effected the operation in an incredibly short time.

Paris, May 20th 1862. W. N. Cote.

## REVIEW DEPARTMENT.

ART. XXXI.—*A Treatise on Diseases of the Joints.* By R. Burwell, T.R.C.S.

*Concluding note.*

We recommend Mr. Barwell's remarks on Ganglia and their treatment to our readers. We can quote only his views on the treatment of those affections, with which we fully coincide.

"Ganglia may occasionally be cured by counter-irritation, iodine, or other such applications, but in by far the greater number of instances, they will not yield to such treatment, and something more decided must be done. There is generally, in these cases, an amount of vague fear as to the effects of any treatment, which arises I believe, from the evil result produced in a few cases in which the sac of the ganglion communicated with a joint, and as this condition has not generally been understood, it is evident that certain cases would, energetically treated, end disastrously. It is highly important to ascertain the true condition of the cyst, because we may use, upon one independent one, treatment that we dare not employ with one still in connection with a joint cavity. The mode of making this distinction is by pressing on the cyst, and observing whether it becomes slowly reduced, and whether when this pressure is removed, it will as slowly reappear, if so, the reduction is of course due to the passage of fluid into the normal synovial cavity: if, as sometimes happens, the tumour vanish suddenly, and return as quickly on the application and suspension of pressure,

this reduction is *en masse;* the whole cyst has slipped under a ligament or some other fibrous structure in the neighbourhood; the greater number of these swellings are not in any way altered by pressure.

If by these means the entire independence of the cyst have been established, some mode may be adopted to produce its evacuation, and the subsequent absorption of its walls. The old plan of striking it forcibly with the back of a book, or other hard object is barbarous in the extreme, and I have known it productive of evil consequences; the same may be said of rupturing the cysts by pressure with the thumbs. I have frequently emptied the cysts by a sub cutaneous section with a small tenotomy knife, dividing the walls freely from side to side, (occasionally I believe I have cut them quite in half) and then applying a splint with considerable pressure over the part. The following is a good mode of using a pad or splint, so as to obtain the greatest amount of pressure. A strap is fastened by brackets to the splint, allowing a certain amount of movement up and down; the strap carries a metal plate with screw holes, and a screw presses upon a pad placed over the ganglion. Undue pressure upon the rest of the wrist is prevented, by the breadth of the splint and thickness of the pad, which does not allow the strap to touch the skin anywhere, being lifted away by the screw. Sometimes even this is not sufficient, and then such a cyst may be injected without fear. Tincture of iodine and water, one part of the former to three of the latter, appears to me the very best possible injection: in using it, we should endeavour to empty again through the canal the same quantity, as nearly as possible, as was injected, but such (much?) manipulation and pressure are to be avoided," p. 359.

Having expressed ourselves in such favourable terms of the general character of Mr. Burwell's work, we should not, however, feel justified in omitting to point out some of its defects. In the first place, we object strongly to the size and consequently to the price of the work, and more especially because the great bulk of the book is made up with the details of numerous cases, which have occurred, not always, in the practice of the author, but in that of his colleagues and teachers, and however laudable it might have been in a young surgeon to record in his case-book the details of these cases (which are noted with the accuracy of a clinical clerk) it was a little too much to expect his readers to wade through their tedious particulars, as well as unfair to make them pay for them. The daily prescriptions are also given with a painful accuracy—no anodyne is perscribed without its ingredients being entered with a degree of care and minuteness that must be delightful to the true pharmacien. In addition to the above objections, we have to remark upon the frequent occasions Mr. Burwell refers to his previous writings, every now and then advising the reader to consult his "Memoir" on the subject. We confess, that with the exception of one or two papers, by no means important or original, published by Mr. Burwell in the "Lancet," and a paper by him in the "Medico Chirurgical Review" on the Cartilages of Joints, we are ignorant of what he has done for this branch of surgery to entitle him to refer so complacently to his previous writings. A Brodie, a Bright, a Stokes, a Graves, or a Fergusson, may be permitted (and justly so) to refer to doctrines previously published, and now sanctioned by the profession, but it is a

little too early in the day for a Burwell to imitate their example. In addition to the above we have to charge Mr. Burwell with omitting very frequently the notice of writers on the same subject. We happen to know that Mr. Burwell's attention was drawn to these points, in a manner too palpable to admit of his apparent ignorance, and therefore we complain of his unjustly ignoring the researches of those who have preceded him in some of the paths of investigation he is now entered upon.

In a smaller form and at a cheaper price, we shall be glad to hail a second edition of the above work, notwithstanding the faults we have pointed out.

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## PHYSICAL DEPARMENT.

ART. XXXII.—*Mean Meteorological Results at Toronto, for the year* 1861. By G. T. KINGSTON, M.A., Director of the Magnetical Observatory, Toronto.

*From the Canadian Journal for March*, 1862.

THE year 1861, with respect to its temperature, exhibited, as a whole, nothing extraordinary, the mean of the year differing from the average of twenty-two years to the extent of only 0°.10 in excess. The monthly means, moreover, did not differ in a marked degree from the means proper to the several months derived from twenty-two years, the average deviation, without regard to sign, being 2°.24; while the average deviation in the whole period of twenty-two years, and referred to the same standard, was 2°.44. If, however, the *signs* of the deviation be taken into account, it will be seen that the compensations by which the annual mean was maintained, were of the kind that may be styled *unseasonable*, being such as tended to weaken rather than to intensify the distinctive characters of the different parts of the year. Thus from May to August—comprising the greater part of the year in which the temperature is *above* the yearly mean—the monthly means were relatively *low;* while in February and December, the monthly were relatively *high*. The depression (3°.9) in the temperature of May, was never exceeded in any May of former years, and was nearly approached only in 1849 and 1851, when in both cases the cold of May was succeeded by unusual warmth in June and July. The abnormal warmth of April served only to aggravate the evil, by hastening the vegetation that was thrown back by the frosts that followed in May. The bad effects of a generally low summer temperature may perhaps be modified, as regards some plants, by occasional bursts of heat, though they be necessarily balanced by unusually low temperatures at other parts of the season. No such mitigating circumstances occurred in 1861, as the warmest day and the absolutely highest temperature of the year were both considerably below the twenty-two years' average of these quantities.

The hygrometric condition of the summer was not favourable; the mean relative humidity of May, June, and July being 70, against 74 the twenty-one years' average for these months. But as the temperatures were low, the foregoing num-

bers do not present so strong a contrast as do the tensions of vapour, which for the same three months were ·359 in 1861, and ·393 on the average of twenty-one years. The contrast in this respect between 1860 and 1861, was very conspicuous in May, the tension of vapour for this month being more than 41 per cent. greater in 1860 than in 1861.

May and June were 8 per cent. and 16 per cent. less cloudy than is usual in those months; while later in the season, when a bright sun is more in request, clouds were more than 20 per cent. in excess.

The depth of rain, which on the whole year was three inches in defect, was deficient in June and July to the extent of more than an inch and a half. In May, when rain is a hinderance to gardening and agricultural operations, it was rather in excess; while, as before stated, there was a want of that moisture *in the air* whose presence is favourable to the development of young leaves.

In the following summary, the chief meteorological elements relative to the year 1861, are compared with the average results derived from a series of years, as well as with the extreme values that have occurred during the same series :

TEMPERATURE.

| | 1861. | Average of 22 years. | Extremes in 22 years. | |
|---|---|---|---|---|
| Mean temperature of the year | 44°.22 | 44°.12 | 46°.36 (in 1846) | 42°.16 (in1856) |
| Warmest month | August. | July | July1854 | Aug.1860 |
| when the mean temp. of the month was | 65°.48 | 66°.85 | 72°.47 | 64°.46 |
| Coldest month | January. | February | Jan.1857 | Feb. 1848 |
| when the mean temp. of the month was | 19°.86 | 22°.98 | 12°.75 | 26°.60 |
| Difference between the warmest and coldest months | 45°.62 | 43°.87 | | |
| Mean of deviations of monthly means, from their respective averages of 22 years, signs of deviation being disregarded | 2°.24 | 2°.44 | 3°.55 (in 1843 and1857) | 1°.35 (in 1853) |
| Month of greatest deviation without regard to sign | Decem'r | January | Jan. 1857 | |
| when the monthly mean differed from the 22 years' average of the same month by | 5°.0 | 3°.9 | 10°.7 | |
| Warmest day | Aug. 3 | July 20 | July 12 (1845) | July 31* (1844) |
| when the mean of the day was | 74°.20 | 77°.28 | 82°.32 | 72°.75 |
| Coldest day | Feb. 7 | Jan. 24 | Feb.6,'55 Jan22.57 | Dec. 22 (1842) |
| when the mean of the day was | —7°.7 | —0°.87 | —14°.38 | +9°.57 |
| Highest temperature | 87°.8 | 90°.4 | 99°.2 | 82°.4 |
| which occurred on | June 9 | July 22 | Aug. 24 (1854 | Aug. 19 (1840.) |
| Lowest temperature | —20°.8 | —12°.3 | —26°.5 | ×1°.9 |
| which occurred on | Feb. 8 | Jan. 25 | Jan. 26 (1859.) | Jan. 2 (1842) |
| Range of the year | 108°.6 | 102°.7 | 118°.2 (in1855) | 87°.0 (in 1847) |

* The mean temperature of the warmest day, in the foregoing table, refers to the twenty-two years, average of the warmest days in each year, irrespective of their dates, the average date being simply the arithmetic mean of the several dates measured from any fixed epoch. The same remark applies to the coldest day, and to the maxima of the year. As regards the low temperatures, the averages are derived from the coldest days and lowest temperatures in successive *winters*.—December being considered to belong to the following year.

There were twenty-seven days when the mean temperature of the day differed 12° and upwards from the normal mean of the day. Their distribution among the several months may be seen in the folllowing table:

| MONTHS | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| In excess..... | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 6 | 14 |
| In defect..... | 6 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 13 |
| Total..... | 6 | 4 | 5 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 8 | 27 |

BAROMETER.

| | 1861. | Average of 18 years. | Extremes in 18 years. | |
|---|---|---|---|---|
| Mean pressure of the year..... ..... | 29.6008 | 29.6133 | 29.6679 (in 1849) | 29.5880 (in 1852) |
| Month of highest pressure..... | December | September | June, 1849 | Sept. 1860 |
| when the mean pressure of the month was..... | 29.7461 | 29.6629 | 29.8030 | 29.6733 |
| Month of the lowest pressure..... | November | June | March, 1859 | Nov. 1849 |
| when the mean pressure of the month was..... | 29.5371 | 29.5624 | 29.4215 | 29.5868 |

| | 1861. | Average of 9 years. | Extremes in 9 years. | |
|---|---|---|---|---|
| Maximum pressure of the year..... | 30.330 | 30.372 | 30.552 | 30.245 |
| which occurred..... | Jan. 22 7 p.m. | —— | Jan. 1855 | Dec. 1854 |
| Minimum pressure of the year..... | 28 644 | 28.592 | 28.286 | 28.849 |
| which occurred..... | May 6 10 p.m. | —— | March, 1859 | March, 1858 |
| Range of the year..... | 1.686 | 1.780 | 2.106 (in 1859). | 1.429 (in 1860.) |

There were one hundred and three days when the mean pressure of the day differed 0.200 of an inch and upwards, from the adopted normal mean of the day. Their distribution through the year may be seen from the following table.

| MONTHS. | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| In excess..... | 5 | 4 | 5 | 4 | 5 | 1 | 0 | 3 | 2 | 5 | 3 | 9 | 46 |
| In defect..... | 6 | 9 | 7 | 6 | 5 | 1 | 3 | 0 | 4 | 6 | 7 | 3 | 57 |
| Total..... | 11 | 13 | 12 | 10 | 10 | 2 | 3 | 3 | 6 | 11 | 10 | 12 | 103 |

HUMIDITY.

| | 1861. | Average of 20 years. | Extremes in 20 years. | |
|---|---|---|---|---|
| Mean humidity of the year..... | 78 | 78 | 82, in 1851 | 73, in 1858 |
| Month of greatest humidity..... | January | January | Jan. 1857 | Dec. 1858 |
| when the mean humidity of the month was..... | 88 | 83 | 89 | 81 |
| Month of least humidity..... | May | May | Feb. 1843 | April, 1849 |
| when the mean of the month was..... | 69 | 72 | 58 | 76 |

## CLOUDS.

| | 1861. | Average of 9 years. | Extremes in 9 years. | |
|---|---|---|---|---|
| Mean cloudiness of the year | 62 | 60 | 62, in 1861. | 57, in'53'56 |
| Most cloudy month | February | December | Dec'58 Dec'60 Feb'61 | Dec. 1857 |
| when the mean of the month was | 83 | 75 | 83 | 73 |
| Least cloudy month | June | July & Aug. | July, 1853 | June, 1861 |
| when the mean of the month was | 45 | 45* | 34 | 45* |

## WIND.

| | 1861. | Result of 14 years. | Extremes in 14 years. | |
|---|---|---|---|---|
| Resultant direction | N. 56° w. | N. 60° w. | | |
| Mean resultant velocity in miles | 2.11 | 1.82 | | |
| Mean velocity without regard to direction | 7.47 | 6.78 | 8.55 in 1860 | 5.10 in 1853 |
| Month of greatest mean velocity | February | March | March, 1860 | Jan. 1848 |
| when the mean velocity was | 10.58 | 8.60 | 12.41 | 5.82 |
| Month of least mean velocity | August | July | Aug. 1852 | Sept. 1860 |
| when the mean velocity was | 4.21 | 4.91 | 3.30 | 5.79 |

## RAIN.

| | 1861. | Average of 21 years. | Extremes in 21 years. | |
|---|---|---|---|---|
| Total depth in the year in inches | 26.995 | 30.324 | 43.555 in 1843 | 21.505 in 1856 |
| No. of days on which rain fell | 136 | 106 | 136 in 1861 | 80 in 1841 |
| Greatest depth in one month fell in | November | September | Sept., 1843 | Sept. 1848 |
| when it amounted to | 4.294 | 3.973 | 9.760 | 3.115 |
| Rainy days were most frequent in | September | June | June, 1857 | May, 1841 |
| when their number was | 17 | 12 | 21 | 11 |
| Greatest depth of rain on one day | 3.132 | 2.138 | 3.360 | .. |
| which fell on | Nov. 2nd | .. | Oct. 6, 1849 | .. |
| Greatest depth in one hour | 0.41 | .. | .. | .. |
| which fell between | 1 & 2 A. M. Aug. 21st | .. | .. | .. |

The distribution of rain through the day, both as regards depth and frequency, is given in the following Table derived from an hourly rain gauge in operation from April to November inclusive:

| PERIODS | 6 a.m. to 10 a.m. | 10 a.m. to 2 p.m. | 2 p.m. to 6 p.m. | 6 p.m. to 10 p.m. | 10 p.m. to 2 a.m. | 2 a.m. to 6 a.m. | Total. |
|---|---|---|---|---|---|---|---|
| Per centage of depth | 9.2 | 12.7 | 22.8 | 23.5 | 17.9 | 13.9 | 100 |
| " " frequency | 14.0 | 14.0 | 17.0 | 17.7 | 18.0 | 19.3 | 100 |

SNOW.

| | 1861. | Average of 19 years & 22 years. | Extremes in 19 years and 22 years. | |
|---|---|---|---|---|
| Total depth in the year | 74.8 | 61.6 | 99.0 in 1855 | 38.4 in 1851 |
| No. of days on which snow fell | 76 | 57 | 87 in 1859 | 33 in 1848 |
| Greatest depth in one month fell in | February | February | Feb. 1846 | Dec. 1851 |
| when it amounted to | 29.7 | 18.0 | 46.1 | 10.7 |
| Days of snow were most frequent in | January | December | Dec. 1859 Jan. 1861 | Feb. 1858 |
| when their number was | 23 | 13.0 | 23.0 | 8 |
| Greatest depth in one day | 8 inches | .. | .. | .. |
| which fell on | Feb. 7th | .. | .. | .. |

RAIN AND SNOW (COMBINED).

*Where 10 inches of snow are considered as equivalent to 1 inch of rain.*

| | 1861. | Average of 19 years & 22 years. |
|---|---|---|
| Total depth in the year | 34.475 | 36.488 |
| Number of days in which rain or snow fell | 200 | 160* |
| Greatest depth in one month fell in | November | September |
| when it amounted to | 4.614 | 3.973 |
| Days of aqueous precipitation most frequent in | January | December |
| when their number was | 23 | 18 † |

On February 7th, a heavy snow-storm occurred, accompanied by a strong gale and intense cold. At one part of the day, when the temperature was 14°.3 below zero, the wind was blowing more than 33 miles an hour, with heavy falling and drifting snow. The temperature afterwards fell to 20°.8 below zero, but at that time the gale had subsided.

*Toronto, January*, 1862.

* The average minimum of cloudiness in the second column is the minimum of the twelve monthly means of nine years, and does not always include the lowest months of each year, as these fall differently in different years. This explains why the *highest* minimum in the fourth column should be numerically equal to the minimum on the average of nine years.

† These numbers include the cases in which both rain and snow have fallen in the same day, and which have been reckoned both in the rain and in the snow tables.

## BEEF TEA ECONOMICALLY PREPARED.

Six quarts of a most nutritious beef tea may thus be made at a very moderate expence:

"Let all the meat be scraped from the head of an ox, commonly called ox-cheek; roughly bruise the bones, and set them to boil in a slow fire for six hours with two gallons of soft water. At the end of that time throw in the above mentioned meat, and let the whole boil for two hours longer. Supply the place of the evaporated water so as to make in all six quarts. Strain, and the product will be six quarts of rich beef tea costing not more than half a crown."—*Dr. Cook in Medical Times and Gazette.*

THE

# British American Journal.

MONTREAL, JUNE, 1862.

## THE MARINE AND EMIGRANT HOSPITAL, QUEBEC.

An incident of a disagreeable nature has recently occurred in this institution, between two students and one of the attending physicians, Dr. Landry; and we observe with regret that an attempt has been made to give it a partizan character, as for example, Laval University vs. McGill University, for which we cannot see the shadow of a reason, because the two gentlemen alluded to had been students at McGill College during the last session, having we believe pursued a previous course of winter study at the University Laval. If Dr. Landry, the attending physician, is right on principle, we apprehend the same treatment would have been meted out to any student under like circumstances, no matter what school of medicine he attended. The affair has originated a good deal of newspaper controversy; and as far as we can glean the information, the case stands thus: Messrs. Bender and Bligh, the two gentlemen alluded to, both residents of Quebec, having returned to their homes after the closing of the winter session at McGill University, desirous of availing themselves of the extensive surgical practice at the Marine Hospital during the summer months, took out their hospital tickets for that purpose, tickets which according to one of the rules of the Hospital entitle their holders "to witness any operation or dissection, or to attend the clinical lectures." Their privileges are thus ample enough, but what those clinical lectures are is not defined; whether they consist in bed-side remarks, in a lecture on the case or cases in a separate room, or in both, we are not informed. The practice of the Montreal General Hospital consists in both, to the former of which every student who has feed the Hospital, let him come from whence he may, has full and free unquestioned access, and can put any question on the case that he pleases to the physician; to the latter, on the contrary, none are admitted who have not taken out the clinical class ticket, this lecture being delivered in the class room at the hospital. In this respect the practice at the Montreal General Hospital has been assimilated to that of Edinburgh, and we believe to that of all British Hospitals. It appears that Dr. Landry, the attending physician, after the previous conveyal of sundry hints, took recently personal exception to the presence

of these gentlemen, at, we believe, his bed-side observations, to which they demurred, and when ordered to leave the ward refused. They were accordingly reported for insubordination, and at a meeting of Directors, which seems, as far as we can judge, to have been very irregularly conducted, inasmuch as the accused were not permitted to hear the witnesses against them, nor even put in possession of the nature of the offence with which they were charged, they were forthwith condemned to apologise to the attending physician by a given day, or forfeit their tickets. Such then, as far as we can learn, is the nature of the case which has caused considerable excitement in the medical world of Quebec, and upon it we propose to make a few comments.

In the first place, when the attending physician ordered these gentlemen to leave the ward, even although in their own estimation, as in ours, they had an undoubted right to be present, it was their clear duty to have obeyed, however arbitrary the order may have been, inasmuch as their refusal tended to destroy the legitimate influence of the physician in a sphere in which when on duty he should be supreme. Obedience to the order, even if they were right, did not abolish their recourse against him for the tyrannical abuse of his power. And in the second place, as we believe that the affair occurred in the open ward of the Hospital while around the bed of the patient, remarks on whose case they had by virtue of their ticket an undoubted right to listen to, we think the attending physician was wrong, as a salaried Professor of Laval University, Dr. Landry has a perfect right to avail himself of his advantages at the Hospital which he is attending, for the benefit of the students of that University, but in going round the wards of the Hospital, as a paid physician of it too, we consider it but his duty to render that institution, so heavily subsidized as it is through government agency, as extensively useful as possible, and every student attending it, no matter whence he comes, is entitled to every particle of instruction from it which it is capable of affording. It must be observed that Dr. Landry was acting in no professorial capacity while discharging his duties to the patients in the Hospital, inasmuch as the Hospital is not a part and parcel of the University. He only exercises his functions as such when delivering his clinical lecture to his class, in a separate room in the Hospital or in some other building, from which he has a perfect right to exclude every one who has not conformed to his University rules as regards his clinical teaching in the form of lectures.

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### MR. LINTON AND DR. SHAVER OF STRATFORD.

This most restless and would-be notorious gentleman, whose name has so often figured in these pages, has at last got himself into a mess, and we hope that the lesson which he is likely to receive at the ensuing criminal assizes at Stratford, will prove a sedative. Dr. Shaver was lately called upon to sign a certificate of lunacy preparatory to the removal of an unfortunate man to the Asylum, which said certificate when duly laid before this august and deeply-learned clerk of the peace, was rejected by him on the ground that Dr. Shaver was not a licensed practitioner. We understand that this clerk of the peace has, in opposition to his title, been industriously circulating throughout his neighbourhood that Dr.

Shaver was unlicensed, very much to this gentleman's injury. An action of damages undoubtedly lies against him, but we learn that criminal proceedings are entered in an indictment for slander. We think that a party whose whole tenor of conduct against a neighbour seems to be so much tinctured with "malice, hatred, and all uncharitableness," is a very improper person to be a "Clerk of the Peace."

The whole proceeding is a cool and refreshing piece of impertinence on the part of a Clerk of the Peace in this warm weather. But we do not regret it, as it will test the validity of the Licenses of the College of Physicians and Surgeons of Lower Canada for practice in Upper Canada, of which we do not entertain the faintest shadow of a doubt.

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## COLLEGE OF PHYSICIANS AND SURGEONS OF LOWER CANADA.

The members of the College are especially reminded that the Triennial meeting will be held at Melbourne on the 2nd Tuesday of July next. As business of great moment will be submitted, a full attendance is particularly requested. At this meeting the election of the Board of Governors for the ensuing three years, to succeed those at present in office, will take place. Those gentlemen who find it impossible to attend should hand their proxies to a friend.

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## BRITISH AND FOREIGN MEDICO-CHIRURGICAL REVIEW.

We regret extremely to learn from a circular issued by the publisher, Mr. William Wood, successor to Messrs S. S. & W. Wood, that the republication of this important serial is to be discontinued, in consequence of the loss of many subscribers "by the deranged state of the country, and the want of punctuality in payment on the part of others." This is extremely to be regretted, as every reader of that serial must be convinced that the tone of every article in it was of the highest degree of medico-literary talent. We trust that by a spontaneous act on the part of the profession in the States and Canada, where we believe it had a large circulation, the issue of this most important republication will be forthwith resumed.

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## DEATH FROM HYDROPHOBIA.

We copy the following from the Galt *Reporter* of March 8th, 1862.—We have this week the painful duty to perform of announcing a death that occurred in Woolwich on Monday, March 3rd from that most dreadful of all diseases, hydrophobia. It appears that some nine weeks ago, as a man of the name of James Cain, a laborer, living on the farm of W. W. Bowman, Elmira, Woolwich township, was approaching his house in the evening, a strange dog that, during his absence had lain down on the door step, sprang at him and bit him in the cheek, quite close to his mouth. Mr. Cain immediately grasped the animal by the throat, and held him until his wife stunned him by a blow from a stick, when he took the axe and killed him. The wound from the bite healed rapidly, and all went on well until Saturday last, when poor Cain felt a tingling sensation in the old wound. He immediately sent for

medical advice, and on Saturday Dr. Bowlby, of Berlin, visited the unfortunate man. On the doctor's offering him a cup of tea, Cain sprang back in horror from the fluid, and the worst symptoms of hydrophobia developed themselves. The paroxysms became gradually more frequent and more violent, until on Monday death relieved the unfortunate man from his sufferings.

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*Death from Glanders.*—Another case of death from this frightful disease, caused by tending a horse affected by it, has occurred in the village of Clonkeen, Ireland. Human skill proved unavailing, but a severe reflection is cast upon the Irish constabulary force, who instead of killing horses so affected, endeavour to cure them at the imminent hazard of the unfortunates obliged to look after them while yet alive.

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*Two Presidents Married.*—The *Lancet* observes, that the year just closed has been remarkable for a unique circumstance in the annals of the profession, and therefore tenders its congratulation to the happy gentlemen. Towards the close of the last year the Presidents of the Royal College of Surgeons, and of the Royal College of Physicians, have each contracted and fulfilled matrimonial engagements. The happy members of our profession are Dr. Mayo and Mr. Cæsar Hawkins.

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## BOOKS, &c., RECEIVED.

On Bandaging and other Operations in Minor Surgery, by F. W. Sargent, M.D., &c A new edition with an additional chapter on Military Surgery, by W. F. Atlee, M.D., and one hundred and eighty-seven illustrations. Philadelphia: Blanchard & Lea. Montreal: Dawson & Son. Price, $1.50.

Anatomy descriptive and Surgical, by Henry Gray, F. R. S., &c. The drawings by H. V. Carter, M.D., &c. Second American from the revised and enlarged London edition, with three hundred and ninety-five engravings on wood. Philadelphia: Blanchard & Lea. Montreal: Dawson & Son, 1862. Royal 8vo. pp. 816.

On the Diseases and Injuries of the Hyoid or Tongue bone, by George D. Gibb, M.D., A.M., F. G. S., &c., illustrated with engravings on wood. London: Wm. Churchill, 1862. Pplt. pp. 48.

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## BIRTHS, MARRIAGES, DEATHS.

### BIRTHS.

At 117 Church street, Toronto, on the 5th instant, the wife of J. Lizars, Esq., surgeon, of a daughter.

### MARRIAGES.

On the 27th ultimo, at Toronto, at the residence of the bride's uncle, Geo. Price, Esq., by the Rev. Alexander Topp, M.A., Wm. Winslow Ogden, M.D., to Miss Elizabeth Price McKown.

On the 2nd instant, at Buffalo, by the Rev. William Shelton, Rector of St. Paul's Church, Joseph Henry Nelles, Esq., of Woodstock, to Fannie Sophia, eldest daughter of John J. Mason, M.D. of Brantford.

At St. George's Church, Toronto, on the 10th instant, by the Rev. George Whitaker, Provost of Trinity College, John Cunningham Stewart, Esq., to Geraldine Mary Laura, second daughter of E. M. Hodder, M.D.

### DEATHS.

In Ayr, on Friday, the 16th instant, Dr. Chas. McGeorge, aged 44.

In Paris, on the 3rd instant, Robert McCosh, M.D., aged 55.

## STATISTICS OF MORTALITY IN THE CITY OF MONTREAL.

Compiled by G. E. Fenwick, M. D.

*From Returns of Interments in the Mount Royal Cemetery, March and April, 1861.*

### March.

| Diseases. | Males. | Females. | Total. | Stillborn. | Under 2 years. | 2 to 8 years. | 8 to 15 years. | 15 to 20 years. | 20 to 30 years. | 30 to 40 years. | 40 to 50 years. | 50 to 60 years. | 60 to 70 years. | 70 to 80 years. | 80 to 90 years. | Over 90 years. | Centre. | West. | East. | St. Antoine. | St. Anns. | St. Lawrence. | St. Louis. | St. James. | St. Mary. | From country. | Nat. of Canada. | Foreign. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stillborn .. | 3 | 2 | 5 | 5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | .. | 2 | .. | .. | 5 | .. |
| Inf. Debility | 2 | 1 | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | 1 | 3 | .. |
| Gen. Debilit. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Small Pox.. | .. | 2 | 2 | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 2 | .. |
| Measles.... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Scarlet Fev. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Fever ..... | .. | 1 | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | .. |
| Convulsions | 2 | 1 | 3 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| Hydroceph'. | 1 | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 1 | .. |
| Inf. Brain.. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Cong. Brain | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Soft. " | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. |
| Apoplexy .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 |
| Influenza... | 1 | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | .. | .. | 2 |
| Hoop. C'ugh | 1 | 1 | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 1 | .. | .. | 2 | .. |
| Croup..... | 1 | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| Diphtheria | 1 | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | .. |
| Inf. Lungs.. | 1 | 2 | 3 | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | .. | .. | .. | 1 | .. | .. | .. | 1 | 2 | 1 |
| Consumpt'n | 2 | 2 | 4 | .. | .. | .. | 1 | .. | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | 1 | 1 | .. | 1 | 3 |
| Asthma.... | 1 | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | 2 |
| Dis. Heart.. | .. | 2 | 2 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | 1 |
| Dentition... | 1 | 1 | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | .. | .. | .. | .. | .. | 2 | .. |
| Inf. Bowls... | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | .. |
| Dropsy..... | .. | 1 | 1 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 2 | 3 | .. |
| Diarrhœa... | .. | 1 | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 | .. |
| Total .... | 18 | 20 | 38 | 5 | 16 | 2 | 3 | .. | 1 | 2 | 1 | 1 | 4 | 3 | .. | .. | .. | 2 | 1 | 7 | 4 | 7 | 1 | 5 | 4 | 7 | 28 | 10 |

### April.

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stillborn . | 1 | 2 | 3 | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | 1 | .. | 3 | .. |
| Inf. Debility | 5 | .. | 5 | .. | 5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 1 | .. | .. | 2 | 1 | 5 | .. |
| Sen. Debilit. | 2 | 2 | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 3 | .. | .. | .. | .. | .. | .. | 4 | .. | .. | .. | .. | .. | .. | 4 |
| Small Pox... | 1 | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | .. | .. |
| Measles.... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Scarlet Fev. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Fever ..... | .. | 1 | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| Convuls'ons | .. | 1 | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 | .. |
| Hydrocephl. | 1 | 2 | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | 1 | .. | .. | 3 | .. |
| Cong. Brain | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| Inf. Brain .. | 1 | 1 | 2 | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | 1 | 1 |
| Apoplexy .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Epilepsy.... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Diphtheria | 1 | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 | .. |
| Hoop. C'ugh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Croup..... | 1 | 1 | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 1 | .. | .. | .. | .. | 2 | .. |
| Inf. Lungs.. | 2 | .. | 2 | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | 2 | .. |
| Consumpt'n | 1 | 2 | 3 | .. | 1 | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | .. | .. | 1 | 2 | 1 |
| Asthma.... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Dis. Heart.. | 1 | .. | 1 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 |
| Dentition .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Dis. Liver.. | .. | 2 | 2 | .. | .. | 1 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | 1 | 1 |
| Erysipelas.. | 1 | .. | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| Inf. Bowels. | 1 | .. | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Dropsy .... | 1 | 1 | 2 | .. | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | 1 | 1 |
| Total.... | 21 | 15 | 36 | 3 | 12 | 6 | 1 | 1 | 3 | 2 | 4 | .. | 1 | 3 | .. | .. | 3 | 2 | .. | 4 | 3 | 10 | 6 | 2 | 4 | 2 | 26 | 10 |

## STATISTICS OF MORTALITY IN THE CITY OF MONTREAL.

*From Returns of Interments in the Roman Catholic Cemetery, March and April,* 1861.

MARCH.

| Disease. | Males. | Females. | Total. | Stillborn. | Under 2 yrs. | 2 to 8 years. | 8 to 15 years. | 15 to 20 yrs. | 20 to 30 yrs. | 30 to 40 yrs. | 40 to 50 yrs. | 50 to 60 yrs. | 60 to 70 yrs. | 70 to 80 yrs. | 80 to 90 yrs. | Over 90 yrs. | Centre. | West. | East. | St. Antoine. | St. Anns. | St. Lawrence. | St. Louis. | St. James. | St. Mary. | Sœurs Grises. | Country. | Natives. | Foreign. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stillborn.... | 8 | 4 | 12 | 12 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 2 | 1 | 5 | .. | 2 | 12 | .. |
| Inf. Debility.. | 30 | 39 | 69 | .. | 69 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 4 | 7 | .. | 6 | 7 | 4 | 30 | 9 | 65 | 4 |
| Sen. Debility. | 1 | ... | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. |
| Small Pox... | 5 | 8 | 13 | .. | 2 | 11 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 4 | 1 | 3 | 1 | .. | 2 | 12 | 1 |
| Measles ..... | .. | 2 | 2 | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | 2 | .. |
| Scarlet Fever | 2 | 1 | 3 | .. | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 2 | 3 | .. |
| Fever ..... | 2 | 2 | 4 | .. | .. | 2 | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | .. | 1 | .. | 1 | 3 | 1 |
| Hydrocephal. | 1 | 1 | 2 | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| Apoplexy.... | 1 | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 1 | 1 |
| Paralysis .... | 1 | ... | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. |
| Croup..... | 4 | 1 | 5 | .. | .. | 5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | .. | 1 | .. | 2 | 5 | .. |
| Hoop. Cough | .. | ... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Inflam. Lungs | 4 | 4 | 8 | .. | .. | 3 | .. | 1 | .. | 1 | .. | .. | 3 | .. | .. | .. | .. | .. | 1 | 2 | .. | .. | 1 | 2 | 1 | 1 | .. | 5 | 3 |
| Consumption. | 6 | 14 | 20 | .. | .. | .. | 3 | 10 | 5 | 2 | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 3 | 2 | 4 | 1 | 4 | 3 | .. | 2 | 8 | 12 |
| Asthma..... | 3 | ... | 3 | .. | .. | .. | .. | .. | 1 | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | 1 | 2 | 1 |
| Dis. Heart... | .. | 2 | 2 | .. | .. | .. | 1 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | 1 | 1 |
| Infl. Bowels.. | 3 | 1 | 4 | .. | .. | 1 | .. | .. | .. | .. | 1 | 2 | .. | .. | .. | .. | .. | .. | 1 | 2 | .. | 1 | .. | .. | .. | .. | .. | 4 | .. |
| Dropsy..... | 4 | 5 | 9 | .. | .. | 1 | .. | .. | 1 | .. | 1 | 1 | 1 | 4 | .. | .. | .. | .. | .. | .. | .. | 5 | .. | 2 | 1 | .. | 1 | 6 | 3 |
| Dis. of Liver. | 1 | ... | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | .. |
| Dentition..... | 5 | 3 | 8 | .. | 8 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | 3 | .. | 3 | 7 | 1 |
| Childbirth ... | .. | 4 | 4 | .. | .. | .. | .. | .. | 1 | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | 1 | .. | .. | .. | 1 | 3 | 1 |
| Accidental .. | 1 | 1 | 2 | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 1 | 2 | .. |
| Del. Tremens. | 2 | ... | 2 | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | .. | .. | 1 | 1 |
| Rheumatism. | 1 | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | 2 | .. |
| Erysipelas .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Rupture .... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Gangrene ... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Scrofula .... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Abscess..... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Total..... | 85 | 94 | 179 | 12 | 79 | 30 | 2 | 6 | 12 | 12 | 6 | 5 | 8 | 6 | 1 | .. | 1 | 1 | 3 | 19 | 17 | 17 | 18 | 20 | 21 | 33 | 29 | 148 | 13 |

APRIL.

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stillborn.... | 8 | 4 | 12 | 12 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | .. | 4 | 2 | 1 | .. | 2 | 12 | .. |
| Sen. Debility. | 7 | 5 | 12 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 5 | 2 | 1 | .. | .. | .. | 2 | .. | 1 | 1 | 6 | .. | 1 | 1 | 11 | 1 |
| Inf. Debility.. | 44 | 27 | 71 | .. | 71 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 6 | 7 | 1 | 5 | 5 | 7 | 29 | 10 | 65 | 6 |
| Small Pox... | 2 | 1 | 3 | .. | .. | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | .. | .. | 1 | 3 | .. |
| Fever..... | 1 | 3 | 4 | .. | .. | 1 | 1 | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | 1 | .. | 3 | 1 |
| Hydrocephal. | 1 | ... | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | .. |
| Apoplexy ... | 1 | ... | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. |
| Paralysis.... | 1 | ... | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 | .. |
| Croup..... | 1 | ... | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | .. |
| Infl. Lungs.. | 1 | ... | 1 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | .. |
| Consumption | 10 | 6 | 16 | .. | .. | .. | .. | 3 | 4 | 5 | 1 | 1 | 1 | 1 | .. | .. | .. | .. | .. | 2 | .. | 7 | 2 | 5 | .. | .. | .. | 5 | 11 |
| Dis. Heart... | 1 | 1 | 2 | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | .. | .. | 1 | 1 |
| Infl. Bowels.. | 5 | 1 | 6 | .. | .. | 1 | 1 | .. | 1 | .. | 2 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | .. | 2 | .. | 1 | 4 | 2 |
| Erysipelas... | 1 | ... | 1 | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 1 | .. |
| Dis. Liver.... | 1 | ... | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | .. |
| Dropsy..... | 1 | 5 | 6 | .. | .. | .. | 1 | 1 | .. | .. | 3 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | 1 | 1 | .. | .. | 3 | 3 |
| Dentition ... | 1 | 2 | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 1 | .. | .. | 1 | .. | .. | 2 | 1 |
| Gravel..... | 1 | ... | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | .. |
| Accidental... | 4 | 1 | 5 | .. | .. | .. | .. | 2 | .. | .. | 1 | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | 4 | .. | .. | .. | 1 | .. | .. | 2 | 3 |
| Surgical oper. | 1 | 1 | 2 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | 2 | .. |
| Childbirth ... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Rheumatism.. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Worms ..... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Total..... | 93 | 57 | 150 | 12 | 74 | 5 | 6 | 6 | 7 | 7 | 8 | 6 | 7 | 8 | 3 | 1 | 1 | .. | 1 | 13 | 17 | 13 | 21 | 20 | 16 | 30 | 18 | 121 | 29 |

## ABSTRACT OF METEOROLOGICAL OBSERVATIONS AT *MONTREAL* IN MAY, 1862.

*By Archibald Hall, M.D.*

| Day. | Barometer corrected and reduc'd to F. 32° | Temp'rature of the Air. | Dew Point. | Relative Humidity. | Ozone. | CLOUDS. Amount. | CLOUDS. General description | Maximum read at 9, P. M. | Minimum read at 7, A. M. | Its general Direction and Mean Force from 0 Calm to 10 Violent Hurricane. | | RAIN AND SNOW. Rain in 24 h'rs read at 10, A.M. | Snow in 24 h'rs read at 10 A.M. | Total rain and melted snow. | GENERAL OBSERVATIONS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inc's. | ° | ° | 0.100 | 0.10 | 0-10 | | ° | ° | | 0.10 | Inch. | Inch. | | |
| 1 | 30.129 | 46.0 | 40.3 | .83 | 8.0 | 9.6 | Nimb. | 62.0 | 39.0 | S. | 2.3 | ..... | ..... | ..... | |
| 2 | 29.859 | 45.6 | 44.2 | .97 | 10.0 | 10.0 | Nimb. | 50.7 | 39.6 | N.N.E. | 1.3 | 1.41 | ..... | 1.41 | |
| 3 | 29.844 | 56.0 | 46.1 | .75 | 7.0 | 6.6 | Cu. St. | 66.3 | 44.5 | S.E. | 1.3 | 0.20 | ..... | 0.20 | |
| 4 | 29.755 | 55.3 | 44.2 | .69 | 7.5 | 6.0 | Cu. | 63.2 | 43.7 | S.W. | 2.0 | ..... | ..... | ..... | |
| 5 | 29.643 | 52.7 | 42.9 | .75 | 7.5 | 8.0 | Cu. St. | 64.4 | 36.5 | W.N.W. | 2.3 | 0.03 | ..... | 0.03 | |
| 6 | 29.590 | 47.3 | 40.1 | .77 | 5.5 | 6.3 | Cir. St. | 60.3 | 36.2 | N.N.W. | 2.0 | ..... | ..... | ..... | |
| 7 | 29.702 | 41.9 | 35.8 | .83 | 8.0 | 8.0 | Nimb. | 54.2 | 31.2 | N.W. | 2.0 | 0.03 | 3.00 | 0.51 | |
| 8 | 29.877 | 50.0 | 37.3 | .64 | 5.0 | 3.6 | Cu. | 59.5 | 37.9 | W. | 1.6 | Inap. | 0.50 | 0.08 | |
| 9 | 29.635 | 61.1 | 48.5 | .65 | 6.0 | 8.3 | Nimb. | 76.0 | 45.0 | W. | 4.0 | ..... | ..... | ..... | Thunder and Lightning. |
| 10 | 29.776 | 51.0 | 34.6 | .56 | 4.0 | 3.6 | Strat. | 65.8 | 45.2 | N.W. | 4.0 | 0.01 | ..... | 0.01 | |
| 11 | 30.039 | 55.9 | 39.7 | .60 | 2.5 | 1.0 | Cu. | 65.8 | 41.8 | N. | 2.6 | ..... | ..... | ..... | |
| 12 | 29.971 | 60.8 | 42.3 | .54 | 2.5 | 5.0 | Cu. St. | 70.9 | 45.7 | S.W. | 3.6 | ..... | ..... | ..... | |
| 13 | 29.957 | 53.9 | 45.1 | .75 | 5.5 | 4.3 | Cu. | 64.2 | 47.0 | N.E. | 1.6 | 0.09 | ..... | 0.09 | |
| 14 | 30.065 | 58.1 | 43.5 | .61 | 5.0 | 1.6 | Cir. St. | 68.4 | 43.7 | W.S.W. | 1.0 | ..... | ..... | ..... | |
| 15 | 30.061 | 66.0 | 47.2 | .54 | 2.0 | 2.0 | Cir. St. | 81.9 | 47.2 | S.W. | 2.0 | ..... | ..... | ..... | |
| 16 | 30.033 | 72.5 | 48.7 | .48 | 2.5 | 1.6 | Cir. St. | 83.8 | 53.2 | S.S.W. | 2.6 | ..... | ..... | ..... | |
| 17 | 29.879 | 77.0 | 56.0 | .50 | 3.0 | 0.6 | Cu. | 84.8 | 56.8 | S.S.W. | 3.3 | ..... | ..... | ..... | [distant Lightning in S. |
| 18 | 29.637 | 75.7 | 59.8 | .62 | 3.5 | 2.3 | Cu. | 86.2 | 61.3 | S. | 3.3 | ..... | ..... | ..... | Auroral light at 11·30 P.M. |
| 19 | 29.618 | 57.7 | 48.7 | .77 | 6.5 | 9.0 | Cu. St. | 72.0 | 52.7 | W.S.W. | 4.6 | 0.02 | ..... | 0.02 | |
| 20 | 29.979 | 52.5 | 35.5 | .58 | 5.5 | 3.3 | Cu. | 59.7 | 41.8 | W.S.W. | 3.3 | ..... | ..... | ..... | Cypsilus pelasgius seen. |
| 21 | 30.033 | 55.3 | 48.0 | .80 | 9.5 | 10.0 | Nimb. | 65.6 | 43.3 | S.E. | 2.6 | ..... | ..... | ..... | |
| 22 | 29.896 | 60.4 | 52.6 | .80 | 6.5 | 6.6 | Cu. St. | 68.2 | 56.5 | S.W. | 4.6 | 0.55 | ..... | 0.55 | Heavy Gale. |
| 23 | 29.912 | 56.0 | 41.2 | .32 | 4.0 | 4.6 | Cu. | 71.0 | 48.3 | W. | 3.3 | 0.03 | ..... | 0.03 | Faint Auroral light. |
| 24 | 30.100 | 54.5 | 34.3 | .56 | 5.5 | 4.6 | Cu. St. | 62.0 | 37.0 | S.W. | 3.0 | ..... | ..... | ..... | Frost dur. night. |
| 25 | 29.993 | 56.8 | 40.1 | .56 | 6.5 | 4.3 | Cu. | 66.3 | 37.0 | W. | 3.3 | Inap. | ..... | Inap. | Slight storm from S.W.noon |
| 26 | 30.010 | 55.3 | 42.9 | .67 | 5.5 | 8.6 | Cu. St. | 65.0 | 42.5 | E.S.E. | 1.6 | Inap. | ..... | Inap. | |
| 27 | 29.673 | 64.2 | 49.6 | .61 | 9.0 | 9.3 | Cu. St. | 72.2 | 55.0 | S. | 3.0 | ..... | ..... | ..... | |
| 28 | 29.744 | 57.9 | 38.2 | .49 | 4.5 | 5.3 | Cu. St. | 66.0 | 50.8 | W.N.W. | 2.6 | 0.06 | ..... | 0.06 | [mers at midnight. |
| 29 | 29.795 | 59.0 | 40.2 | .52 | 3.0 | 3.0 | Cu.. | 68.5 | 45.6 | W.N.W. | 3.3 | ..... | ..... | ..... | Auroral light with ft. strea- |
| 30 | 29.823 | 60.5 | 44.4 | .58 | 2.0 | 0.0 | 00 | 68.9 | 46.8 | S.E. | 2.0 | ..... | ..... | ..... | Au. light bright at midnight |
| 31 | 29.806 | 65.8 | 44.6 | .49 | 1.0 | 1.0 | St. | 74.5 | 46.0 | S.W. | 1.6 | ..... | ..... | ..... | Faint Auroral light. |
| S's | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2.70 | 3.5 | 2.99 | |
| M's | 29.8693 | 58.93 | 43.46 | .654 | ..... | ..... | ..... | 68.00 | 45.20 | ..... | ..... | | | | |

## ABSTRACT OF METEOROLOGICAL OBSERVATIONS AT *TORONTO* IN MAY, 1862.

*Compiled from the Records of the Magnetic Observatory.*

| Day. | Barometer reduced to 32° Fah. | Temperature of the Air. | Relative Humidity. | Amount of Cloudiness. | THERMOMETER. Max'm read at 6, A.M. of next day. | THERMOMETER. Min'm read at 2, P.M. of same day. | Dew Point at 3, P.M. | WIND. General Direction. | WIND. Mean Velocity in Miles per hour. | RAIN AND SNOW in 24 hours, ending at 6 A.M. next day. Rain. | Snow. | Total rain and melted Snow. | Ozone in 24 hours ending 6 A.M. of next day. | GENERAL REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inches. | ° | 0—100 | 0—10 | ° | ° | ° | | | Inch. | Inch. | Inch. | 0.10 | |
| 1 | 29.5143 | 42.27 | 87 | 10 | 49.0 | 41.6 | 37.0 | N. 82 E. | 14.37 | .255 | ..... | .255 | ..... | |
| 2 | .4335 | 44.37 | 88 | 7 | 53.5 | 39.8 | 46.0 | S. 20 W. | 6.77 | .135 | ..... | .135 | ..... | Dense Fog. |
| 3 | .5233 | 46.43 | 76 | 9 | 53.2 | 39.2 | 39.0 | S. 62 W. | 8.03 | .007 | ..... | .007 | ..... | |
| 4 | ..... | Sunday | | | 55.0 | 36.5 | ..... | N. 45 W. | 5.94 | ..... | ..... | ..... | ..... | Hoar frost. |
| 5 | .4492 | 46.45 | 73 | 9 | 54.6 | 40.0 | 40.0 | N. 39 W. | 12.27 | ..... | ..... | ..... | ..... | |
| 6 | .4105 | 52.35 | 56 | 8 | 63.8 | 43.0 | 34.0 | N. 53 W. | 17.14 | ..... | ..... | ..... | ..... | Faint Aurora. |
| 7 | .5770 | 45.90 | 48 | 2 | 52.6 | 40.2 | 26.0 | N. 30 W. | 10.43 | ..... | ..... | ..... | ..... | |
| 8 | .7220 | 51.97 | 61 | 2 | 68.0 | 32.4 | 43.0 | N. 80 W. | 8.19 | ..... | ..... | ..... | ..... | Hoar frost and Thin Ice. |
| 9 | .5895 | 65.48 | 45 | 2 | 78.5 | 41.5 | 37.0 | N. 57 W. | 16.33 | ..... | ..... | ..... | ..... | |
| 10 | .6265 | 60.33 | 52 | 0 | 70.5 | 54.6 | 33.0 | N. 26 W. | 15.81 | ..... | ..... | ..... | ..... | |
| 11 | ..... | Sunday | | | 59.6 | 40.2 | ..... | S. 47 W. | 3.24 | ..... | ..... | ..... | ..... | |
| 12 | .6948 | 58.03 | 63 | 3 | 67.5 | 39.4 | 44.5 | S. 38 W. | 5.65 | Inap. | ..... | Inap. | ..... | Lightning in N. E. |
| 13 | .5917 | 50.20 | 88 | 7 | 60.0 | 46.0 | 45.0 | N. 35 E. | 3.93 | .160 | ..... | .160 | ..... | |
| 14 | .7345 | 52.43 | 60 | 0 | 62.2 | 42.6 | 31.5 | N. 69 E. | 6.85 | ..... | ..... | ..... | ..... | |
| 15 | .7778 | 56.20 | 57 | 2 | 65.5 | 44.4 | 44.0 | N. 73 E. | 2.73 | ..... | ..... | ..... | ..... | |
| 16 | .7313 | 59.93 | 72 | 0 | 74.0 | 43.6 | 58.5 | S. 42 W. | 1.17 | ..... | ..... | ..... | ..... | |
| 17 | .5750 | 60.75 | 73 | 1 | 72.4 | 49.0 | 53.0 | S. 62 E. | 2.03 | ..... | ..... | ..... | ..... | |
| 18 | ..... | Sunday | | | 71.8 | 51.6 | ..... | S. 89 W. | 10.21 | ..... | ..... | ..... | ..... | Lightning in W. |
| 19 | .5070 | 41.87 | 69 | 10 | 45.6 | 40.8 | 31.5 | N. 68 W. | 8.55 | ..... | ..... | ..... | ..... | |
| 20 | .6643 | 44.08 | 70 | 5 | 51.0 | 32.6 | 34.5 | S. 73 E. | 6.55 | ..... | ..... | ..... | ..... | |
| 21 | .4520 | 49.25 | 81 | 8 | 56.0 | 42.0 | 50.0 | S. 58 E. | 12.67 | .855 | ..... | .855 | ..... | Thunder storm. Au. at night |
| 22 | .5972 | 54.37 | 68 | 5 | 64.4 | 47.8 | 47.0 | S. 69 W. | 12.92 | ..... | ..... | ..... | ..... | |
| 23 | .7885 | 50.45 | 52 | 1 | 59.8 | 47.1 | 33.0 | N. 55 W. | 13.83 | ..... | ..... | ..... | ..... | Faint Aurora. |
| 24 | .8535 | 46.07 | 58 | 1 | 53.5 | 33.8 | 39.5 | S. 7 E. | 4.31 | ..... | ..... | ..... | ..... | Hoar frost and Ice. |
| 25 | ..... | Sunday | | | 58.5 | 37.0 | ..... | S. 15 W. | 4.96 | ..... | ..... | ..... | ..... | Solar Halo. |
| 26 | .5210 | 52.38 | 68 | 7 | 59.2 | 42.5 | 42.0 | S. 80 E. | 3.42 | .015 | ..... | .015 | ..... | Lightning in S. W. |
| 27 | .3633 | 58.28 | 67 | 7 | 71.4 | 49.6 | 58.0 | N. 88 W. | 9.58 | Inap. | ..... | Inap. | ..... | |
| 28 | .6032 | 51.23 | 53 | 0 | 63.0 | 41.2 | 32.5 | N. 30 W. | 6.78 | ..... | ..... | ..... | ..... | |
| 29 | .5875 | 55.15 | 52 | 2 | 64.1 | 36.0 | 41.0 | S. 58 W. | 3.22 | ..... | ..... | ..... | ..... | Hoar frost. Solar Halo. |
| 30 | .5080 | 55.03 | 54 | 7 | 60.0 | 44.8 | 36.5 | East. | 2.48 | ..... | ..... | ..... | ..... | Auroral light and Streamers. |
| 31 | .5212 | 57.40 | 52 | 7 | 66.2 | 41.4 | 35.0 | N. 56 E. | 3.51 | ..... | ..... | ..... | ..... | Auroral light. |
| S's | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1.427 | ..... | 1.427 | ..... | |
| M's. | 28.5895 | 52.17 | 65 | 5 | 61.43 | 42.01 | 40.44 | N. 64 W. | 7.87 | | | | | |