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**ON THE FUNCTION OF THE PAPILLARY MUSCLES OF THE HEART.**

(Translated from the German of Prof. Weber and Dr. Scoda.)

DEAR SIR,—Should you think the following view of the Function of the Papillary Muscles of the Heart, which has not as yet, as far as I am aware, appeared in English, worthy of a place in your valuable journal, you will oblige by its insertion,

Your's sincerely,

ARTHUR FISHER, M.D., &c.

Bonaventure street, 1st June, 1845.

Dr. Scoda, in a note to his original and excellent work on Auscultation and Percussion, whence the following paper is drawn, remarks—"A view similar to mine respecting the function of the papillary muscles, has been already published by Professor Weber, (Hildebrand's Anatomy, vol. iii., p 137.) Of this, however, I became only lately aware; and as I had met with no attempt to explain their use in any physiological work, I published my view in the Austrian Medical Journal, (Medicinisches Jahrbuchern Oesterreichs.) vol. xiii., art. 2, supposing that to have been its first appearance in print."

"Laennec," says Scoda, "conceived the connection between the papillary muscles and the valves, to be of such a nature, that the contraction of the former must open the latter. This mistaken opinion, consequently, led to the erroneous conclusion, that the papillary fibres did not contract simultaneously with the other fibres of the ventricles, but during the ventricular diastole, in order by opening the valves to furnish a passage for the blood into the ventricles. Bouillaud, on the other hand, thinks it quite evident that the valves are closed by these muscles.

No degree of strength, by which the papillary muscles, and consequently the tendinous cords arising from them, can be drawn in the direction in which they lie in the heart, will either close the valves or diminish the size of their openings. Hence their contraction cannot close the valves. It has also not been observed that the blood passes with increased difficulty from the auricles into the ventricles, in cases where these muscles are found to be flaccid. The opinions of Laennec

and Bouillaud respecting their functions are both erroneous; and as the valves cannot be closed by the contraction of the papillary muscles, there remains only one way in which they can, viz., by the pressure of the blood against them. The cords passing from the muscles to the valves, are evidently for the purpose of steadying, and preventing the passage of the latter backwards; for were the free edges of the mitral and tricuspid valves not held by the tendinous cord, the valves must necessarily be driven during the systole of the ventricles, by the stream of blood, partly into the auricles, and partly against the mouths of the arteries, so as completely to prevent their closing.

Of such importance to the function of the valves is the peculiar disposition of the cords upon them, that were this otherwise, the regurgitation of the blood into the auricles during the systole of the ventricles, could not be prevented. Notwithstanding this, an exact description of this distribution of the cords in the mitral and tricuspid valves is no where to be found; and even Bouillaud, who has made the heart so much his study, does not seem to have appreciated this distribution, or known its object.

Several strong cords run from each papillary muscle, to be inserted into the ventricular surface of the valve, from its centre to the angle which it forms with the side of the ventricle. From about the middle of these cords, and from the papillary muscles, there arises a set of weaker ones, which are inserted nearer the free edge of the valve. These again furnish a fixed point for others still more slender, which are inserted nearer to or into the free edge of the valve. To the auricular surface of the valve there are no cords attached.

If the papillary muscles be drawn upon in the direction in which they lie in the heart, the stronger cords which arise directly from them will alone be rendered tense; the weaker ones which arise from the stronger and are inserted nearer to or into the free edge of the valve, remain flaccid even when the greatest force is used, consequently the free edge of the valve can never be rendered tense by drawing on the papillary muscles; that portion which lies between their junction with the ventricular wall, and the point into which the cords arising from the papillary muscles are inserted, will alone be expanded. The rest of the valve, viz., the

portion between the free edge and the centre, will remain flaccid.

If pressure in the direction of the auricle be made on any point in this flaccid part of one of the mitral or tricuspid valves, so that the cords inserted into it shall be rendered tense, a number of pouches will be observed in the part; and if the pressure be applied to the whole of the valves, the surface facing the auricle will not be found even, but composed of pouches, which begin at the free edge of the valve, and extend to its centre, or even beyond; this peculiarity of the surface evidently depends on the manner in which the tendinous cords are distributed.

These pouches represent small crescentic valves, a large number of which form the mitral and tricuspid valves, which are held in the proper direction by the tendinous cords. If the flaccid part of one of the valves be blown in the direction of the auricle, it becomes expanded like a sail, and the pouches over the whole circumference of the free edges are seen at once. The same may be observed by pouring water against the surface of the valve.

When the blood is pressed backwards towards the auricles during the systole of the ventricles, it is necessarily caught in the small semilunar pouches of the mitral and tricuspid valves, and forces the flaccid portions of these valves, as far in the direction of the auricles as the length of the tendinous cords will allow. The blood, by thus expanding the valves, shuts the way into the auricles against itself, that is as long as the valves are held by the tendinous cords in such a direction as when expanded to completely close the passage. Hence, the tendinous cords of the valves would not answer their end, were they attached indifferently to any part of the ventricular walls, or were they not of a particular length.

The width of the ventricles is greater at the commencement of their systole than at its termination, and the points of attachment of the papillary muscles in the walls of the heart, approach, in proportion as the ventricles contract nearer to the fixed points of the mitral and tricuspid valves. If the tendinous cords to effect the closing of the valves require to be of a certain length, the object of the papillary muscles is very evident.

Supposing them to arise immediately from the walls of the heart, and to be of exactly the proper length at the commencement of the ventricular systole, they must become too long during its progress. If, on the other hand, they were only long enough to hold the valves in a proper direction at the end of the systole, they must prevent the diastole of the ventricles. As a change in the length of the tendinous cords is impos-

sible, the object of their connection with muscles, viz, by their shortening and lengthening, to keep the valves constantly in the proper position, is obvious. In proportion as the origins of the papillary muscles approach the fixed points of the valves during the ventricular systole, these muscles become shortened, and the tendinous cords arising from them would, provided the blood did not press against them, remain in the same state of tenseness in which they were at the beginning of the ventricular systole, and would also retain the same degree during the diastole, because the papillary muscles lengthen as the walls of the heart recede from each other.

The correctness of the above view is farther confirmed by the circumstance of that portion of the tricuspid valve, which is attached to the septum, not receiving its cords from papillary muscles, but directly from the wall of the cavity. The points of attachment of those cords on the septum, approach the fixed point very little, if at all, during the systole of the ventricles, and recede as little during their diastole, a tendinous cord is consequently here quite sufficient to fix the valve, no change in its length being required.

According to all that has been said, the action of the mitral and tricuspid valves may be described as follows:—During the contraction of the ventricle, the passage of the valves into the auricles, and against the mouths of the arteries, is prevented by the shortening of the papillary muscles. The papillary muscles, and the cords arising from them, at the same time approach each other, the surface of the valves where the cords are inserted becomes wrinkled; and the auriculo-ventricular passages are made narrower.

The remaining portion of the passages is closed by that portion of the valve which is not drawn upon by the papillary muscles. This portion of the valves is blown up like a sail by the pressure of the blood, the single points in the free edges of the valves come alternately in contact with those of the opposite valves, and partly from the support which they yield each other, but principally from that derived from the cords, their free edges are prevented from being turned back. As the delicate cords which go to the free edges of the valves, arise from the stronger ones, which have their origin in the papillary muscles, the larger cords are drawn closer together, and in a curved direction, by the smaller ones; when the latter become tightened by the pressure of the blood on the free edges of the valves.

With the ventricular diastole the papillary muscles lengthen, and separate from each other. Were the valves not held in a proper direction by the tendinous cords, they would be driven by the blood in its passage out of the auricles, against the sides of the ventricles, and partly across the mouths of the arteries. The ten-

dinous cords arising from the papillary muscles do not relax during the diastole, for if they did, the valves could not in the beginning of the systole possess the direction required for their immediate closing, a large quantity of blood would every time regurgitate from the ventricles into the auricles, and the valves would frequently require to be drawn into the proper direction for opposing the regurgitation of the blood, by the contraction of the papillary muscles.

In order that the mitral and tricuspid valves may perfectly perform their function, their free edges must exhibit the above-mentioned pouches, and the tendinous cords and papillary muscles must possess a length in proportion to the capacity of the ventricles. If the structure of the valves be other than normal, they are either not in condition to prevent the return of the blood into the auricles during the ventricular systole, or they are insufficient, or they offer hindrances to the passage of the blood from the auricles into the ventricles during the systole of the latter.

Insufficiency takes place in thickening and shortening of the free edges of the valves, when the free edges grow together with the tendinous cords, which are inserted into the middles of the valves, by which the pouches become obliterated in shortening, lengthening, or tearing of the tendinous cords, in excrescences, deposition of coagulated blood, &c.; at the edges of the valves, and in growing together of the valves with the sides of the ventricles, the blood is hindered in its passage into the ventricles by considerable excrescences, coagula of blood, chalky concretions, &c., on the auricular surfaces of the valves, or by a growing together of the tendinous cords, or of these with the free edges of the valves, which prevents a separation of the valves from each other.

*Action of the semilunar valves.*—The semilunar valves in the aorta and pulmonary artery, are pressed during the systole of the ventricles, by the blood which is forced into the arteries against the sides of the latter, and during the diastole they are expanded by the return of the blood which is pressed by the elasticity of the arteries as well against the ventricles as in every other direction.

From excrescences, chalky concretions, &c., which develop themselves on the valves of the aorta, or from a growing of those valves together, they sometimes become immovable, do not admit of being pressed against the sides of the artery, and prevent the passage of the blood into it. If the free edges of these valves be shortened, turned back, or covered with excrescences, or if the valves be partly separated from their function with the mouth of the artery, or have apertures in them, they are no longer in condition to prevent the regurgitation of the blood, and it returns during the diastole of the ventricles, from the aorta into the left ventricle.

It is very easy to determine in the dead body, whether the valves of the aorta had perfectly closed during life or not. If in the normal condition of the valves, water be poured into the aorta, it will not pass into the left ventricle, but will remain in the artery, because the valves close and hinder it, but if the valves be insufficient, it will sink into the ventricle.

This test cannot be applied in the dead body to the mitral and tricuspid valves. If a ventricle be filled with water, the mouths of the arteries closed, and pressure made on the ventricle, the mitral or tricuspid valve will be expanded, but the passage of the water will not be completely hindered, even although the valve be perfectly normal. The reason of this is obviously that the contraction of the papillary muscles, and the equal contraction of the ventricles on all sides, cannot be imitated. Thence it can only be determined whether these valves had closed during life, or not, by examination of their form, of the tendinous cords, and of the papillary muscles, and by remarking the presence or absence of those changes, which insufficiency of the valves usually produces in the auricles."

#### CASE OF POISONING BY TR. OF OPIUM.

By S. C. SWELL, M.D.,

At half-past eight o'clock, P.M., on the 21st of April last, I was hastily summoned to see S—J—, ætat 40, a cabinet-maker, who had inadvertently swallowed laudanum for Tr. of Rhubarb. He had taken it at half-past three o'clock, P.M., about five hours before my arrival. When seen by me he was in bed awake, and quite conscious. The pupils were contracted to the size of a pin's point, and immovable; the temporal arteries pulsed with great violence; speech was uttered with difficulty; skin dry; pulse 100, and jerking. On examining the phial of poison, I found that he must have taken 10 drachms, which I afterwards verified by measurement. Being near the General Hospital, I went over to request the assistance of Dr. Scott, the house surgeon; he returned with me, and brought with him a stomach pump. The patient by my direction had risen, and was beginning to feel the influence of the poison very much, by increasing drowsiness and weakness of the legs; he now also complained of nausea. We gave him a drachm of sulphate of zinc, which brought on vomiting, the matter ejected being coloured with the laudanum. He had taken nothing during the day but a cup of tea. After an interval of half an hour, we gave him another similar emetic, and encouraged the vomiting, until the water swallowed came up clear, when he was directed to take two ounces of vinegar every half hour. Soon after the vomiting commenced, a profuse sweat broke out, and the pulse rapidly lost

its jerking character, becoming soft, full, and less frequent. During this time his speech became more and more impeded, and the drowsiness augmented. He was now placed between two men, and was walked about during the night. At half-past eleven o'clock we took our leave, Dr. Scott promising to come in between one and two, and I leaving directions to be sent for if sleep should overpower him. At half-past five o'clock, A.M., I saw him; all symptoms had disappeared, except the contraction of the pupil and difficulty of speech, which did not completely wear off till the following day. For about three hours in the night, it was only by the most assiduous attention that he was prevented from falling asleep.

It appears that he had been suffering for two or three days with colic, which on that day was peculiarly severe; a friend advised the Tr. of Rhubarb. Unfortunately laudanum had been put into a phial, labelled Tr. of Rhubarb, and he swallowed the quantity I have mentioned. We know that severe colic is one of the cases in which there is great tolerance of opium; and, moreover, in this case there was probably some irritation of the mucous membrane of the stomach, which diminished its power of absorption, because a large portion of the laudanum swallowed was thrown up, as was easily ascertained from the circumstance of his having taken only a little tea during the day. The fluid evacuated contained much gastric juice, so that the slow effect of the poison was partly to be referred to digestion of the opium having commenced, a fact supposed to explain the tolerance of opium in delirium tremens.

#### OBSERVATIONS ON THE HYPOTHESIS OF THE FORMER EXISTENCE OF A GREAT FRESH-WATER INLAND SEA WITHIN THE CONTINENT OF NORTH AMERICA.

BY THE REV. W. T. LEACH, A. M.

(Continued from page 12.)

Occasion was taken, in the course of sundry observations respecting the hypothesis of an inland fresh-water Sea within the central regions of North America, to offer what might seem a probable account of the elevation of the continent by successive upheavings corresponding with the marginal lines denoting the action of ancient waters, and of the conditions under which the formation of the Great Canadian Lakes seems to have taken place. According to this account, these Lakes are regarded as merely *intercapedines* of the general law of elevation—*quasi remissione natura languesceret*—their beds respectively maintaining the depression more or less of their primary position, in consequence, as was assumed, of an unequal application of the subterranean

force or the different degree of resistance which their substrata opposed to it.

This hypothesis is certainly more probable than that which supposes them to have been scooped out by the agency of water, inasmuch as in very few cases are there circumstances which show such a possible application of water as would indicate a power adequate to such an effect. Assuming it possible that a rush of waters over the Queenston heights scooped out the bed of Lake Ontario, whence, it might be asked, came the waters that could form the bed of Lake Superior? And yet the lowest parts of the beds of these lakes are nearly at the same level below the tide water of the Sea.

The occasional falling and rising of the waters of the Canadian Lakes, at divers intervals, while it demonstrates the parsimonious action of the subterranean forces at the present time, is a fact which shows that the application of these forces is still made under the like difference of conditions, or with the same inequality that seems to have regulated it from the commencement of the process of elevation. A partial elevation of the land surrounding the lakes would be marked by an apparent depression of the surface of the water, while a partial subsidence of the same would be marked by an apparent elevation of the surface. It is not to be supposed that a trifling variation in the relative level of an extensive land should be perceptible to the senses, but through such an instrument as the one referred to; and it is obvious enough that those partial upheavings, indicating rather the mere existence than the acting of the subterranean force, cannot partake of that permanent character, which we find formerly to have attended the exertion of it in its mightier and prolonged periods of activity. These elevations and subsidences of the lower degree, are not therefore contradictory to the general theory. They are the evidences of an existing, though not a charging host.

The melting of the snow is usually assigned as the cause of those risings and fallings of the waters of the lakes which take place occasionally, or as it is termed with popular latitude of expression, periodically. Seven years, according to the almanac of the Indians, is the time of the periodical recurrence of the phenomenon in question; but this term may be regarded as a remnant of their oriental superstition—a proof of their emigration from the Yenesi, in Asiatic Tartary, to the Genesee of Lake Ontario, rather than a fact ascertained from their observation of nature. However, the recurrence of the phenomenon cannot certainly be accounted for by the melting of various accumulations of snow. This cause, as it would operate with little irregularity, would exhibit a constant recurrence of the like effect, year after year. Nor is it conceivable in what manner the melting of a variable

quantity of snow should be attended with an effect of so much longer duration than the continuance of its supposed cause; in short, how the phenomenon should be observable both *before* and *after* it can be imagined to be the product of the *melting* snow. This cause is then inadequate, and if thrown out of the question, upon what hypothesis is the fact to be explained, if that before submitted be rejected?

Next to the formation of the Canadian Lakes, the overfalls of Canada are the most interesting phenomena connected with the process of elevation. The confluent waters of a higher falling into a lower tract of territory, must have the equableness or precipitancy of their course determined by the position and quality of the strata over which they pass. Were the strata invariably of loose and soluble material, we should of course have no overfalls; nor even in the event of their inclination preserving an exact correspondence with the plane of the elevated surface, whatever might be the nature of their material. Whenever one tract, however, is distinguished from a lower by a disruption of the compact strata, overfalls and rapids of greater or less elevation are a necessary effect of the different levels at the place of disruption, unless, as generally happens, this effect is prevented by preference of another law, which it may please nature to follow in the process of elevation. In the case of fissures running continuously at an angle from the line of disruption into the elevated tract, a plane bed is provided for the waters of rivers, provision made for the effectual draining of the land, and even the prevention of its being inundated by sudden and great torrents and this may be regarded as the design which nature has sketched out as the usual mode of conducting her operations in this department. Sometimes, however, the fissures are not continuous but truncate. The fissure, in this case, proceeding from its base formed by the line of the disrupted strata, terminates abruptly, as in the instances of the overfalls of Fenelon and Niagara. It is a surprising and very beautiful provision for the concentration of the waters at such parts as these, that while the fissures terminate abruptly, their termination is at a point in a hydrographical basin previously formed, as if the fissure, incomplete, had, notwithstanding, had its course marked out by a line permanently engraved by an instrument of the Mighty Architect. This circumstance has led many to suppose that the whole of the depressed portion forming the vallies of these rivers is the effect of the action of water, independently of the fissures which are formed by the subterranean forces in the process of elevation. There are few rivers in Canada, the formation of whose valleys can be understood in this manner, and many, where a reference to the cause alleged, is ob-

viously necessary. On the Grand River, in the township of Galt, we find the margin denoting the ancient edge and surface of the stream raised about 25 or 30 feet above its present surface. It must then have flowed over a compact stratum which, fissured in the process of elevation, now forms its present basin.

The researches of M. Bourquet among the Alps and Appenines, and the chain of the Jura, led him first to observe that valleys of the largest order present in their opposite sides a reciprocity of form, salient and re-entering angles being seen on either side alternately, and he entitles this observation a Key to the Theory of the Earth. The observation is a very important one, and receives ample illustration from the natural history of Canada; but this illustration furnishes no evidence for the principle that led to the wild hypothesis of Buffon and Humboldt, which geologists have in general abandoned as insufficient to explain the phenomena, and therefore untenable. It is a fact in nature, however, which seems perfectly explicable, if the valleys of rivers are understood as the common effect of subterranean force, exhibited in fissures coeval with the commencement, or occasioned in the course of the process of elevation. In those cases where no salient and re-entering angles are discovered alternating, as in the lakes of Canada, the Mediterranean, the Baltic, and the Red Sea, &c; the absence of those specific indications of fractured strata is in exact conformity with the hypothesis which assumes the maintenance of the original depression of that portion of the strata which underlies the beds of these waters.

There are facts that seem to justify the inference, that the lower levels comprehending a large extent of the existing land of Canada, have emerged from the waters at a comparatively recent period. The surface of Lake Ontario is only 234 feet above the tide water of the Atlantic; but even at a level of 100 feet lower than the present, what a vast extent of territory would, in that case, be under water? We find, in point of fact, immense fields of modern alluvium forming the soil of large tracts of country on both sides of the St. Lawrence—modern alluvium containing, of course, the relics of species that still form a part of the products of the streams and lakes. The shoals of the lakes and extended swamps which, in the course and on the flanks of the parent stream, characterise the valley, broad as it is between Québec and Kingston, partake precisely of the character of the alluvium, which in the old world, has cast into the lap of the reaper, the riches of harvest from immemorial time. We here behold the process. There the period of a like process must be referred to remoter ages. With respect to the St. Lawrence alone,

we might suppose an obstacle to its conveyance of the common and natural quantity of alluvial matter. This obstacle may have existed in some of the Upper Lakes, as Lake Erie, intercepting the supply. If the original level of its bed was nearly the same with that of the other lakes, the quantity of alluvial matter intercepted, must, indeed, have been great. But this is uncertain. Whereas, it is certain that all the tributaries of the parent river that flow through the less elevated land, present us with phenomena precisely similar; all alike exhibiting an incomplete process, the end of which is in them foreseen, but which end, in the countries of the old world, has already been generally attained. If this view be correct, it might be inferred as an obvious consequence, that the streams of the more elevated, and consequently older regions, would be marked with a corresponding difference in the phenomena in question, would have their borders more definitely traced and would be found much less frequently to swell out in irregular and shallow swampy excrescences. This is unquestionably the fact, though other causes besides the accumulation of alluvial deposit are admitted to have conspired for the production of it: such as the gradual deepening of the beds of streams by the action of their waters, when they happen to flow through accumulations of sand and clay, and by the enlargement of the fissures in the compact strata that originally assigned them their determinate course. But these assist only in the way of draining. They deposit nothing; whereas, it is the quantity and consistence of alluvium deposited that form the specific distinction between the meadow lands of the older and the shoals and swamps of the more recent or lower streams.

It is perhaps worthy of remark, as serving to increase the evidence for the comparatively recent elevation of the lower levels, that the earliest traces of the human race are only to be observed in the more elevated tracts. In the townships of Brock, Whitechurch, Markham and King, where the general level is higher than perhaps any other like extent of country, the relics of ancient pottery are to be found here and there in various masses; and it has often been matter of observation that they are never found in the lower, and as it is inferred, more recent tracts. In the form of urns, composed of clay and triturated granite or quartz, resembling in almost every respect those relics of ancient art to be found in every part of the Old world, and to which it is apprehended neither precise date has been assigned nor ownership ascertained, we have the traces of the primitive inhabitants of the Continent, certainly differing in manners and origin from the present Indian tribes, and the time of whose possession of the country, we should from such evidence of the limitedness of their occupation, refer to a period when its geographical boundaries were quite different from the

present, when indeed, the more elevated regions were islands scattered here and there, constituting an extensive Archipelago.

There are certainly but few instances of the formations of the earliest Geological periods, prevailing through such an extent of country, as they are found to do in Canada. With the exception of the blue clay and alluvium of more ancient and modern date, the transition series appears with an ever recurring constancy from the shores of Lake Huron to the mountainous regions that constitute the Eastern barrier. Rich in shells and limestones and prodigal of clay, nature has preserved a certain geological monotony throughout; and all the lower tracts bearing, as is inferred, the traces of a comparatively recent emergence are yet stamped with characters of the remotest antiquity, the same characters which during the same period have been distributed over every part of the round world. Of the numerous families of Ammonites we have all the genera and species found in the earliest transition strata. Orthoceratites and Belemnites, allied to Ammonite, are abundant. Trilobites are less frequently met with, but are nevertheless found in various distant localities. Grapholite, whatever it is, often occurs: fossil corallines are very abundant and several genera of Crinoideans. Fossil Ferns indicating the carboniferous series are very abundant in some parts of the lower province. No remains of a vertebral animal have as yet been detected, nor any trace of one except the footsteps of deer on ravertine above Fenelon Falls.

It need not however be matter of wonder that either the smaller Mammalia and gigantic reptiles of the Secondary or the enormous Pachydermata of the Tertiary series, should have hitherto escaped observation. Even in the absence of any considerable parts of those systems of stratification that appertain, or can with certainty be referred to those periods, the extensive alluvial deposits of the more ancient date in all probability conceal the skeletons of past generations; and it is to be remembered that the precise situations in which they are probably to be found, are those least apt to be disturbed by the usual operations of mankind. In an untilled and thinly inhabited country, a long interval of time may have elapsed before such discoveries shall have been made, supposing the land to be rich in those wondrous products of the ancient earth.

Something was intended to be added respecting the mineral resources which the prevailing system of stratification may be supposed to promise or deny, and in particular respecting the removal of certain difficulties from the Mosaic account of the Deluge, of which the hypothesis here adopted readily furnishes an explanation—"See *hæc hæctenus*."

## ANATOMY AND PHYSIOLOGY.

## ON THE REFLEX FUNCTION OF THE BRAIN.

By Dr. LAYCOCK.

(Continued from page 53.)

Every nerve has its peculiar endowments, and its own machinery of action within the central axis. This is true even of those of the surface—the “true spinal” nerves,—which carry the sensations of heat and cold, and of pain from pricking, tearing, or other mechanical stimuli, for all reflex acts are more decided when the tactile apparatus is irritated. It has been comparatively easy to experiment on these, because their ordinary excitants are readily applied to them; but the optic, olfactory, and acoustic nerves are utterly insensible to stimuli of this kind. Pricking or tearing them, or burning them with strong acids would in no degree excite changes like those induced in the retina by light, after traversing an exquisitely constructed optical instrument; nor excite changes in the acoustic nerve, like those produced by the undulatory strokes of the atmosphere, curiously modified in the auditory apparatus. Experiments on the termination or trunk of these nerves, similar to those made on the nerves of the general surface would therefore be useless. The nearest approach is where galvanic action excite flashes of light, or an acid taste—Sound duly modified must impinge on the auditory nerve, light duly modified on the optic nerve, if we would ascertain their excitatory powers; and physiology and pathology can only supply suitable facts. The symptoms of hydrophobia will perhaps best present the required illustration. In hydrophobia, as in poisoning by strychnia, a poison acting on the blood performs the office of a physiological microscope. But there is this difference, that the former exalts the functions of the sensory track, the operation of strychnia is confined to the motor. The symptoms of this disease constitute a series of excited motor acts, observed with sufficient accuracy, and so well marked as to leave no doubt of their character. The excito-motor nerves whose functions are disordered, are (according to Dr. Hall’s views) the trifacial and glosso-pharyngeal, the pharyngeal and laryngeal branches of the pneumogastric, and in some instances the posterior spinal nerves. The reflex motor are the motor branches of the fifth, and of the pneumogastric, and the spinal accessory, and other spinal respiratory nerves. The phenomena excited are spasm of the respiratory muscles, and gasping, convulsions of the face, and occasionally of the trunk or limbs, and an extraordinary development of the instinct of conservation. The patient is ever on the watch, and distrusting all around him.

The true state of the lungs in the hydrophobic gasp appears to be that of complete vacuity of air; and hence the distressing sensation of want of breath, or the “besoin de respirer.” That this is the fact appears from a consideration of the phenomena themselves; but in a case related by Dr. Babington, (Vide ‘Records and Researches of a private Medical Association,’ p. 117; London, 1798,) the patient having been put into a warm bath had a convulsive gasp just when being taken out, and immediately sank to the bottom, and as Dr. Babington states, would have been “suffocated” or drowned, if immediate assistance had not been given; thus proving that the lungs at the moment of the convulsion were emptied of air. Now to do this, the contractile tissues of the lungs themselves must be brought into energetic action, as well as the muscles of respiration, so that the excito-motory phenomena of hydrophobia extend to the muscular fibres of the air-passages.

The acknowledged excito-motory phenomena of hydrophobia may be induced, firstly, through the sensual nerves of touch, as by the contact of water with the surface of the head, hands, chest, the lips and pharynx; 2d, by a current of air impinging on the face or chest. In the majority of cases, the slightest breath of air will bring on gasping and convulsions. These causes act undoubtedly on the incident nerves mentioned. But, thirdly, a bright surface, as a mirror; fourthly, the sight of water; or fifthly, the sound of water dropping; or sixthly, the idea of water, as when it is suggested to the patient that he shall drink; all most indubitably induce excito-motory phenomena as decided and distinct as the first and second causes. Here we have three classes of irritations inducing the reflex acts of gasping and spasm of the respiratory muscles: 1, the contact of water and air with the surface of the face, chest and mouth; 2, the contact of reflected light with the retina; 3, an idea excited by the sound of water dropping, or by the mention of water. I need scarcely remark

that the dreadfully painful gasp in hydrophobia is strictly involuntary. The following examples may be mentioned as illustrative of these statements.

*Effects of the contact of reflected light with the retina.* “On Monday, the 26th of September, at half-past nine in the morning, a looking-glass being presented to her, she jumped off her mother’s knee in great agitation, and became convulsed.” (Case of Eliza Kittle, aged 3 years, by Sir A. Carlisle, in Gilman’s ‘Prize Essay on the Bite of a Rabid Animal,’ p. 171.)—“When a patient was presented to him he complained in a few seconds of its hurting his eyes. The same convulsive sobbing took place as in the attempt to swallow water, and he turned his head aside with great expression of fear. I gave him money to induce him to look at it a second time, and endeavoured to gain his attention by desiring him to point out to me by the mirror, which of the sores had given him the greatest uneasiness at the time of dressing them; but before he had looked in it a minute, the same effect was produced as before.” (Case of John Dyke, aged 9 years, by Dr. Beddoes, ‘Med. and Phys. Jour. vol. xx, p. 198.)

*The idea of water excites convulsion.* “On suggesting that he should swallow a little water, he seemed to be frightened, and began to cry out. He turned suddenly in bed, and was simultaneously seized with a momentary clonic spasm of the trunk, greatly resembling emprosthotonos; however, by kindly encouraging him, he soon manifested a willingness to accede to my wish, but the sound of the water as it was poured into the teacup, again brought on a similar convulsive action.” (Case of Edward Lloyd, aged nearly 11, by Mr. Tharabill, ‘Lond. Med. Gaz.’ vol. xvii, p. 270.)—“On our proposing to him to drink, he started up and recovered his breath by a deep convulsive inspiration..... On being urged to try, he took a cup of water in one hand, and a spoon in the other..... With an expression of terror, yet with great resolution, he filled the spoon and preceeded to carry it to his lips; but before it reached his mouth, his courage forsook him, and he was forced to desist. He repeatedly renewed the attempt, but with no more success. His arm became rigid and immovable whenever he tried to raise it towards his mouth, and he struggled in vain against this spasmodic resistance.” (Case of Odell, aged 22, by Dr. Marcei, in ‘Med. Chir. Trans.’ vol. 3, p. 133.)

*The sight of water induces convulsions.* “Sensibility to touch markedly acute; an embrocation to the external fauces produced convulsions; passed urine of a lemon colour easily, could view it without horror in a black earthen pot; in a glass the sight produced instant convulsions.” (Dr. Vaughan’s case of Thomas Nourse, aged 14, in Dr. Hamilton’s ‘Remarks on Hydrophobia,’ vol. ii, p. 434.)—“Desirous of cold air, but it constantly renewed his distress; sight of water excited convulsions.” (Dr. Vaughan’s case of a farmer, aged twenty-five, in *ibid* p. 439.)—“Sobbed deeply at the sight of water, turning away with perturbation.” (Dr. Vaughan’s case of a boy, aged 8 years, bitten by a cat, *ibid*, p. 441.)—“On water being poured from one basin to another before him..... it excited convulsions, and caused him to dash himself against the head of the bed, as if endeavouring to escape from the sight.” (*Ibid*, p. 466. Case of a man, aged 36.)—“Some air being brought to Dr. Adam while he talked with the patient, he started up from the table at the sight of the mug, and ran away.” (Dr. Adams’ case of a farmer, aged 40. *Ibid*, p. 468.)

I shall not now refer to the pathological action of colours, especially of red, on the motor part of the nervous system, because the facts may possibly be disputed. The physiological action is beyond question. The incident excitatory influence of odours in inducing convulsions, &c. is however, well substantiated. So common is this result at Rome, that Sir J. Clark has noticed the fact in his classical work on Climates, and his observation is especially worthy notice, “that it is not disagreeable odours which produce such effects on the nervous system, but the more delicate, and to northern nations, agreeable odours of flowers and other perfumes.” So that the results cannot be analogous to those induced by stimulants applied to the nostrils.

Having thus adduced facts proving that the sensual nerve are incident exciters, I need only refer to the phenomena of hydrophobia to show farther, that the impressions made on them at their periphery pass on to the central axis, and there induce the necessary changes in the posterior gray matter, so that excito-motory acts shall result.

I have stated that the idea of water, whether obtained through



the eye or ear, will excite the hydrophobic gasp and convulsions; it will also excite a conservative act: the patient, when water is presented to him, is horrified, and immediately attempts to remove it. This movement is strictly involuntary, and not the result of sensation; the water is repelled from the lips with a violent spasmodic jerk, and often in spite of the urgent volitional attempts of the patient to the contrary, just as the hand is snatched away from a spark of fire, or the headless frog leaps from the needle. I have already shown that acts strictly involuntary are simply reflex acts, accompanied with sensation, and that consciousness does not invalidate their character. By what channel then can the idea of drinking, originated in the brain by the presence of water, act upon the respiratory muscles, so as to induce gasping, and upon the excitor-motor nerves of the head and arm, so as to excite the convulsive removal of the offered cup of water?

The cerebral nerves being analogous to the posterior spinal nerves, and the encephalic ganglia analogous to the spinal ganglia, the spectrum of the cup of water will traverse the optic nerves, and enter the analogue of the posterior gray matter in the brain causing changes, (idæogenous changes,) corresponding to the idea of water; thence the series of excited changes will pass over to the analogue of the anterior gray matter exciting another series, (kinetic changes, κίνησις,) by which the necessary groups of muscles are combined in action. If the cerebral ganglia be but a higher development of the spinal, the medullary and cortical substance must correspond to the white and gray matter of the cord, and if it be acknowledged, (as has indeed been proved beyond question,) that a combined action of sets of muscles, exhibiting a design of conservation, may be developed in the spinal cord without the aid of volition, how can we deny the same qualities to the encephalic ganglia, or in other words, to the cerebral hemispheres and their connexions?

We must consider then each half of the encephalon as consisting of two tracts of cortical, and two of medullary substance; the medullary associating ideas and combining muscular movements; the cortical, conducting impressions to the gray matter, giving rise to sensation and perception, and thence to the muscles, exciting motion. That impressions received by the sensitive nerves excite trains of ideas is generally acknowledged, and that the ideas constituting these trains have a connexion with the elementary constitution of the brain is clearly inferrible from the numerous observations recorded, in which the memory has been only partially abolished, as for example in the case recorded by Dr. Abercrombie. In this instance, a lady had lost the recollection of ten or twelve years only; every thing previously to that time she remembered quite well, all else she had forgotten. Indeed, since an infinity of muscular acts are already inscribed within the structure of the anterior gray matter of the spinal ganglia, and require only the appropriate sensory impression to rouse them into action, so ideas may be inscribed, and require only sensory impressions to rouse them. The posterior gray matter, or its analogue in the brain may then be considered as the seat of associations and trains of ideas.

It will be scarcely necessary for me to state in detail, after the preceding remarks, the facts and arguments which may be adduced to prove that the brain, (comprising cerebrum and cerebellum,) is an excitor of reflex acts. Dr. Marshall Hall has relied mainly upon the experiments of Professor Flourens in support of his opinion that the brain is inexcitator, but it will be seen that these experiments consisted simply in irritating the brain by pricking and tearing. Professor Flourens found that if the central axis be irritated mechanically from above downwards, beginning with the hemispherical ganglia or brain, that no spasmodic motions are excited until the tubercula quadrigemina be touched; it is on irritating that point that excito-motory phenomena first appear, and from that point downwards to the cauda equina, they may be produced by mechanical stimulants. Reflex acts do not, however, consist in convulsive movements of the muscles only, nor are they produced most distinctly in the mode adopted by Prof. Flourens. Such irritations differ altogether from even the tactile sensations received by the general surface. As every nerve has its proper endowments, and requires the irritant peculiar to itself, to develop the reflex phenomena indicative of design, so the sensory gray matter in which the sensual nerves end must have its proper endowments and peculiar stimuli. Now, no pricking or tearing could induce these changes that depend on the undulations of an elastic medium. The irritant must be much more closely assimilated to the normal excitation. From Dr. Stilling's researches

we know that strichnine is an efficient excitant to the gray motor track, and it is more than probable that a skillful application of narcotics to the sensory track in the encephalon of frogs might lead to important results. There are two modes in which the centric excito-motor phenomena of the brain may be studied: first, by considering the action of narcotics circulating with the blood through the brain, as Dr. Hall has considered the phenomena of hydrophobia and asphyxia; and secondly, by analysing the centric phenomena dependent on functional derangements of the encephalon. Examples of both kinds are numerous; of the latter class is the singular case observed by Mr. Wood, and as it is an undoubted example of cerebro-spinal reflex acts, and illustrative of my previous remarks, as to the centric excitation of ideas and combined movements, I shall analyse its principal phenomena. The patient was a young married female nursing an infant aged 14 months. She first had a painful affection of the right side of the face, pains darting from the cheek to the temple and teeth; the incident excitor branches of the fifth were affected. In two or three days, the excito-motor branches going to the orbicularis and levator palpebræ, were implicated, for an involuntary motion of the eyelids then commenced, in which they were opened and shut with excessive rapidity for about fifteen minutes. Then the excito-motor spinal nerves of the right side were implicated, for the movements of the eyelids were instantly succeeded by involuntary motions of the right leg and arm, continuing for about ten minutes. The motions then intermitted for about ten minutes, and recommenced in all the extremities with increased violence. But these movements were not mere spasmodic or convulsive jerks; groups of muscles were brought into action. The palms of the hands beat rapidly on the thighs, and the feet on the ground. The fore-arms were rubbed incessantly along the thighs, and the radius rotated on the ulna. The arms were at times extended, and the palms turned outwards. Next day the muscles of the trunk were affected, and the patient was suddenly raised from the chair, and as quickly rescued. The motions of the eyelids were followed by vomiting, showing that the centric change had extended to the pneumogastric ganglia. The next day the consentaneous action of groups of muscles were still further extended; the centric changes evidently making progress upwards, for in addition to the previous motions she was now jerked from side to side of the couch chair on which she sat; she had often a sudden propensity to leap upwards, and was impelled into every corner of the room, striking the furniture and doors violently with the hand. Here decided marks of design appear in the movements. On the following day the acts had become rhythmical, and the centric changes had evidently arrived at some portion of the encephalon connected with the idea of time; she frequently danced upon one leg, and in the evening the family observed the blows upon the furniture to be more continuous, and to assume the regular time and measure of a musical air. As a strain or series of strokes was concluded, she ended with a more violent stroke, marking the time. The next day, the centric change had ascended higher. The rhythmical movements had become more complex, and changed into a graceful dance. But the changes had now reached the idea of space as well as of time, for occasionally all the steps were so directed as to place the foot constantly where the stone flags joined to form the floor, particularly when she looked downwards. An analogous result occurred when she looked upwards; she then had an irresistible propensity to spring up and touch little spots on the ceiling. In both these movements the optic nerve exhibited an incident-excitor function. The tune was now discovered that she danced to; it was the air of the "Protestant boys," popular in the neighbourhood, and she informed Mr. Wood that there was always a tune dwelling upon her mind, which at times becoming more pressing, irresistibly impelled her to commence the involuntary actions. The centric changes here ceased, which had induced this alteration of sensory function, and which had reproduced in fact the idea of the air with such force that it impinged on the motor track, and there excited consentaneous reflex acts, in spite of the utmost volitional effort of the individual. The motions were stopped by interrupting the action of the excitor (the musical air) on the motor track, for so soon as the time was broken, or a continued roll played on drums, the motion ceased. The patient had several relapses; the eyelids and muscles of the face were only affected in some of these, in others, the muscles of the chest, larynx, neck, and back. In one attack she rotated swiftly.

Having traced the progress of the symptoms of this case, I need

not recapitulate them as illustrative of reflex cerebral function. If the brain be indeed the organ of ideas, and the cerebellum of combined movements, the inference is manifest, that they are both exciters of reflex actions. The case is one of many similar recorded by authors: in this, fatigue was felt; in others, the violent efforts did not cause weariness.

What I have just detailed is an example of idiopathic centric change, but encephalic reflex phenomena may be excited by urticaria pruriosa. An instance of this is related by Mr. Duffin, (*Medical Gazette*, vol. 15, p. 191.) whose little girl, aged 2½ years, was poisoned by the seeds of stramonium. In about an hour after eating the seeds, symptoms not unlike those of hydrophobia came on. There was a "flushed countenance, wildness of manner, suffused eyes, morose expression, ineffectual efforts to vomit, incoherent and rapid utterances, which very soon became wholly unintelligible, screaming, catching at imaginary objects in the air, or rather, striking at them—for it was evident that these spectra were of a frightful nature, since, at the moment of darting out the hand in the direction where the eyes were fixed, she always, suddenly and with great vehemence, withdrew herself, expressed the utmost terror in her look, and then hid her face, at the same time screaming and sobbing violently. Her eye would, to appearance, follow the imaginary object for a moment or two before she made the effort to escape from its supposed approach. She rapidly became furiously delirious, struck at, pinched, or attempted to bite, every person who came near, or any object that was offered to her.

"Within the space of two hours and a half from the time that she must have swallowed the poison, the child had not only lost the power of utterance, but that of voice also. She could now only utter a hoarse creaking sound, alternated with a sonorous croup, barking cough; and was unable to swallow, in consequence of the violent spasm which affected the muscles of deglutition when she made the effort. This state of spasm, judging from the nature of the cough, and the croupy character of the inspiration, pervaded the muscles of the larynx. She now knew no person, and had been wholly insensible to surrounding objects for above an hour and a half. The pupils were dilated; had been so from the first, and continued in this state till she died. The voluntary power of the extremities was gone, and her limbs were violently agitated by spasmodic twobling and jeritation (not by regular convulsions) alternately with short paroxysms of tetanic spasm (opisthotonos)."

In this, as in the previous example, there is a continued series of reflex phenomena of centric origin, impinging the cerebrum as well as the medulla oblongata, all originating in one cause—namely, the circulation of a poison with the blood, and acting, not mechanically by effusion or pressure, but directly on the intimate organization of the central axis, and developing a succession of changes, commencing with the excitation and ending with the extinction of its functions. Amongst the insane, especially the idiotic and fatuous, examples of combined excitatory movements of cerebral origin, are not unimportant. A male patient in the York County Asylum, aged 11, and fatuous for thirty-seven years, cannot pronounce any word distinctly, nor understand what is said to him. He constantly holds a stone, or other substance, in the palm of one hand, and moves continually, as if slowly waltzing. Mr. Alderson, the resident medical officer, kindly assisted me to time his movements, and we found that he performed twenty steps in fourteen and a half or fifteen seconds, with the greatest regularity, and we measured his steps repeatedly. Another man, aged 31, in a state of dementia, stands for hours together, moving his hands and feet synchronously, in a way not easily to be described. He was found, when tired, to make twenty steps in ten and a half or eleven seconds, with moving regularity. In these examples, as in the case of chorea, the cause of the movements was curative; and, as the latter were connected with an idea of time, its seat was undoubtedly cerebral.

There is one other excitatory phenomenon I would refer to. In hemiplegia, an experiment is occasionally made by nature; a functional change is induced in that part of the central axis devoted to language. In these cases, when the will is directed to the enunciation of one word, as "bread," the individual utters another word, as "boots." Sometimes it is a letter only that is thus mispronounced, as *x* for *p*; and sometimes the words of foreign languages are mixed up in confusion, in spite of the individual's efforts to articulate aright. This phenomenon is analogous to the irregular acts of groups of muscles.

My paper having already extended to so great a length, I will only briefly refer to the instinctive and emotional acts. If the effects of emotions be analysed, it will be found that they act principally upon the excitatory system, relaxing the sphincters, and inducing vomiting, dyspnea, sighing, sobbing, gasping, &c. Examples of all these might be adduced. Both the instinctive and emotional acts are essentially conservative; and both so act on the muscular system that a sensation of fatigue is not felt during their action on the motor system. Both may be traced from the simple reflex phenomena to the more compound. Thus, tickling the soles of the feet causes a spasmodic jerking of the limb; but in many instances it will excite violent and involuntary laughter; reflex laughter may also like weeping, sighing, hiccough, gasping, &c., be of centric origin. It is seen in hysterical and hemiplegic cases, and I have myself witnessed it as a sequel of epilepsy from tumour on the cranium; the laughter alternated with weeping, and was accompanied by partial paralysis of the larynx and pharyngeal muscles. In this case, the whole reflex phenomena were of centric origin.

It is only by the theory I have advanced, that we can explain the instinctive acts of animals. Like the purely reflex conservative phenomena, they are altogether dependent on the connate structure of the cerebral ganglia. A young brood of partridges, tended by a hantam hen, will immediately cower and squat in motionless, if a stuffed polecat be placed within their view, and they will peck at grain and insects before they have got rid of their shell. Bees will begin to gather wax and construct cells, within twenty-four hours of their being hatched, and before their wings are dry. In all these the acts are in every respect analogous to the compound conservative acts of the true spinal system; the only difference being in the nature of the sensory impression which excites them, in the endowments of the nerves along which the impression is conducted, and in the composition of the central axis.

## APPENDIX.

I. *On the tone of the muscles.* The state of the muscular system termed tone, is allied in its origin to the muscular contractions of eye-motory movements.

As special impressions on incident excitory nerves give rise to special combined movements, so the general impressions on the whole surface of the body and on the mucous membranes excite the cerebro-spinal ganglia into action generally, and thus a corresponding result is obtained; namely, a general reaction (through the motor nerves) on the whole muscular system. That the cerebral nerves have an important part to perform in the maintenance of this general excitation of the nervous system, and the resulting tone of the muscular system is manifest from the phenomena of sleep. Many of the common muscular acts of the waking state are excitatory in their nature, as for example, the tension that maintains the lineaments of the face, and keeps the eyelids, head, limbs, and trunk in their usual position. When sleep comes on sensory impressions cease to act on the brain, and the muscles relax. The eyelids then drop over the eyes; the head droops; the limbs become flaccid and uncontracted. If the incident excitory nerves as the abdominal viscera was also liable to sleep, their ordinary functions would be interrupted, and the flexor muscles (so constantly affected in spasmodic affections depending on irritation of the mucous membrane) would lose that excess of tone they possess over the extensor. If the nerves of the heart and lungs could undergo this change, death would speedily ensue. In the natural condition the incident excitory action of the sensitive branches of the vagus is only diminished in intensity; the heart and chest act more slowly. Sleep appears to be confined to the encephalic ganglia; when it affects the medulla oblongata or spinal ganglia, the change induced is a morbid change. The following may be named

*A case of sleep of the respiratory ganglia.* A West Indian, a surgeon, consulted Sir Charles Bell. He stated that "on falling asleep, just at the moment when volition and sensibility cease, the involuntary motions also stop, with a sensation of death, under which he awakes generally convulsed. His medical friends have sat by him and watched him, and they have found that when sleep is overpowering him, the breathing becomes slower and weaker, the heart and pulse also fall low, and cease to beat as sleep comes on, and after a short time he awakes in terror." (*Appendix to Papers on the Nervous System, by Sir Charles Bell, Case 173.*) It would appear that incubus or nightmare consists in sleep of the respiratory ganglia.

The tone of the muscular system may be maintained (just as excito-motory acts may be excited) by changes within the cerebro-spinal ganglia; or, in other words, by centric changes. We have a remarkable exemplification of this general principle in those examples of somnambulism in which the individual is perfectly insensible to external impressions. In these the nerves sleep, the brain wakes. But the contrary may happen; the cerebro-spinal ganglia may cease to react so as to induce muscular tone, while the incident excitor nerves are awake. Something like this occurs when certain emotions (as fear) excite such violent nerve changes as to interrupt the action and reaction of the central ganglia on the incident-excitor and reflex-motor nerves. In such an instance as this, muscular tone is not only destroyed, but the contractility of the sphincters is abolished. The action of certain poisons on the central ganglia is precisely analogous. Tartar. emetic, tobacco, &c., by their action on the cerebro-spinal axis, destroy the tone of the muscles, more or less completely.

II. *The diffusion of impressions with reference to reflex cerebro-spinal action.*—When an impression is made on an afferent nerve an instantaneous change takes place in the gray matter of the ganglion in which the nerve terminates, and this is propagated to the roots of the muscular nerves. But it has been generally forgotten that this is not all; a change passes also along the twigs of the sympathetic nerve connected with the ganglion, and so the secreting as well as muscular and sensory structures have an influence communicated to them. In short, a change is effected in all the fibrils entering into the composition of the ganglion. The proofs of this proposition are various: Firstly, it is actually observed to occur in the lower forms of organized matter. Secondly, it has been found by experiment, that the influence of impressions is diffused through a chain of connected ganglia, as for example, when the cord of a frog is subjected to experiment. (Vide Stilling's Researches in Br. and For. Med. Rev. vol. XVII., p. 399, and Propositions 12 and 13, p. 403.) Thirdly, pathological observations agree with the results of vivisection. In analysing a case of paraplegia, following a blow on the neck, and detailed by Dr. W. Budd, Dr. Carpenter makes the important deduction "that all influences from impressions or incident nerves are diffused through the cord." (Principles of Human Physiology, 1st ed. p. 132.) This principle of the diffusion of influence is applicable as well to the encephalic as to the spinal ganglia. The motor track throughout the cerebro-spinal axis is distinctly influenced by every act of volition, and the whole of that axis, whether sensory, motor, or sympathetic, by every emotion. The action of the heart, for example, is accelerated, as is well known, by very slight muscular efforts; the simple act of rising from the recumbent to the upright posture accelerating the pulse. This diffusion of the volitional influence is seen in disease of the motor system; in chorea it produces irregular muscular movements; in epilepsy, the motor excitement resulting will prevent the fit.

That the influences from emotional impressions are diffused through the whole cerebro-spinal axis, is one of the best established facts in physiology. The effect of vivid emotions on the functions of the viscera is instantaneous. The skin, intestines, kidneys, liver, heart, salivary and lachrymal glands, and capillaries of the surface, are notoriously influenced by them: Dr. Erdmann, of Dresden, relates a case in his Medical Observations, of a body whose face, when he was put into a passion, became quite pale on one side and red on the other; and there was an exact boundary along the centre of the face, proving the common union of the sympathetic motor and sensory twigs in the encephalon. The influence of emotions on the hue of the chameleon, and on the colours of certain fishes, strikingly illustrates their operation on the whole system. No class of causes are so influential in exciting convulsions as the emotions, but like the volitional stimulus, the emotional excitement will prevent excito-motory phenomena, and even cure paralysis. Both fear and anger have been known to have this result. It is manifest, too, that the diffusion of the influence of emotional impressions is not limited to the true spinal system, or to the ganglia at the base of the brain, for the exaltation or confusion of the understanding, often amounting to insanity and an abolition of consciousness consequent upon their operation, plainly shows that they not only rouse it, but their influence is diffused through the cerebral hemispheres,—the organs of intellect.

Many curious phenomena are singularly illustrative of this diffusion of impressions, and are easily explained by it. Dr. Stilling points out its share in exciting the emotional cries and conserva-

tive acts, when disagreeable impressions are made on afferent nerves, (Br. and For. Med. Rev. vol. XVII., p. 139.) The influence of light on the nervous system in maintaining its activity and tone, and preventing sleep, is well known. This influence is subject to the law of diffusion. Jungken was acquainted with two persons who were instantaneous; seized with asphyxia if light were excluded, or awoke in a state of suffocation if their taper had gone out. A case of this kind is stated in Dr. Forbes's translation of Laennec. In these instances the incident-excitor impression of light maintained the activity of the respiratory ganglia, prevented them in fact from going to sleep. The diffused influence of light will produce an opposite effect. Obs. 86, in Borden's 'Recherches sur le Pouls, is that of a very aged female in whom a single ray of the sun or the light of a candle excited an abundant sweat, so that she was obliged to be always in the dark. Many of the phenomena of mesmerism may be explained on the hypothesis of a diffusion of the influence of impression; indeed the theory is as capable of extensive and important applications to therapeutics and hygiene as the excito-motory doctrines.

III. *The substrata of physical phenomena.* The question necessarily arises how is it that when an impression is thus diffused through the cerebro-spinal axis, certain groups of muscles, the contractions of which constitute instinctive, emotional, consensual, and volitional actions, are excited into energy. The answer must be sought in a knowledge of the histological composition of the cerebro-spinal axis, and of the nature of the bio-molecular changes induced therein, and on the periphery, by the qualities of matter. These adapted acts differ very widely from mere convulsive movements or tetanic spasms, both in their nature and mode of excitement. There is manifestly a mechanism on the periphery from which the sensitive nerves commence, as well as in the centre, appropriate to the inner or ganglionic mechanism. The doctrine of a molecular organization within organized structures, such as that it shall correspond and be appropriate to given stimuli received by appropriate organs, necessarily constitutes the basis of all inquiries into the laws of action in those structures. And there can be no doubt, such is the magnificent uniformity in the immense diversity of creation, that the laws of action of the agent and reagent in vital phenomena, are as definite as those operating on chemical phenomena, could we but effect a sufficiently minute analysis and induction.

It may be useful to state some general principles respecting the *ideogenic* and *kinetic* substrata, alluded to as making up the nervous centres. In the first place, it is to be observed that they are as invariably transmissible from parent to offspring as any other portion of the system, and are subject to the same laws of development; they are therefore as much a part of the animal as its nerves or blood-vessels. This proposition must be steadily remembered as an important clue to an explanation of the origin and mode of action of the substrata in the cerebro-spinal axis. Secondly, these *ideogenic* and *kinetic* substrata may be modified, as any other organ of the body, by intermixture of species or genera; or new substrata may be formed by the reaction of external stimuli on those already existing; or, in other words, new instincts may be acquired and be transmissible. This proposition is scarcely less important than the preceding. Thirdly, these substrata may be persistent as a part of the organism, and continue to be manifested by acts long after the necessity for those acts, as conservative of the individual or race, has ceased. Fourthly, these substrata may be dormant for a lengthened period from the want of a reagent, and appear extinct, but will reappear so soon as the impressions adapted to their action are received by and conveyed along the afferent nerves. Fifthly, as there is a general development of organised beings, as well as of races, those substrata which are common to all will be the most indestructible in each, and the instinctive acts of which they are the basis, the most decided and permanent.

The illustration of these propositions need not be numerous. The invariable sameness and permanence of the instincts of the hymenoptera among insects is one of many similar examples. The crossing of breeds of domestic animals and the mixed qualities resulting, is a familiar illustration of the second proposition. Many examples of acquired instincts are on record; several of the best authenticated are detailed by Dr. Carpenter in his 'Principles of General and Comparative Physiology,' 1st ed. § 549. The following is an interesting fact of this kind. A troop of cavalry, which had served on the continent, was

disbanded in York. Sir Robert Clayton turned out the old horses on Knavesmire to have their run for life. One day, when grazing promiscuously and apart from each other, a storm gathered, and when the thunder pealed and the lightning flashed, they were seen to get together, and form in line in almost as perfect order as if they had had their old masters on their backs. Fishes can acquire these substrata. Mr. Ellis in his "Polynesian Researches," says, that he has frequently seen a large eel come to the surface of the water when his master (a young chief) whistled, and take food from his hand. The persistence of these substrata is shown by the instinctive actions of the dog when about to go to rest. The best bred Blenheim spaniel will scratch his cushion and turn himself round and round (the instinctive act of the wild dog) before going to rest. Like the fox, domestic dogs will hide their food in the earth. A friend of mine lost two fowls, and it was only after some time, on finding the legs sticking out of the ground, he discovered that a handsome Blenheim bitch in his possession had killed and hid them. The domesticated squirrel will hide his nuts in the hay of his cage, but he will also place them on the carpet, or a mahogany table, and giving them a few pats, (just as when hiding them in the hay,) leave them. The reexcitement of dormant substrata is illustrated by the instincts of the wild horse in South America. The following observations, made by Sir R. H. Bonnycastle, in his work on Canada, strikingly exhibits the existence of substrata dormant in man, until the appropriate stimulus is received: "The best specimen of an Indian Missionary I am acquainted with in Upper Canada forgot all his instruction, all his acquired feelings and habits, when he witnessed with me the war-dance of heathen and perfectly savage warriors. He had been carefully educated from a boy, was modest, intelligent, and well-bred. \* \* \* \* \* Yet he grinned with savage delight at this exhibition of untutored nature."

The fifth proposition regarding these substrata is one of most extensive application. Just as in man certain organs are rudimentary, so also certain of these substrata are rudimentary; just as the osteology of man is formed on one general type, varied only to suit his mode of existence, so also these substrata are based on a fundamental type varied in like manner. And just as monstrosities and physiological changes occur, marking a retrograde step to a lower form of organization, so are the substrata of lower instincts developed and excited into action. A remarkable instance of this has been lately published. "A perfectly idiotic girl, in Paris, having been seduced by some miscreant, was delivered of a child without assistance. It was found that she had gnawed the umbilical cord in two, in the same manner as is practised by the lower animals. It is scarcely to be supposed that she had any idea of the object of this separation." (Dr. Carpenter's Physiology, 1st ed., p. 219.) Thus the kinetic and ideagenous or sensorial textures of the ganglia of all animals are interwoven with those of the human organization. It is only by a hypothesis of this kind that we can explain various instinctive acts in man. The incident excitator acts of water on the respiratory organs is an anomaly, unless we can attribute it to a substratum belonging to a lower grade of development.

The qualities of water are not stimulating to the skin; its contact excites no pain or irritation on the general surface, and yet, when dropped on the head or chest, as in a shower-bath, the larynx is immediately closed, and an instinctive feeling of terror excited. When the substratum corresponding to the impression it makes on the afferent nerves of the head, body, and thorax is morbidly excited, as in hydrophobia, or certain forms of spasmodic asthma, the gentlest contact of a blander matter than water, but inducing a similar impression—the air we breathe—will excite the horrid feeling of impending death from suffocation, and instinctive terror in its wildest form.

IV. *Probability of the theory of substrata appropriate to psychical phenomena.* This theory of a nidus or substratum, for the reception of impressions and the excitation of ideas and acts, is by no means new. Prochaska adopts it distinctly with reference to the spinal cord; and Hooke, Locke, Haller, and others, with reference to the spinal cord; and Hooke, Locke, and others, with reference to the brain. Haller says expressly, "Eas mutationes in sensorio conservatas ideas multas, non vestigia rerum vocabuntur, quis non in mente sed in ipso corpore, et in medulla quidem cerebri ineffabili modo incredibiliter minutis, notis et copulata infinita inscriptæ sunt." Hooke went even so far as to theorize on their formation, and estimate the numbers that could be made

in a day. The theory flows necessarily from the proposition that the brain is the organ of the mind; it is also a necessary inference from all that we know of the functions of the nervous system. The principal objections have been, first, that it leads to materialism, and secondly, that the immense multitude of ideas and consensual acts renders such a texture of the constituent fibrils impossible. I shall defer a notice of the first objection, which can easily be shown to be quite groundless. This second arises in the mind, because we have neither sufficiently examined nor contemplated the more recondite properties of matter. We know that the divisibility of matter is so great as to elude all our means of research, and to give rise to the idea of its infinite divisibility. The microscopic forms of organized matter are wondrously minute, and when we know certainly that beings invisible to the naked eye have structures as diverse as those of the largest animals, and as perfectly adapted to their modes of existence, the histological constitution of which defies even the powers of imagination, there can be no ground for surprise at the infinite variety of ideas interwoven into the connate structure of the cerebro-spinal axis, or written during life on the brain. The sensible points of the retina, according to Weber and Smith, measures no more than the 1-8000th inch in diameter. If, adopting the views of Mr. Solly, we consider the convolutions of the brain as made up of an extensive surface of ciceritious neurin, we may estimate the number of ideas, the substrata of which may be contained in a square inch, as not less certainly than 8000; and as there must be an immense number of square inches of surface in the gray matter extended through the cerebro-spinal axis of man, there is space sufficient for millions.

V. *The consensual movements.* The harmonious and consensual action of muscles and groups of muscles (just as the purely reflex and instinctive acts) differs from mere spasmodic contractions. The evolution of consensual acts from the lower to the higher forms of development, takes place also after the same laws. In the primary forms the irritability of the muscular fibres excited them according to a fixed principle of consentaneity and adaptation. The hollow muscular tube, the heart, arteries, and urinary bladder, are instances of the lower forms in which groups of fibre act consentaneously. Next come consentaneous action of groups of antagonizing muscles, flexors and extensors, pronators and supinators, adductors and abductors. The spasms of tetanus and epilepsy result from a morbid influence on the substrata of these consentaneous acts. To a higher grade of this kind belong the substrata of the class of co-ordinate muscular acts observed in rotation, progression, retrocession, flying, swimming, and the like, the general movements of the lower vertebrata. Allied to these are the substrata which determine the gait, bearing, language, tone of voice, expression, &c. of the individual, and which bring them into relation with the emotional and instinctive acts. They differ from the preceding in this, that they are due to special groupings peculiar to the individual or the race. They follow, however, the law of transmission from parent to offspring, guiding the other substrata referred to above. A peculiar gait, a certain kind of frown, a hitch of the shoulder, a tone of voice, are all the result of co-ordinate muscular acts taking place independently of the volition of the individual, and almost always without his consciousness, and appear as certainly in the offspring as any other corporeal peculiarities. Co-ordinate or consensual substrata, like those ministering to the instincts, may also be acquired and appear as habits; and these may also be transmitted, though not usually. Lastly, the substrata of the highest co-ordinate movements, namely, those dependent on the intellect, and seated in the cerebral hemispheres, are the substrata on which the acts of speaking, singing, writing, painting, music, &c., and the practice of the manual employments, depend. These are almost always acquired, and seldom transmitted; but on this point, especially, with reference to the last class, observations are wanting. According to these views, any attempt to localize the substrata of the co-ordinate or consensual acts would be futile. Like those of the instinctive and emotional movements, they extend through the whole cerebro-spinal axis. The stimuli that excite them are of course local in their origin, and as diverse in their character as their origin.

XI. *The association of ideas.* Like the association of movements, the true explanation of the association of ideas is to be found in the doctrine of the reflex functions of the brain. The mode of action of the sensory gray matter is strictly analogous to that of the motor gray matter, both with reference to its substrata

and the diffusion of affrent impulses through it. Insanity and dreaming present the best field for investigating the laws of that extension of action from one portion of the brain to the other, by which ideas follow each other in sequence. An interesting example for study is now in the Retreat near York. This person seems utterly wit-less. He expresses the ideas as they spontaneously arise in associated sequence, the combinations being singularly varied, but traceable to a common root, or centre of impulses. Researches of this kind, whether instituted on the insane, the somnambulist, the dreamer, or the delirious, must be considered like researches in analytical chemistry. The reagent is the impression made on the brain; the molecular changes following the application of the reagent are made known to us as ideas. In chemical analysis we know the molecular changes only by the change in form, refractive powers, and other circumstances induced by the reagent; in cerebral analysis we feel the change, or observe its results on the affrent nerves. It is very probable that only on researches of this kind can a scientific spiritualism be established, and through them the link seized that connects the spiritual with the material world.

VII. *The physical position of man in creation.* The law of unity of type and function in animals, applied in the preceding pages to the function of the cerebro-spinal axis in man, has shown (what is necessarily deduced from the law itself) that the transition of structure and function is gradual, and consequently, no strong line of demarcation can be drawn between the manifestations of its various functions. The automatic acts pass insensibly into the reflex, the reflex into the instinctive, the instinctive are quasi emotional, the emotional are intellectual. This gradation of structure and function observed in the nervous system is observed also with reference to all other structures, of his body. Man is at the head of a vast ascending scale of animal life, so extended in its connexions downwards, that for the present purpose it may be considered as infinitely extended. With our existing knowledge of the uniformity of the laws of creation, the deduction is absolutely incontrovertible, that the scale of being is not truncated at man, and that beyond him there cannot be a dark, unpeopled void. The law of gradation of development vigorously pushed to its legitimate conclusions points out an infinite gradation of being above and superior to man. That we cannot see such beings, nor demonstrate their existence is a necessary result of our position in the scale, and no proof whatsoever of their non-existence. The worm knows nothing of man, his works, or his action: nothing of the sun or the stars, of the beings swarming around it; and so with reference to the spiritual world, the world around and above us—our organs may be, and doubtless are, as imperfect as those of the worm with reference to the world around and above it. Man is then at the foot of another scale of beings, the highest of which, at least, as far transcends man, as man transcends the zoophyte. This proposition, I repeat, is the unavoidable inference from our present physiological knowledge, and is a complete answer to those good, zealous, but not wise men, who think science leads to scepticism and irreligion. It leads to rational faith utterly opposed to arrogant infidelity.—*British and Foreign Medical Review of January, 1845.*

## CHEMISTRY, MATERIA MEDICA AND PHARMACY.

### ON THE PREPARATION OF PURE CAUSTIC POTASH AND SODA. BY M. BIZIO.

The best method of rendering potash and soda caustic is, according to the author, to mix a solution of 1 part of the dry carbonated salt with 1 part freshly-prepared dry hydrate of lime, and allowing it to stand in a closed vessel for 24 hours, at a temperature of 68° to 78° Fahr., frequently shaking it. The potash salt should be dissolved in 12 to 15, the soda salt in 7 to 15 parts water; the carbonate of lime separates in a granular state, and the clear caustic ley may be decanted. A weaker ley may be obtained from the residue by fresh treatment with water.—(Berzelius, *Jahrsbericht*, xiv. p 104.)—*Chemical Gazette.*

### ON THE PRESERVATION OF THE ERGOT OF RYE.

There are few articles of the *Materia Medica*, the purity and genuineness of which are of such importance to the practitioner as the Ergot of Rye; certainly there are few, whose good qualities degenerate more rapidly; and to whatever cause these changes may be attributed, whether to the attacks of parasitic insects, or as we think most usually to some chemical change, the nature of which has as yet eluded detection, any means tending to the preservation of the drug, so as to ensure its uniform action must be of importance. For this purpose camphor has been proposed by Mr. Rawle, a grain being mixed with a scruple of the pulverized drug. Mr. Nunn has proposed the employment of ether or spirits of wine, in the following way. A choice specimen is to be obtained and pulverized. Into a two drachm phial, a drachm of ether or spirits of wine is to be put, and a couple of drachms of the ergot is to be pressed in. A number of phials thus prepared are to be kept for use. When required, the contents are to be emptied into a tumbler containing a little boiling water; the ether or alcohol instantly evaporates, and the infusion is instantly made by adding as much more water as is deemed necessary. As a third method the following may be adopted:—

It has been ascertained that the most carefully gathered ergot soon loses its therapeutic properties, if it be kept in a damp place, or exposed to the contact of the air and light. M. Victor Leguip of Chambon, in a recent number of the *Journal de Chimie Medicale*, advises the following method for preserving it in a good condition for several years.

- 1st. Reduce the recent ergot well dried into powder.
- 2dly. Expose the powder to a temperature of 45 or 50 degrees (centigrade, = 113° to 122°, Fahr.) in order to dry it thoroughly and quickly.
- 3dly. Put it into glass bottles not exceeding a hectogramme in size, and seal hermetically.
- 4thly. Withdraw it from the action of light, by shutting it up either in a dark place, or by covering the bottles with black paper.

If the results obtained by this process be really as advantageous as the author announces, we cannot too soon direct the attention of pharmacutists to it; for it too frequently happens, especially at the latter part of the season, that the official preparations of the ergot are so deteriorated, that it is impossible to calculate with certainty upon their effect.—*Bulletin Général de Thérapeutique*, August, 1844, quoted from the *Journal de Pharmacie du Midi*.

### SIMPLE METHOD OF PREPARING THE PILULA FERRI IODIDI.

Take of iodine 127 grains, iron wire, about the thickness of a thin quill, half an ounce, distilled water 75 minims. Agitate them briskly together in a strong ounce-phial, provided with a well-fitted glass stopper, until the froth which forms becomes white, which will happen in less than ten minutes. Pour the liquid upon two drachms of finely powdered loaf-sugar in a little mortar, and triturate immediately and briskly for a few minutes; add gradually a mixture of the following powders, viz., liquorice powder

half an ounce, powder of gum Arabic a drachm and a half, and flour one drachm. Divide the mass into 144 pills.

Each pill contains about a grain of iodide of iron.

In operations on the large scale, the bottle ought to be wrapped in a strong towel, in case of an explosion being caused by the evolution of steam from the heat produced; and even on the small scale, the stopper must be held firmly, otherwise it will probably be blown out and the materials lost.—*Medico-Chirurgical Review*, from *Pharmaceutical Journal*.

#### XANTHIC OXIDE IN GUANO.

Professor Magnus recently communicated to the Berlin Academy of Sciences, that M. Unger had discovered in his laboratory Marcet's xanthic oxide in guano. This body, so highly interesting to physiologists and chemists, has hitherto occurred but twice as a diseased secretion in the form of a calculus. Leibig and Wohler, in their researches on uric acid, have published the most complete description of it; they assign to it the name of *Urous Acid*, *Xanthine*; the quantity of the stone at their disposal was however exceedingly small.

Xanthic oxide is obtained from guano by treating this substance with hydrochloric acid, and precipitating the solution with an alkali. Caustic potash then removes a small portion from the precipitate obtained, which however is not always equal in amount. Xanthic oxide is either precipitated from the solution in potash by a current of carbonic acid, or separated by the addition of chloride of ammonium, when it is deposited as the ammonia evaporates. The yellowish purverulent body thus obtained has all the properties which Liebig and Wohler assign to xanthic oxide; it differs only in this respect, that it is soluble in hydrochloric acid, as is evident from the mode of its preparation. But M. Unger has found that xanthic oxide not only enters into combination with hydrochloric acid, but likewise forms with several other acids crystalline compounds which are soluble in water, and the description of which he will soon publish in full.

Thus guano, so remarkable from its origin, and which promises to be of as great service for European agriculture as it has long been for certain districts of South America, likewise affords an interesting subject for science.

The small quantity of xanthic oxide which the guano contains does not admit of our supposing it to have originated by gradual decomposition; the occurrence of this body, known hitherto only as a diseased secretion of the animal organism, would afford a further proof, were it needed, that the guano consists, as shown by Alex. Von Humboldt, of the excrements of animals. The inequality with which it is distributed in the guano renders it highly probable that it likewise has been secreted as a diseased product along with the excrements of the birds; otherwise we must admit that it forms the normal excrement of certain animals, in which case it would be of great interest to become acquainted with these species of animals, which perhaps may still exist.—*Chemical Gazette*, from *Poggendorf's Annalen*.

### PRACTICE OF MEDICINE AND PATHOLOGY.

#### APOPLEXY.

From a course of Lectures by C. J. B. WILLIAMS, M.D.,  
*Professor of Medicines, University College, London.*

The diagnosis of apoplexy is to be founded chiefly on the state of the circulation, and the complete abolition of the functions, the congested state of the brain, and the slow character of the pulse on the one side, or its irregularity accompanied with pallor of the face on the other side, and by these conditions being accompanied by stertorous breathing,

often slow and irregular, and at long intervals. Sudden loss of consciousness is another thing to be considered, distinguishing this from intoxication, which in a very high degree resembles apoplexy. The state of the pupils is not much to be depended on. The prognosis is to be determined by the duration of the coma; if it has lasted long and the breathing become stertorous, and the circulation affected more and more, there is little hope of recovery. If the apoplexy has fully passed off and consciousness begins to return, the prognosis may be formed by the amount of paralysis and injury left. It is not often to be relieved by depletion or other remedies, if there is much injury. When there is disease of the other parts of the body, the prognosis is worse. The treatment should be regulated by a fair view of the cause, the previous habits and condition of the subject, and the present state of the individual. Bleeding is supposed to be one great remedy for apoplexy, but it is sometimes detrimental at the first occurrence of the paroxysm. If the pulse is weak and irregular, and there is stertorous breathing, blood-letting may kill him; his state is that of extreme depression, and he is dying under these circumstances, from syncope and coma. It may be necessary sometimes to give stimulants, but in that you must be guided by the state of the pulse and the aspect of the countenance. Where the pulse is full and the countenance congested, no doubt bleeding freely, until an impression is produced, and the pulse falls and is more frequent, is beneficial. It is remarkable what a large loss of blood patients who have congestive apoplexy will bear, and from 40 to 50 ounces may be drawn without weakening the pulse. Blood-letting may be carried on until symptoms of consciousness return. Purgatives, calomel and croton oil, are useful. Cold water thrown on the head is a useful expedient, together with the measures I have mentioned. There is great danger in congestive apoplexy, where there is no syncope, arising from the state of the respiration: although the medulla oblongata is mostly oppressed by the disease, its action may be excited by operating on the accessory nerves, connected with the respiratory apparatus; dashing cold water on the head has the effect of relieving these symptoms. The state of the countenance is to be watched, and, if necessary, the remedies are to be given again and again. After blood-letting, pallidity may come on, and even in a short time after blood-letting, it may be necessary to give stimulants. It is of great consequence to distinguish between the states of oppression and depression. After the immediate symptoms of apoplexy are removed, there will occur hemiplegia, which is another evil. Inflammation from re-action, too, is exceedingly apt to arise after apoplexy. This occurs about the eighth day, and the case must be watched, and the treatment kept up to prevent it. Antiphlogistics and mercury should be given, cold should be applied to the head, if it is at all warm, and cupping, blisters, and so forth should be employed. These remedies are to be continued more or less until there is relief, as paralysis and hemiplegia are apt to arise. A free action of the bowels should be secured, the living moderate, without actually starving, particularly in old people, avoiding all excitement of body or mind, and keeping the head wrapped up. These are the chief means by which a cure is calculated upon. Returns of apoplexy are to be prevented by cupping and leeching the neighbourhood of the head and back of the neck, keeping down the action of the heart by digitalis, and medicines acting on the secretions. A seton may be used. In gouty persons colchicum is useful.—*Medical Times*, March 19, 1845.

COTTON AS A DRESSING TO BLISTERS.—Prof. Seidlitz employs carded cotton for this purpose. He evacuates the serum, and then covers the part with a layer of cotton, which is allowed to remain until the cure is effected.—*Journ. de Med. et Chirurg.*

## ON THE EMPLOYMENT OF LARGE DOSES OF QUININE.

Our Boston contemporary, the *Medical and Surgical Journal*, contains an interesting "report of a committee of the Medical Department of the National Institute," on a paper by Dr. Buck, "On the Use and Abuse of Medicine," in opposition to one previously laid before that body by Surgeon Van Buren, U. S. A., in favour of "the employment of large single doses of quinine, over small and repeated doses of the medicine, in malarial diseases." The results of American experience on this point are expressed in the report as follows:—

1. In the first place, it has been shown by more than 2000 observations in this country, that large doses of from 10 to 60 grains, or an ounce, of quinine, can be given without producing injury.

2. That it has been proved, beyond doubt, that these large doses do exert a curative effect on periodical and malarial diseases, and more certainly than small doses.

3. That the cases of permanent injury resulting from large doses of quinine, are not more, indeed not so numerous, as from repeated small doses.

4. That the temporary inconvenience or disturbance of the nervous system is not so liable to ensue from large as small doses. This is stated, though our experience is to the contrary, in most cases.

5. That so far from smaller doses being more certain, they are not; the paroxysm being far more likely to occur after their use, than after a single large dose.

6. That the impression made on the system is more permanent from large than small doses.

7. That in diseases that run their course rapidly to a fatal termination, as in the southern country, a reliance on small doses was found to prove hazardous to the safety of the patient; therefore, when it is desirable to cut short or prevent the occurrence of a violent chill, the large doses should be resorted to.

8. That visceral diseases are not more liable to follow, if as much so, from large as from small doses of quinine.

Although our space forbids as from following the report throughout, we cannot forbear noticing, that the general practice is to administer the medicine "about 12 hours before the expected paroxysm," although, "some recent observations have gone to prove that its antiperiodic effects are more decidedly felt eighteen hours after its exhibition."

Its employment is restricted to malarial disease; and the report maintains, that it *possesses no peculiar tonic properties, and is unfitted to fulfil this indication for which it is so generally prescribed, and for which it is so much esteemed.*

We have ourselves on numerous occasions witnessed the prompt termination of a more or less protracted intermittent by the exhibition of a single large dose of quinine, varying from ten to twenty grains in accordance with the strength of the patient. We have not ventured on larger doses, although we doubt not, they might have been well enough borne. This disease can

scarcely be viewed as endemic in the Island of Montreal: in certain districts, however, of Upper Canada, from which the cases seen in this city most usually arrive, the value of the practice to which we have directed attention, may be most satisfactorily tested.

## TREATMENT OF BED-SORES.

A writer in a recent number of *Walter and Ammon's Journal*, recommends the application of a lotion composed of equal parts of spirits of Camphor and the vegeto-mineral water of Goulard. The parts, that have become red by the pressure, should be repeatedly moistened with this lotion; it requires to be briskly shaken before it is applied.

If, in spite of this treatment, the skin should break, the zinc or lead ointment, to which some camphor has been added, is a good application. In still more obstinate cases, an ointment, consisting of four parts of fresh-prepared Tannate of Lead, and thirty of lard, has been sometimes found to answer extremely well. On the whole, however, nothing succeeds so uniformly, alike as a prophylactic remedy against the abrasion of the skin and a healing one to that which has become broken, as a solution of Creosote—prepared after the method of *Reichenbach*—in the proportion of one part of the oil to 80 parts of water.

When the affected part becomes gangrenous, fomentations with a decoction of Yellow Bark, to which some tincture of Myrrh has been added, may be useful. Some patients have found benefit from the sprinkling of the ulcerated surface with a powder composed of Bark, Camphor, and Myrrh; others, from the use of the Camphorated styrac ointment. The tinct. Benzoin. compos., or Friar's Balsam, is often an excellent application to bed-sores. Whatever be the nature of the application employed, the most important remedy of all is the removal of pressure from the affected parts, by means of air or water cushions. The comfort derived from the use of these is most pleasing.—*Medico-Chirurgical Review*, Oct. 1844.

## EFFECTS OF ANTIMONY ON INFANTS.

Mr. Wilton (Surgeon to the Gloucester Infirmary) has drawn the attention of the profession to the serious effects which sometimes result from the exhibition of antimony in infantile diseases. The first case related was that of a child about a year old, to whom the mother had given small doses of antimonial wine for a cold and affection of the chest. Mr. W. found the patient suffering from slight convulsions—pallid sunken countenance—vomiting and diarrhoea. The means employed failed, and the child died. On dissection, the internal and external parts were pale and exsanguineous—no vascular patches in the alimentary canal—the brain very soft; but no organic changes anywhere to account for the sudden collapse and death.

A few days afterwards, Mr. W. was summoned to another child, exhibiting similar symptoms, after taking antimonial wine. This child was saved. Some other cases are narrated, of which we shall notice the following. A child, about four years of age, became affected by cold, cough, and febrile symptoms. Saline draughts with antimonial wine were given by the medical attendant. Sickness and diarrhoea followed, with sudden prostration, which ended in death, despite of cordials and stimulants. On dissection, the surface of the body was pallid, and on being moved, a large quantity of colourless fluid flowed from the mouth. The whole body was exsanguineous, but no marks of inflammation were anywhere visible.

We have often seen distressing symptoms follow antimony in children, and, except in urgent or croupy cases, we

generally prefer ipecacuan, which, if it sickens at all, soon clears itself out of the stomach without injury.—*Medico-Chirurgical Review*, Oct. 1844, from *Provincial Journal*, July 1, 1844.

### ABDOMINAL PULSATION.

By J. NOTTINGHAM, M. D.

Member of the Royal College of Physicians, London, and of the Societe d'Emulation, Paris.

In some forms of organic disease in the belly, and in certain disordered states of the abdominal viscera, as well as in affections of the pericardium, heart, or aorta above the diaphragm, this symptom is often so prominent as to attract particular attention, and now and then its real source is sufficiently obscure to render the most careful enquiry as to its cause a matter of imperative necessity.

Aneurism of the abdominal aorta may give rise to it: when its intensity will be influenced by the position, size, and state of progress of the aneurismal tumour: the facility with which it is detected and examined by the practitioner depending on the state of the belly, the parietes of which being thin and the omentum and mesentery not loaded with fat, the hand will be easily pressed towards the spine, and held over that part of the aorta supposed to be diseased.

But, as is evident, aneurism thus situated can scarcely be examined by ordinary manipulation in such a way, as to satisfy the enquirer as completely as may often be done in cases of popliteal or other aneurisms more exposed or approaching the surface; and it may also be well to recollect that it is likely that the aneurismal pulsations may have something of a confused character, not only from the position of the tumour with regard to adjacent parts; but also from the fact, that we sometimes meet with two or more aneurisms of the aorta, with but short portions of the unaffected vessel between them. In examining the body of a man, who died of disease of the lungs, in one instance I found four distinct aneurisms in the course of the descending aorta.

An aneurismal tumour might occur behind the pancreas; the latter organ being raised by the pulsations of the tumour, would in some degree mask the symptoms, and render the diagnosis more difficult.

The pancreas is occasionally enlarged, and indurated, in which state it sometimes leads to the suspicion that aneurism of the aorta exists, the motions of the blood-vessel raising the diseased organ, the character of the pulsations being little attended to;—of this I have seen a remarkable instance in a female who died of consumption;—she was supposed during life to have not only the pulmonary malady;—but also an aneurism of the abdominal aorta; there was a strong pulsation above the navel, *bruit de soufflet* was heard there when the stethoscope was applied;—the impulse was great, the hand of the observer when placed on the belly being considerably raised by each stroke of the heart, so that it might have been thought that an aneurism of great size was beneath. The patient died and the body was examined; the aorta was healthy, but the pancreas was not, it was enlarged and indurated, its volume being much greater, and its granules much firmer than usual; hence the difficulty in the previous diagnosis; the *bruit de soufflet* being here associated with a narrowing of the tube of the aorta by the pressure of the enlarged pancreas, a cause of the sound, which in its essential characteristic resembled those which frequently give rise to it in valvular disease or in contractions of the cardiac orifices.

In some cases where the transverse colon is in a loaded state from excrementitious accumulation, patients will complain of “beating in the inside,” and allude to it as one of the most remarkable symptoms of their malady;—by

attending to the state of the intestinal tube as well as to that of the circulating system, the source of the “beating” will be easily detected.

In a recent instance, where a patient was suffering from dyspeptic symptoms, pulsation of the abdominal aorta, was much complained of;—it was no longer troublesome after the colon had been freely emptied.

In cancerous disease of the stomach, abdominal pulsation is occasionally felt, and it may occur as a symptom of mesenteric disease, in enlargement of the lumbar glands, or in any case of tumour, foreign growth or abnormal accumulation bearing on the abdominal aorta.

After pericarditi, when from adhesion the heart is more or less fixed to the diaphragm, its action is sometimes accompanied by a movement of alternate retraction and relaxation, observed on the exterior of the epigastrium, and in some cases a feeling as of abdominal pulsation is at the same time experienced;—this symptom may be modified in its character by the condition of the heart and great vessels, being rendered more remarkable in cases especially of hypertrophy of the left ventricle, and increased by contraction of the cardiac orifices or disease of the valves. With regard to pulsation in the above mentioned conditions, it is supposed that the ordinary quantity of blood passes along the canal of the aorta, the calibre of which may or may not be influenced by pressure from neighbouring parts, and that the vessel has its ordinary tone and action, except in the case of aneurism;—but there are states of the system or accidents to it, in which the quantity of circulating blood is suddenly lessened, at the same time the irritability of the nervous system being as suddenly increased, whence excitement of the heart and arteries. Of which state abdominal pulsation is not infrequently a symptom; so that we meet with it after hæmorrhage and it is sometimes very great after parturition.—When its source in the latter cases is compared with its mode of origin in the former, it is easily understood with what circumspection its treatment as a symptom should be commenced.—If auscultation be employed in the study of cases where abdominal pulsation is a symptom, with regard to females it must be borne in mind, that after the fourth month of pregnancy the placental *bruit* may be heard, synchronous with the pulse of the mother, and after the fifth month, the beat of the fetal heart, with double pulsations, quicker than the pulse of the mother, and that a *bruit* similar to the placental has also been met with in some cases of tumor.

In certain cases that are not frequent, the presence of large accumulation of flatus in the intestines, may, to some extent, render more perceptible to the feeling of the patient, or to the practitioner by exterior examination, the beating of the abdominal aorta.—*Medical Times*, Feb. 22, 1845.

### DISEASES OF THE NEGRO POPULATION OF THE SOUTHERN STATES.

We observe in the *New Orleans Medical Journal*, the following summary of the chief diseases to which the negro population of the Southern States is subject. The list of diseases has been formed from the personal observation of Dr. DRAKE, the author of the communication, aided by the experience of the principal Physicians, Planters, and Overseers, in the States of Alabama, Mississippi, and Louisiana, the observations having been made during the Summers of 1843 and '44:—

1. Many infants die of trismus, or lock-jaw, when they are but a few days old; after that early age, convulsions and summer sickness, (cholera infantum,) carry off quite a number.



2. They are liable to measles and scarlet fever, both of which were prevailing, (but especially the former,) on many plantations which I visited; which diseases seem to be as fatal to them as to the whites.

3. Scrofula or king's evil is of frequent occurrence; and consumption or cachexia Africana, as it has been called, is prevalent and always fatal.

4. On many plantations the strange habit prevails of eating dirt or clay, the common soil of the fields, particularly that of the Mississippi bottoms, producing serious and fatal diseases. I was told of one estate in South Alabama, on which fourteen slaves had died from this cause, and visited another in Louisiana, on which I saw nearly half that number unable to work from the same practice.

5. A disease of the heart, conjectured to arise from dirt-eating, destroys quite a number. I met with several cases, and heard of a plantation on Red River, where more than thirty died from this malady.

6. Tetanus or lock-jaw from wounds, is extremely common, and almost uniformly fatal. Some cases occur without previous wound. A physician in Alabama told me he had, in fifteen years, met with at least fifty cases, nearly all colored people, and all but one mortal. I met with several young physicians in the smaller towns, who had, respectively, met with more cases than have occurred in Cincinnati from its first settlement.

7. Diarrhœa and dysentery, of frequent occurrence, are often fatal.

8. Where the cholera was epidemic in 1832, '33, and '34, it swept off great numbers; was more destructive, in fact, to the coloured than the white people of the South-west.

9. Epidemic erysipelas, or black tongue, has prevailed on many plantations within the past year. I was told of one, in Mississippi, on which seven had died of it.

10. The colored people are not proof against the cause of yellow fever, but as they are not numerous in the cities and towns, where only it prevails, the mortality from this disease is not great.

11. Acute inflammations of the lungs are among the most destructive diseases of the colored population. These are catarrh, croup, bronchitis, pleurisy, and pneumonia, or inflammation of the substance of the lungs, which is the most frequent and fatal of the whole. These maladies often destroy life in a few days; but sometimes the patient recovers with his lungs rendered permanently unsound. I saw many cases of this kind. This group of diseases, produced by changes of weather in winter and spring, occasions more deaths than any other, except the next.

12. Intermittent and remittent fevers; simple, and malignant or congestive, are the greatest outlets of human life, among the people of whom I am speaking. They return every year in the latter part of summer and in autumn, and one attack is no security against another. When they do not prove fatal, they leave behind them diseases of the spleen, and dropsy. In the following winter, those who were down in the autumn, are tender, and often die of inflammation of the lungs.

In addition to the diseases I have named, others occur now and then, with considerable frequency, of which I may mention rheumatism, epilepsy, colic, hysteria, and several infirmities peculiar to women.

From this catalogue you will perceive that the colored population of the South-west are by no means exempt from a variety of formidable diseases. As we come further north, tetanus and autumnal fever get less, but consumption and inflammation of the lungs increase.

## SURGERY.

### OPHTHALMITIS.

Dr. Mackenzie, of Glasgow, in a clinical lecture recently published on ophthalmitis, refers its occurrence to two most prominent causes—injuries of the eye, and the circulation of purulent matter in the blood. The disease, when arising from the former cause, is called *ophthalmitis phlegmonosa* or *traumatica*, from the latter *ophthalmitis phlebitica*. Some cases are occasionally met with which appear to be essentially *idiopathic*. It commences with slight external redness, the conjunctiva being the seat of white chemosis; the aqueous humour is muddy, or tinged with blood, and the fundus oculi appears reddish. The iris is changed in colour, the pupil contracted; the lenticular capsule sometimes opaque, in other instances transparent; the pain is severe and pulsatory; it is experienced at the bottom of the eye, and in the orbit, extending to the forehead and temple, and accompanied by a feeling of burning heat, tension, and fulness. There is also much intolerance of light, and a sensation of shining flaming spectra before the eye. As the retina becomes insensible from change of structure, or the pressure of effused pus, this last-named symptom disappears. This state is followed by protrusion and fixeness of the eye-ball; from effusion into the cavity of the ocular capsule; it is excessively hard to the touch. When protrusion takes place, the interior of the eye is disorganised and vision extinct. The conjunctiva continues greatly swollen, and is covered, especially that portion of it which lines the lower eyelid, by a layer of coagulable lymph, which can be peeled off like a membrane, and which forms again by-and-by. This is met with both in the traumatic and phlebitic ophthalmitis, and serves to show the analogy existing between these two varieties of the disease. If the lens and its capsule are transparent, the vitreous humour may now be sometimes seen of a grass-green color, the result of pus effused within the hyaloid membrane. The iris advances towards the cornea, and matter is plainly deposited in the posterior and anterior chambers. The whole eye and the ocular capsule being thus full of purulent matter, if life is prolonged, the matter, unless interfered with by art, after immense suffering, makes its way to the surface, and escapes. The bursting of the eye, or of the capsule, is a means of saving the patient's life, against whose recovery the chances are very great if the disease is left to itself, and no spontaneous evacuation of the matter takes place. This is effected either by sloughing of the cornea, by the bursting of the sclerotic into the ocular capsule, and the discharge of the pus through the conjunctiva, or by the latter only, the sclerotic, remaining intact. If the eye retains anything of its natural appearance, and especially if there remains any sensibility to light, the eye itself has not burst; the capsule only has given way. The constitutional symptoms are of variable intensity, but generally very severe. The patient is affected with rigors, anxiety, insomnia, delirium, and sometimes convulsions, especially if the case is about to terminate fatally. The pulse is full and throbbing in the commencement; in the later stages of the disease, it is small, weak, and very quick. The disease may terminate in amaurosis, the form of the eye remaining natural, the pupil contracted, the lenticular capsule opaque, and the retina insensible, or in suppuration and rupture of the eye or capsule, or of both; and again, death is not an uncommon termination of ophthalmitis by the suppression of coma. A perfect recovery is very rare, indeed. The principal causes are injuries, such as the operations for cataract, not extraction only, but sometimes even division through the cornea or the sclerotic; the excision of staphyloma, injuries received in blasting stone, and the like; in particular states of the constitution, a very slight injury in-

deed will produce it. [We have seen it caused by a prick from a thorn striking the eye.] Another cause is the circulation of pus through the system, arising from inflammation of a vein, the pus being arrested in one of the minute vessels of the eye, perhaps in the veins of the choroid, and there exciting inflammation, and a new secretion of matter, not a mere deposition of that which was carried in the circulation from the vein originally inflamed. There is reason to believe that ophthalmitis follows as a sequela of fevers, both eruptive and others, such as measles, small-pox, scarlatina, and typhus. The symptoms in both the phlebotic and traumatic forms have a close resemblance to each other, and the treatment in each at the commencement, requires the free use of the lancet, cupping, and the application of leeches. Dr. Mackenzie also recommends the free exhibition of mercury, and says the only case of ophthalmitis (a very bad one,) in which he witnessed a perfect recovery, was one in which he made the mouth speedily sore with calomel and opium. As soon as mercurial action was excited, the ophthalmitis began to subside; the eyeball retreated into the orbit; and a perfect cure took place. He has never tried nauseating doses of tartar emetic, which have been recommended in such cases. Counter-irritation to the feet, such as by mustard baths, or mustard poultices, and counter-irritation to the nape of the neck by blisters, as well as blisters behind the ears, will be proper. Pledgets wrung out of cold water, and frequently changed, are the best local applications in the early period of the disease; afterward a warm poultice. Extract of belladonna may with propriety be smeared on the eyelids and eyebrow. With regard to diet, in the early stage abstinence from food, and water only for drink should be directed; but afterwards, when the patient is weak and exhausted, mild nourishment may be allowed, and quina exhibited. The last point in the treatment consists in making a surgical opening into the eye for the evacuation of the serous fluid and pus, either through the cornea or sclerotics, by doing which Dr. Mackenzie avers he has in several cases saved the patient's life. The plan of opening the ocular capsule he first employed in February 1842, on an eye affected with traumatic ophthalmitis, which was excessively hard and greatly protruded, with an obscure scene of fluctuation around it. He divided the conjunctiva in a vertical direction at the inner canthus, and towards the lower eyelid, and then direct the lancet backwards by the side of the eyeball, between it and the lower inner wall of the orbit, so as to avoid the rectus internus and rectus inferior. There was a sudden discharge of serous fluid mixed with pus, and the eyeball immediately sunk back, and the cornea became quite flaccid, showing that the cause of the previous excessive hardness of the eye, and of its protrusion, had not been in the eye, but behind it. This proceeding Dr. Mackenzie recommends for early adoption in all similar cases; not to be delayed until the eye is disorganised, or the patient sinking into the state of coma. It is simple and easy of performance, and affords the most likely means of saving both the vision and the life of the patient.—*Medical Times*, April 5, 1845.

#### ON THE NATURE AND TREATMENT OF SYPHILITIC DISEASES.

At a meeting of the Surgical Society of Ireland, held on the 15th of March, a paper was read by Mr. Egan, surgeon to the Westmoreland Lock Hospital on the Nature and Treatment of Syphilitic Diseases, in which the views taken by Mr. Carmichael many years ago in his great work on Syphilis were fully established; though, as Mr. Egan candidly confessed, he had been at the outset of his investigation prejudiced against Surgeon Carmichael's doctrine. At the conclusion of the business of the evening, Mr. Car-

michael rose to acknowledge the compliment paid him by Mr. Egan, which, coming from such a source, was truly valuable. As they had nothing to do, perhaps they would listen to him for a few minutes while he gave them an account of the interested defamation of his work, which had appeared from the pen of a London reviewer, on its first publication. The reviewer was a young house-surgeon at the London Lock hospital—which was at that time attended by Mr. Pearson—to whose doctrines on syphilis, those promulgated by Surgeon Carmichael were completely opposite. He then entered into a detailed account of the unfairness and illiberality with which his work was treated by men of the highest character in the professional world, but over which it ultimately triumphed; and now stands an enduring evidence of his scientific skill and discrimination. He sat down after giving a brief resumé of the principle indications which should guide medical men in administering mercury for the cure of syphilis in all its various forms and stages. Familiar, as the profession must be, with Surgeon Carmichael's plan of treatment in syphilis, we take the liberty of presenting to them again an epitome of his invaluable opinions on the subject:—

1st. He does not think mercury necessary in the treatment of the simple primary ulcer without induration, nor for the papular eruption, and other constitutional symptoms it produces; but should the eruption linger into the fourth or fifth week after it has desquamated into scaly spots or blotches, mercury in alterative doses, either in the form of Plummer's pill or the proto-ioduret of mercury, will be of service in clearing the skin of the eruption, and in removing the pains of the joints, which are constantly present in this form of venereal. It should never be employed at the period when the eruption first appears in its papular form, at a time that it is usually preceded and accompanied by considerable fever, like all the other exanthemata, to which class of Cullen it obviously belongs. If mercury is exhibited prematurely during the eruptive stage of this as well as the other forms of disease, the scaly excepted, the skin may be cleared of the eruption, but in all probability it will return again and again to the great disappointment of the patient and perplexity of the medical attendant. 2nd. Mercury should be given in iritis so as to excite its full effect upon the system; the usual antiphlogistic measures to remove this dangerous inflammation are not to be neglected. 3rd. Mercury is to be given for the removal of nodes, for which purpose the iodide of that mineral is superior to any other preparation. 4th. In phagedenic primary ulcers mercury is always most injurious. They are most successfully treated by the application of strong nitric acid, immediately followed by a douche of cold water. The same application is also the most efficient for phagedenic ulceration of the throat, which if not checked will soon extend over the velum, uvula, and back of the pharynx, from whence it will spread upwards into the nares, and downwards into the larynx. Instead of the douche of cold water, in this situation inadmissible, a probang must be used, the sponge of which, moistened in a solution of soda or potash will neutralize any superabundant acid applied to the ulcers. During the eruption of pustules or tubercles which cause those crusts termed rupia, mercury is decidedly injurious, although its exhibition may at first flatter both patient and surgeon that the disease is yielding to this remedy. But the natural tendency of this eruption is also to become scaly after it has existed several weeks or months. This scalliness is a sign that the disease is on the decline, and indicates that mercury in alterative doses may then be employed with safety and advantage. Should any of the constitutional ulcers on the skin spread after the rupia crusts fall off, their progress may also be effectually checked by the application of nitric acid to their phagedenic margins. They of themselves first show signs of

healthy reparation in their centres, which need not therefore be meddled with. Mercury in this stage of the disease, should not be exhibited. Hydriodate of potash, sarsaparilla, country air, and the tranquillizing effects of opium, should the patient be harrassed by extensive ulceration, are the constitutional means most to be relied upon. 5th. For the true Hunterian chancre with hardened edge and base, and for the scaly eruption which attends it, as well as the deep excavated ulcer of the tonsil, nodes and other symptoms belonging to this form of disease, mercury may be esteemed a certain and expeditious remedy.—*Medical Times*, April 19, 1845.

#### CASE OF A BLOOD-VESSEL COMMUNICATING WITH THE CAVITY OF AN ABSCESS.

By ALEXANDER MAXWELL ADAMS, M.D.,

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In the *London and Edinburgh Monthly Journal* for March, 1843, there is communicated by my friend, Dr. A. King of Glasgow, a very interesting case of Rupture of the Internal Jugular Vein into an Abscess, which had formed near the angle of the jaw. Independent of the interest attaching to it,—from being, so far as I know, the first recorded case, in which a large and important vein had communicated with an abscess, and caused death,—it is important, as serving to corroborate in some measure the accuracy of a statement previously published by Mr. Liston, in his well-known paper on “A Peculiar Variety of False Aneurism,” which was excluded from the *Transactions of the Medico-Chirurgical Society of London* for reasons best known to that body.

One great difference, however, existed between the two cases; exclusive of the fact, that in the one, a vein was affected, and in the other an artery,—viz. that in Dr. King's case the abscess in the neck had burst externally three days before any evidence was afforded of the vein having become implicated; whilst in Mr. Liston's, the communication between the artery and abscess had evidently taken place some time before the latter was opened. This distinction, in the eyes of some of Mr. Liston's well-disposed friends, seemed very important; for while few of them could deny that ulceration sometimes occurred in an opened abscess, and led to destruction of vessels, many were unwilling to admit that such a thing ever happened in an unopened one; and they therefore, with the utmost apparent zeal for the interests of suffering humanity, proclaimed loudly to the medical world, through every available channel; their belief in the falsity of that great surgeon's description of the case in question. Subsequent, ay, and even previous experience, have, notwithstanding, confirmed the possibility of the account which he gave; and this very case, instead of detracting from, has in reality added another wreath to his chaplet of well-earned laurels.

In a case which came under my own observation in the month of May last, a vessel undoubtedly communicated with the cavity of an abscess, previously to the latter giving way; and although the value of my account may in some measure be lessened, owing to an opportunity not having been afforded me of ascertaining the exact vessel which gave rise to the fatal hemorrhage, yet the case is sufficiently interesting in other respects, to justify me in making it public. It will serve at least to add to the number of the similar cases already recorded in Mr. Liston's memoir, and in Dr. King's; and subsequently in Mr. Broxam's communications; and will afford additional proof of the danger of allowing abscesses to remain for a long time, (particularly in delicate children,) pressing upon important vessels:

The case was that of Eliza Cameron, aged fifteen months, who, on the 1st of May, was attacked with scarlatina anginos, which pursued a favourable course under the treatment. On the 17th she was brought to me, in consequence of a diffused, tense, and superficially inflamed swelling, situated behind and below the angle of the right jaw. At this period, the throat, internally, showed no appearance of disease. As no fluctuation could be detected in the tumour, poultices were ordered, and directions given for the child to be brought back to me in a couple of days. The poultices were applied; but the mother neglected showing me the child at the time appointed, wishing, as she said, “that the healing should be quite ripe before it was lanced.” The consequence was, that the tumour burst into the throat, and the hemorrhage which ensued was so great, as speedily to prove fatal. The account given to me was, that the tumour had become much softer; and appeared to the friends sufficiently ready for opening, when, on the evening of the 23rd, the child suddenly gave issue to a large mouthful of scarlet-coloured blood. It continued to flow from the mouth, of the same colour, for the space of six or seven minutes. A considerable quantity of a darker coloured and coagulated blood was next vomited, making the quantity lost amount altogether, as nearly as the bystanders could guess, to about sixteen ounces. Shortly after this the child died. The swelling on the side of the neck was found to have decreased considerably in size.

From the preceding description, it is tolerably clear, why the blood vomited first and last should have differed so much in appearance; for in the former instance it must have proceeded directly out of the mouth, from the suppurating cyst, and in the latter it must have trickled first into the stomach, and been again discharged, from thence altered both in colour and consistence.

Notwithstanding the statement made to me, that the blood was at first of a scarlet colour, I am by no means decided as to whether it issued from an artery or vein; but of one thing there can be little doubt, that the vessel, whatever it was, must have been of some consideration.

The practical lesson to be deduced from the preceding, and similar cases, I have already hinted at, viz., that no unnecessary delay should be allowed to occur before opening abscesses situated under the resisting fascia of the neck, particularly when they take place in children of weakly constitution, or debilitated by disease. I have a strong conviction, that if the abscess had been opened earlier in my own case, if not in some of the others recorded, the termination of them would have been very different indeed.—*Cormac's Journal*, April, 1845.

#### ON THE TRAUMATIC CURVATURE AND INCOMPLETE FRACTURE OF THE LONG BONES IN CHILDHOOD.

This subject has hitherto not been examined with the attention which it deserves. M. Thore, after alluding to the cases which have been published by MM. Thierry, Villarme, Gulliver, Mondiere, &c. relates the particulars of three, which have occurred under his own observation. In the first of these, a child, eight years of age, had the fore-arm bent considerably forwards, in consequence of a fall. In another case, the curvature of the fore-arm was backwards: it occurred in a child three years old; and, from having been neglected, the deformity remained uncured. The third case—some of the details of which we now give—exhibits an instance of a curvature and an incomplete fracture taking place at the same time.

Case.—A child, six years and a half old, fell down a stair-case. When visited, the fore-arm was found to be tense swollen, and very painful on the slightest pressure.

The surgeon, that was called, fancied that either the radius or the ulna was fractured: but no *crepitus* could be perceived upon the most attentive examination. The forearm was obviously curved, the concavity being directed forwards; there was also a notable prominence at the posterior and inner side of the limb. By keeping up extension for a few minutes, the curvature was observed to be considerably lessened for the time; but, in consequence of the great pain induced, nothing more could be then done than merely to apply leeches and a lotion.

M. Thore did not see his patient again for five months; at which time there was still a slight curvature at the seat of the injury. Moreover, immediately above the middle third of the ulna, and more especially at its inner part, a rounded projection—that was evidently caused by deposited callus—could be distinctly felt. The radius appeared to be quite intact.

Most of the cases of curvature and incomplete fracture have occurred in the fore-arm. Three instances have been observed in the leg, and, in one, the arm or humerus was the bone that was injured.

From a good many experiments, which M. Thore has performed on the bones of infants and young children after death, he infers that the tendency to curvature and incomplete fracture is greatest about the second year of life. After the 12th or 14th year, these accidents are of very rare occurrence indeed.

In some cases, the deformity will gradually yield to the application of moderate pressure upon the convexity of the injured bone. Occasionally, indeed, no inconsiderable force has been found necessary to straighten the curvature. —*Medico-Chirurgical Review from Archives Generales.*

## MIDWIFERY.

### EVILS OF UNDUE LACTATION.

*Functional Amaurosis*, accompanied by congestion of the conjunctiva, is a frequent result of excessive lactation, and seldom fails, from its interference with the sight, to arouse the patient's fears lest vision should be entirely and permanently lost. These apprehensions may easily be allayed; as, doubtless in the greater number of cases, prompt weaning will alone remove the affection; still, it may be necessary, repeatedly to apply small blisters near the eye, and absolutely to forbid its employment. Improved diet, country and sea air, exercise out of doors, iron and quinine, are important remedial auxiliaries. Nor is it unimportant that quickly-returning pregnancy should, if possible, be avoided. I have known several instances where, during a pregnancy immediately succeeding the exhaustion from over-nursing, the eye has been almost constantly in a state of "blood-shot" or congestion, and the sight excessively imperfect. Months, and even years, sometimes elapse, where able treatment has done its best before distinct and strong vision is re-acquired. Specks, and slight ulcerations of the cornea, are occasionally connected with the exhaustion and irritability of nursing. In all these cases, provided there be no serious organic change, the sufferer may be encouraged to expect the restoration of this most invaluable faculty.

Several examples of *jactitation* have fallen under my notice. In one poor woman, an out-patient of Guy's Hospital, the seizures always occurred after she had nursed for three or four months; and they were so violent, that she was compelled to lay down her baby when they occurred, lest she should let it fall. In another young and hysterical patient, who had borne children very quickly, there was, during lactation, a continual and slight twitching, almost universal throughout the extremities, but espe-

cially of the face. In both, turning was necessary before the sixth month, more on account of leucorrhœa and general irritability, than for the jactitation.

*Epilepsy* has been noticed by authors as the product of over-suckling, on the same ground as inanition; losses of blood, and deficiencies in its quantity and quality, are known pathologically to be productive of this malady; and I could adduce several instances where fits, difficult to be distinguished from decisive and unquestionable epilepsy, have occurred.

*Insanity*, more or less permanent, may originate from over-lactation, commencing by peculiarity of sentiment or temper, and plainly evinced by pertinacious adherence to an opinion once formed, however erroneous; and scarcely at all more strikingly displayed than in a determined opposition to any advice having for its end an entire or even a partial weaning. In this early stage, the further advance or the protracted continuance of the malady might be prevented; but, instead of weaning, larger quantities of porter or wine, with animal food, are most properly resorted to. Still the desired supply is not obtained. The stomach being weakened, is scarcely able to bear a diminished diet; fever and indigestion, apparent and temporary, not real strength, are the unavoidable consequence of this increased supply. Together with a continued sparing secretion of milk, the symptoms already described are aggravated. The insanity becomes positive and acute, the pulse quick and sharp, the skin parched, and the whole system deranged. The condition of the patient is no longer doubtful; her actions are often violent; and, without personal restraint, serious, perhaps fatal injury might be inflicted on herself and those around her. I agree, however, with Dr. Locoock, that the aberration of undue suckling is rarely of this serious kind, excepting where generous diet and wine are judiciously administered; more commonly it shows itself in weakness and absurd ideas, in whim, and in caprice. In this stage, if weaning and careful treatment be adopted, the symptoms often subside easily and quickly; while in other cases, where probably a disposition to insanity exists hereditarily, the disease is of longer duration, requiring seclusion and confinement for its cure. If it be asked whether permanent insanity is ever the result of the aberration of undue suckling, I confess that I am unable satisfactorily to answer the question. In my own practice, such has never been its consequence; nor, so far as I know, have I discovered an example of the kind. The exhaustion of over-nursing induced the reaction and irritability on which the malady depends; and as this is gradually removed, by the formation of a larger quantity of better blood, the insanity passes away, and the individual slowly recovers her lost reason. It may perhaps be said, by those who regard this malady less seriously, that the insanity would have occurred independently of its intervention. The appended cases negative such an opinion. Additional confirmation is also furnished by the result of protracted lactation after another confinement. If, after such an event, more especially if the interval between the deliveries has been short, and the suckling be again protracted, a similar aberration will probably ensue, indicating the propriety of greatly curtailing the time of lactation, if not of entirely giving it up.

It is not difficult to show many points of resemblance between this form of insanity and puerperal mania. The latter most commonly occurs in women of weakly, hysterical, and irritable habits; and, in the same class, over-lactation is most frequently witnessed. In the greater number of examples of puerperal insanity, a modified antiphlogistic treatment only, comprising small local bleedings, cordial aperients, particular sedatives, with animal nourishment and tonics, is most successful. The same may be said of the insanity from over-lactation. Puerperal aber-

ration is rarely permanent, if insanity be not hereditary. and if improper treatment has been avoided. The same observations are true of the insanity of over-lactation. The former is disposed to recur in after-confinements; and the latter will show itself afresh, after successive and injudiciously-protracted nursings. There is, however, a marked difference in the frequency of the two diseases. The shock of parturition, the suddenness of the transition from pregnancy to the puerperal state, and the establishment of lactation itself,—all of which involve considerable changes in the circulation and in the nervous system,—sufficiently account for the prevalence of the one malady over the other.

The pathology of these functional results of undue suckling is by no means intricate or doubtful. An impaired and attenuated condition of the blood, and a consequently depressed state of the nervous system, especially of the organic system of nerves, is the clue by which all the symptoms may be unravelled.—*A Practical treatise on the diseases peculiar to women, by Samuel Ashwell, M.D., London, 1844.*

#### OBSERVATIONS ON A CASE OF FATAL OVARIAN DISEASE.

By ROBERT HARDY, Esq., Hull.

In the month of August, 1843, I was called to officiate at the labour of Mrs. W—, the lady of the Rev. N. W—, vicar of S—, near this place. It was her first accouchement, the patient's age being twenty-seven or eight. She had been indisposed about twelve hours when her first examination was made. The outer parts and vagina were well lubricated, and disposed to relax; os uteri fully within the pelvic cavity, thin, and easily dilatible, and open to the size of a half-crown piece. Membranes thin, and protruding well during each pain. At the left posterior aspect of the pelvis, a considerable fullness was perceived, which was at the time supposed to consist of feces in the rectum; presentation of the head in the right position, but resting on the os frontis; pelvic capacity ample. In two hours afterwards the head was found in statu quo, though the pains in the interim had been very efficient; the os uteri, also, was but little more dilated than when last examined.

It being evident that some obstacle existed to the head's descent, a more careful examination of the swelling before alluded to was instituted, and it was found to consist of a firm tumour of definite form, (supposed to be ovarian,) and dipping into the pelvic cavity, as far as the recto-vaginal pouch would admit of; it occupied nearly half the circumference of the brim of the pelvis, and varied considerably in its degrees of density in different parts.

As all the maternal organs were so favourably disposed to delivery, I deemed it might assist us were we to rupture the membranes, which were accordingly done about half an hour after the examination of the tumour; and at the same period, a broad abdominal bandage was firmly applied. After the lapse of an hour, matters were much as before. I had the patient now removed from bed, and placed between two chairs, as if seated on the night commode; in this position she remained about an hour and a half; during the whole of which, the pains were not only very frequent, but also powerfully expellent. Still, at the end of this period, the head was advanced but very little; the scalp considerably corrugated; and, to my great mortification, the tumour not in the least displaced from its advanced position; but, on the contrary, by the pressure from behind, had become more decidedly obstructive of the passage of the head into the pelvis.

During the last three hours, I had made several ineffectual attempts to push back the tumour; and I now became apprehensive that we should ultimately have to reduce the child's head by perforation, as the space left for its descent

was at least one half less than its natural dimensions. I stated my fears to the lady's husband, and urged on him the propriety of an early consultation on the case; this, however, he for the present declined, wishing me to act on my own judgment.

Before deciding on ulterior measures, I determined on making one further strenuous attempt to reduce the tumour; for this purpose, the patient was again removed to bed, her nates were considerably elevated, her shoulders depressed, and her face and abdomen inclined downwards towards the bed. The right hand being well oiled, I passed it fully within the vagina, and waiting the subsidence of the next pain, I made firm pressure with the knuckles on the foetal head, pushing it pretty completely beyond the pelvic inlet; then, with the expanded fingers of the same hand, I exerted on the tumour a firm and steady pressure upwards, in the axis of the brim, which I was happy to find had some effect in altering its position. During the two succeeding pains, I was enabled to maintain the advantages already gained; advancing the tumour slowly upwards in the intervals; after the third pain had gone off, to my great satisfaction I succeeded in elevating it quite to the pelvic brim, when it immediately slipped away into the left hypochondrium. I still kept the hand within the vagina; the next pain advanced the head slightly, and after two or three others, it occupied the whole inlet. The hand was now withdrawn, the patient put in the usual position for delivery, and in less than two hours, she was safely brought to bed of a very large and healthy female infant. The placenta was cast off properly, and the recovery rapid and complete.

The first time this tumour appeared to inconvenience the patient again, was early in May of the present year, when I was called in great haste, to visit her, as she was "labouring under obstruction of urine, and in great agony." On inquiry, I found Mrs W— expected she was about four months advanced in gestation. The stoppage of urine was of fourteen or sixteen hours' duration; the body was tumid and tender, and countenance expressive of great suffering; the attack of pain had been sudden, and the patient had passed her urine freely the preceding evening; she was also quite certain that she had used no violent exertion the previous day.

I stated to the patient my conviction that the cause of the present accident was the enlarged ovarian tumour, which had so seriously impeded the birth of the infant; my impression being, that it had produced the present symptoms by obstructing, to some extent, the brim of the pelvis, preventing the uterus from rising out of it into the abdominal cavity, depressing its fundus, and in this way inclining it backward, and ultimately, as the bladder filled, tilting this part of the uterus downward into the recto-vaginal pouch.

An examination per vaginam demonstrated a retroverted condition of the uterus. Three pints and a half of urine were drawn off, the patient placed on her knees, with the head downward, and after some difficulty, the uterus was replaced in its proper position. The nates were ordered to be kept considerably elevated, and the patient to preserve the horizontal posture some days; the urine to be passed as she laid, frequently. Next day I found all well; the urine had passed freely, and the bowels had been opened by castor oil. The recumbent position was persevered in, for the most part, during a fortnight; after which, the uterus was found to have risen fully into the abdomen, and no further present inconvenience was experienced from the presence of the tumour.

The second delivery occurred about three A. M., on Saturday, the 19th of October; and so rapid was the process, that before my arrival, the infant had been expelled the uterus from fifteen to twenty minutes. The patient had had slight pains since ten o'clock of the evening preceding,

but did not become seriously worse till about one A. M.; it is therefore clearly demonstrated, that the ovarian tumour had been kept altogether out of the pelvic brim by the shoulder of the uterus, or the delivery could not have been thus rapid and facile. Much hæmorrhage had occurred (I suppose) after the birth of the infant, and yet continued; but this I was enabled quickly to restrain by pressure on the uterus, which contracted well. The placenta was ere long expelled, and we had no return of the flooding; nor did the patient seem to feel inconvenience afterwards, from the serious loss she had sustained.

About forty hours after delivery, Mrs. W. began to complain of pain in the left hypochondrium, which steadily increased, till in a few hours it became most excruciating, the patient tossing violently about in bed, from her extreme agony. About three A.M. on the Monday, I was sent for and found her in great pain, which was described as of a tearing colic kind, and identified by the patient as similar, in seat and character, to the pains experienced on a former occasion, from inflammatory obstruction in the bowels. For her relief, there had already been administered one ounce of castor oil, also two doses of rhubarb and magnesia, all of which the stomach had retained, but they had not as yet operated. Hot flann. is had also been applied to the abdomen. The patient had had no shiverings, the lochia were plentiful, but there had been no attempt hitherto at lactation. The tongue was whitish and moist, skin cool, and pulse under 100 per minute. She expressed her conviction that complete relief would follow evacuation of the bowels, but feared it might be with difficulty accomplished, as was the case on the former occasion referred to. I waited three hours with the patient, during which period were administered to her two large stimulating enemata, and half an ounce of castor oil was repeated by the mouth, but these did not operate satisfactorily, and on leaving, I gave orders that the enemata should be repeated every four hours, till free purging took place.

On Wednesday, Mrs. W. seemed rather better: but as considerable tenderness yet remained in the pubic and hypogastric region, twenty more leeches were applied, which bled freely. Great difficulty was still experienced in procuring stools, and the enemata were ordered to be repeated every few hours; continue the mixture and pills, each containing one grain of calomel, half a grain of extract of hyosciamus, and one-sixth of a grain of tartarized antimony, one with each dose. The pulse was about 116 per minute, and the bowels greatly distended by wind. To relieve the latter state, an œsophageal tube was passed into the rectum, and left there, which afforded great relief, by favouring the free discharge of gas.

On Thursday, at noon, I found the patient much better; the bowels had acted well; all abdominal tenderness was gone; pulse reduced to 100 or 104 per minute; belly but very slightly distended; and she turned herself on either side in bed without any inconvenience; had enjoyed a little sleep, and expressed herself confidently that "the storm was now hushed, and that all would be speedily put right."

Early in the succeeding evening our bright hopes were dashed to the earth; violent vomitings of a dark bilious matter occurred, the patient's strength being thereby greatly reduced; the body became highly tympanic, and the pulse rose to the alarming number of 130 beats per minute. About midnight, being sent for, I availed myself of the valuable services of Dr. Alderson, who accompanied me, when we found our patient in the alarming condition above described, with some aphthæ on the base of the tongue and cheeks. The vomitings had continued unabated up to the period of our visit, and the patient was extremely restless and anxious. Ordered immediate evacuation of the urine, large stimulating enemata of solution of yellow soap with

oil; also a large and powerful sinapism to the pit of the stomach, and stupes of spirits of turpentine to the lower bowels, the last named to be repeated every hour till relief obtained. Before leaving the patient, an anodyne draught was administered, which produced some refreshing sleep. A stimulant mixture, composed of mixture of camphor, with carbonate of ammonia, and spirit of ammonia acid., was ordered to be given every three or four hours.

On the Friday afternoon we again saw our patient, who was but slightly relieved. Ordered her an oleaginous aperient mixture; two table spoonfuls every fourth hour. The anodyne draught to be repeated at bed-time, if the castor-oil mixture had then operated. Diet to consist of arrow-root with brandy, to be given every second hour; a blister to the scrobic. cordis; urine again drawn off.

On Saturday morning we thought our patient somewhat relieved. Repeat the stimulating mixture, and omit the aperient.

The disease progressed, occasionally showing slight symptoms of abatement, and then the opposite state of increased general debility and irritability of stomach, distended abdomen, obstinate constipation, &c., till on Saturday evening, the 2nd of November, she sunk under her malady, being fourteen and a half days after her delivery, and having, within the last forty-eight hours of her life, frequently ejected feculent matters from the stomach. The mammary secretion was never established, but the urine discharges maintained their normal character to the close of life.

*Autopsy.*—"The abdomen having been opened, the peritoneal coat of the abdominal parietes appeared, when turned back, of a dark olive colour. In the left hypochondriac region a large fleshy tumour appeared, as large as a pint basin, pear-shaped, having a long neck, not more than an inch in diameter, connecting it with the left ovary.

"Scattered over the bowels were portions of cheesy matter, of various sizes, from a hempseed to a small nut; and on examining the tumour it was found burst or ruptured, and contained this cheesy matter, together with bloody pus, and dark grumous blood. There was also some hair mixed in with these contents. The walls of the tumour were thick and fleshy, and gave much the appearance of a large flabby heart. The small intestines in several places were glued to this tumour and its neck, and on being drawn from them had portions of lymph adhering to them; the peritoneal coat of the bowels (small) in the neighbourhood of the tumour being of a chocolate colour, from congestion and strangulation. One portion of the small intestine was glued and twisted round the neck of the tumour, and quite strangulated, having fringes or edges of lymph on its sides when drawn from its attachments.

"The long neck of the tumour was twisted round the left Fallopian tube, and was clearly traced to the left ovary; the uterus rather larger than in health, partly not contracted, and flat, as if pressed upon; some dark, venous-looking fluid in the cavity of the abdomen; the large intestines distended with air."

Previous to the autopsy I had addressed a note to Dr. Alderson, containing the following remark:—"I cannot divest my own mind of the idea that some physical obstruction will be found (from the ovarian tumour) to a permeable state of the bowels, and that this has most materially influenced the final result."—*Lancet*, April 5, 1845.

#### CEASARIAN OPERATION ON A DEAD WOMAN: CHILD SAVED.

M. Loweg was called to the assistance of a pregnant woman, who had been long ill; she died very shortly after his reaching the house. The Caesarian operation was im-

mediately performed, and the child with the placenta was extracted without delay. It seemed on removal to be dead; but it had evidently continued to live up to the very moment of the mother's death. It was straightway put into a warm bath, and artificial respiration was steadily employed. After a quarter of an hour's perseverance with these means, the pulsations of the heart were first discoverable, and soon afterwards the child began to breathe. It lived for several months.

*Remarks.*—It is indeed very rare that an infant, extracted from the uterus after the death of the mother, has been known to live. It deserves to be generally known that, when such has fortunately been the case, the success has usually been owing to the steady use for some time of the means employed in the present case; viz. of the warm bath and insufflation of the lungs by applying the lips directly to those of the infant, and breathing warm air into its chest—thereby keeping up an artificial respiration for a considerable period.—*Medico-Chirurgical Review.*

## DR. TAYLOR'S REPORT ON THE PROGRESS OF TOXICOLOGY.

(Continued from Page 48.)

*Mercury. Albuminous Antidote.* Much discussion has arisen among toxicologists respecting the nature of the compound formed by albumen, when exhibited in cases of poisoning by corrosive sublimate. The great practical question is as to how far it is capable of disarming the poison of its virulence, and upon this most are agreed, namely that it is a useful counteragent. Orfila has found that the compound may be given in large doses without danger, that it is soluble in a large excess of albumen, and then becomes poisonous, but less so than corrosive sublimate. The common practice in using albumen is to give only the white of egg, but, chemically speaking, the yolk, which is composed of the same principle, with a small quantity of oil, is just as efficacious.

With regard to the compound formed, Orfila's opinion was that the corrosive sublimate was reduced to the state of calomel by albumen, and thereby rendered inert. Lassaigne stated, from his experiments, that the albumen directly combined with the corrosive sublimate and formed an insoluble substance. A writer in the *Dublin Journal of Medical Science* (May, 1844) has lately called the attention of toxicologists to the experiments of Professor Rose which correspond in their results with those performed by himself. Prof. Rose considers the compound to consist of albumen united to the peroxide of mercury, and there is no doubt that a compound similar to, if not identical with it, may be at once formed by rubbing up fresh albumen with hydrated peroxide of mercury. The same may be procured by precipitating with albumen "a solution of pure pernitrate of mercury, as nearly neutral as possible." If added to the protonitrate of mercury, the protoxide is thrown down of a grayish-black colour.

In performing lately some experiments on the subject, I have found that the compound, produced directly by the admixture of albumen with the hydrated peroxide of mercury, possesses all the chemical properties of that produced by the action of albumen on corrosive sublimate. Thus it underwent similar changes when treated with chloride of tin, metallic copper, caustic potash, and concentrated muriatic acid; but there was one difference, namely, that a small portion of corrosive sublimate was held combined with the precipitate formed in a solution of that poison by the addition of albumen. Albumen was added to a solution of corrosive sublimate, in sufficient quantity to produce the usual dense white precipitate; but not to redissolve it. The clear liquid was poured off, and the precipitate was

afterwards thoroughly washed on a filter, until the washings gave no indication of the presence of corrosive sublimate. On adding potash to a portion of the precipitate, there was no apparent change, but on holding a larger quantity of it in water, filtering and evaporating on a glass plate to crystallization, some minute white prismatic crystals were obtained, which were immediately turned scarlet on touching them with iodide of potassium. They were proved to be corrosive sublimate. The compound was then allowed to dry, when it formed a horny transparent mass. This readily dissolved in boiling concentrated muriatic acid, giving the usual deep purple colour formed by that acid with albumen. On diluting it with water, a precipitation of albumen took place, and the liquid gave an abundant metallic deposit on fine copper gauze. When this was dried and heated in a reduction tube, well-defined globules of mercury were obtained by sublimation. One fact appears to be obvious from this experiment, namely, that admitting the antidotal compound to consist of albumen and peroxide of mercury, it does nevertheless contain some undecomposed corrosive sublimate, not separable by mere washing with cold water, nor detectable by the addition of potash to a small quantity of it, but rendered demonstrable by long boiling in water and subsequent filtration and evaporation.

*Alleged poisoning by blue pill.* The account of an inquest on a person alleged to have died from the effects of blue pill, is reported in a contemporary journal (*Medical Gazette*, October, 1843.) It appears that the deceased, æt. 40, took some medicine prescribed for him by a practitioner. It consisted of six grains of blue pill and three of calomel. This was alleged to have produced salivation and a mercurial fever, of which the man died in about seven weeks. The salivation was probably owing to a remarkable idiosyncrasy, for a smaller dose than that here prescribed has been known to cause fatal salivation. But from the evidence, it was not improbable that the deceased had taken some quack pills which, had their composition been known, might have accounted for the severity of the symptoms. The jury returned a verdict of natural death, but called the remedy administered "an overdose of strong medicine!"

*Cancrum oris.* A case of cancrum oris in a child, mistaken for mercurial poisoning, has been communicated to the *Medical Gazette* by Mr. Dunn of Norfolk-street. (Vol. xxxiii, p. 57.) Cases of this kind are of great importance, because they often involve practitioners in charges of malaproxis. An abstract is therefore given from Mr. Dunn's report. A girl, aged two years and a quarter, was brought to Mr. Dunn, on the 16th September, 1843. The child had an expression of heaviness about the eyes, the skin was hot, and the pulse quick. The mucous membrane of the mouth was in an unhealthy state, and the gums were spongy; there were blotches upon the body resembling the pustular form of scabies; the child was of a cachectic habit, from residing in an unhealthy locality and from defective nutrition. The following medicines were prescribed: A mixture of magnesia and soda; three alterative powders, each containing pulv. rhei, gr. iv, sodæ exsicc. et hyd. c. cretâ (ââ gr. ij) alt. noct. sum.; and some camphorated sulphur ointment to be applied to the blotches. One powder only was given; and when the child was seen two days afterwards, the eruption of measles was coming out, but not freely. She was then in a low drowsy state, and there was great prostration of the vital powers. Previously to the child's illness the gums had bled freely, their texture was now of a livid hue and spongy. At the junction of the gums with the lining membrane of the lower lip in front, there were a number of small yellow spots, resembling aphthæ, with a whitish exudation, the intervening mucous membrane being tumefied and red. Mel boracis was used, ten grains of the compound jalap powder were given, and a saline mixture with ammonia. Next day the aphthous

spots presented irregular ulcerations, with ragged edges; these slowly extended, becoming of a dirty grey colour, and they were covered with a tenacious purulent exudation. The disease extended to the upper lip, right cheek and gums, and the breath was intolerably fetid. In spite of the application of the usual remedies, the disease gradually progressed in the dry form, the gums of the lower jaw were reduced to a black fetid pulp, and the child herself removed the whole of the teeth, one by one. The lower lip and chin became involved; and the first external eschar appeared on the chin about a week after the appearance of the measles; the lower part of the face then became a black, soft, and homogeneous mass, having a gangrenous fetor. The child died fifteen days after the time at which she was first seen. An inquest was held, and it was alleged that ten grains of the hydr. c. cretâ had been given to the child twelve days before her death, instead of compound jalap powder. There was no proof of this, nor did it appear that the child had, throughout her illness, taken more than two grains of the hydr. c. cretâ, about a fortnight before her death. The medical evidence satisfactorily proved that there had been no improper treatment. The post-mortem appearances met with were as follows; "The right side of the face, half of the nose, and upper and lower lip were perfectly black. Upon carefully examining the inside of the mouth, there was observed great ulceration of the gums. The alveolar processes were denuded, and the teeth gone. Half of the tongue was black, and the inside of the cheek and fauces gangrenous, the whole exhibiting the true *"cancrum oris,"* or gangrene of the mouth. The stomach was perfectly healthy, and the small intestines diaphanous."

The fact that this was a case of *cancrum oris* appears to be established affirmatively, by the well-marked characters of the disease; and negatively, by the small quantity of mercury which had been taken by the child at a long period before the serious symptoms came on. This disease has not received so much attention from practitioners as its importance really deserves. One of the best descriptions of it has been published lately by Dr. Hunt in the *"Medico-Chirurgical Transactions,"* (Second Series, vol. viii.) According to this gentleman, it commences by small ulcers, either on the inside of the cheek or at the point of junction of the mucous membrane of the cheek and gums, or in the gums themselves, separating them from the teeth; they are very painful and tender, and accompanied by profuse salivation. The breath soon becomes tainted with an offensive smell, not unlike the mercurial fetor. If the disease be neglected, the ulceration goes on to destroy the gums, the teeth become loose and fall out, and the alveolar processes are laid bare. The brown ragged ulcer spreads rapidly on the inside of the cheek; the integuments over the spot corresponding to the ulcer become hard and swollen—at first white, and afterwards of a dull red colour, and shortly a black spot appears in the centre, which quickly spreads, and destroys more or less of the cheek. Should the child survive, there is much deformity, and it loses the power of opening its mouth, from the unyielding nature of the cicatrix; but more commonly, when the disease has gone to this extent, the child sinks and dies.

*Tests for corrosive sublimate.* It has been objected to the ingenious test proposed by Dr. Frampton for corrosive sublimate, either solid or in any state of admixture, (*Medical Gazette*, June, 1843,) that it will not answer in all cases, and that it is inferior in delicacy to tin and the chloride of that metal. Direct experiment, however, shows that these objections are more theoretical than practical. Metallic silver in a finely pulverulent state is easily procurable, and its efficacy as a test may be made evident by the most simple experiments. It has many advantages over the chloride of tin, and acts so perfectly in separating mercury from all solutions of corrosive sublimate, that there

is no good reason why metallic tin should be substituted for it. Dr. Frampton, in carrying out his experiments on this subject, has discovered a fact of some importance in a medico-legal view, namely, that when the poison is in an extreme state of dilution, the mercury still admits of separation by boiling the liquid for some time with metallic silver. (*Medical Gazette*, Oct. 1843.) Dilution, it is well known, materially affects the action of all liquid tests; but in this case, except that the operation goes on more slowly, it does not appear to interfere with the action of silver in separating mercury. Dr. Frampton obtained distinct globules of mercury, by the use of silver, from a mixture containing one tenth of a grain of corrosive sublimate in twenty-five ounces of river water. As the boiling was continued for some time, there was a loss from evaporation, so that twenty-three ounces of fluid only were drained off; but at the lowest estimate, there was a sensibility to one part of poison in 115,000 parts of water. A ring of mercury was also obtained in a case where one sixteenth of a grain of corrosive sublimate was mixed with twenty-seven ounces of water, in which case twenty-three and a half ounces were drawn off, thus proving a sensibility to one in 180,000 parts, and probably this is not the extreme limit of its power.

These experiments clearly show that copious dilution does not impair the action of the silver test—a very important fact where the contents of the stomach are very large; but it is to be remarked, that in both of the above cases, the test was brought into contact with the whole quantity of the poison used; this being in one instance one tenth, and in the other one sixteenth of a grain. There is no doubt that the test will detect a much smaller quantity of the poison than was here employed, and that the 100th of a grain may be easily discovered by it. This degree of delicacy is sufficient for all practical purposes. It has been further objected to the test, that in some cases the poison may be reduced to the state of metallic mercury by certain organic principles. Such an objection applies, however, no more to the silver than to the other tests, such as copper or tin and its chloride. The mercury must here be brought into a soluble state, by the well-known usual processes, before any test whatever can be made to act upon it.

(To be Continued.)

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THE  
**British American Journal.**

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MONTREAL, JUNE 16, 1845.

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THE MEDICAL BILL.

In accordance with the promise contained in the first number of this Journal, we have published entire the Medical Bill which was laid before the Legislature at its last Session, by the Honourable the Attorney-General East. Our object in doing so, was to submit it to the calm consideration of the Profession in these Provinces, whose interests are immediately involved in it. We purpose now to commence an examination of it in its different bearings, to see how far it is adapted to the necessities of the Province, and in what respects, if any, it fails in the specific objects for which it is intended. We are desirous that this Journal should record the opinions of the Profession generally on this subject, and we accordingly invite a fair and open dis-



cussion on any of the points or topics, on which the opinions we avow may differ from those of any individual member of it.

It will surely not be required of us, at the commencement of our observations on the subject of the enactment of laws regulating the practice and study of Medicine, to argue upwards from the sufferings incident to humanity—to the necessity of knowledge obtained by study for their proper alleviation. This were an easy task, but we apprehend a work of supererogation. That mankind are liable to suffering and disease, every day's, and every individual's, experience will abundantly attest; nor surely need we indicate the innumerable instances in which these sufferings and these pains have been soothed, and sweet solace afforded, by the well directed efforts of the Physician; nor need we dwell upon the necessity of his acquiring and possessing the requisite knowledge, before he can be instrumental in effecting such benefits. These are propositions which will be at once conceded, and intelligences of the meanest order will readily assent to them. It matters but little, and in truth it affects not the value of the inference which we wish to be drawn from our propositions, that we frequently witness the illiterate and ignorant pretender countenanced in preference to the well-informed and scientific Physician. A knowledge of diseases, of those frequently minute and varied changes, the concatenation of which gives origin to complicated groups of morbid signs or symptoms, of the adaptation of remedial substances to remove, alter, or modify them, is not intuitive to any mind:—*medicus fit, non nascitur*. To master these, requires the serious meditation and reflection of many years; and although we may occasionally witness the surrender of an invalid into the hands of an impostor, the degree of whose presumption is in direct proportion to his ignorance, yet instances of this description will be found to occur, as exceptions to the rule, and will not invalidate its correctness. The leaning of the present day is towards the regularly educated Practitioner, who obtains confidence and esteem, not for what he *may* know, but for what he *does* know; and credulity and superstition, the parent sources of an opposite line of conduct, although by no means yet removed, (nor will they, probably, ever be) have yet their influences very materially diminished by the more highly developed intellectual attainment of the present generation, and which may be fairly deemed progressive.

When we reflect, for a moment upon the important interests which are at stake, and involved in the question under consideration, no less than the lives of our fellow-creatures, does not a question arise, above all others, in deciding on which individual prejudices

and party feelings should be abolished—in which politics should exert no influence, and which appeals in the most direct manner to the kindest feelings of our common nature? Should not the preparatory studies of those who purpose devoting themselves to such important objects, be a matter of deep solicitude? The laws of Canada provide for no such precautionary and prudential training; and it becomes the bounden duty of the Government, anxious for the welfare and happiness of its subjects, to enact laws to supply the desideratum. The existing Medical Boards of the Province have no *legal power* to regulate the *education* of candidates for license. The respective Acts of Canada, East and West, under which they are constituted, distinctly define their duties, which consist simply in the *examination* of candidates, and we maintain that they have nothing whatever to do with the *mode* in which the knowledge of the candidate has been obtained, nor even with his *age*. It is high time that this evil should be removed, and that these crude and imperfect Acts should be superseded by another, suitable to the exigency of the case, and more consonant with the progress of science. If young men desire to adopt the profession of medicine, and to engage in its practical duties, an intimate acquaintance with its principles should be enforced upon them. Medical education, then, will be found to constitute an important feature of the Bill.

A second important feature of the Bill consists in the penalty clauses. In offering our support to these clauses, which we now do in a general manner, we wish most distinctly to be understood as not basing it upon any supposed advantage which the already licensed Practitioners would derive from them, on the score of more elevated, or more dignified position. We feel satisfied that such a result neither *would* nor *could* flow from the measure. We believe that the Profession in Canada requires not to be contrasted with medical adventurers and conceited quacks, "to be placed in the very position which they have a right to occupy in the estimation of the thinking and responsible part of the community," an effect mainly induced, according to the *Boston Medical and Surgical Journal*, "by the repeal of whole bundles of statute regulations, which has secured, in Massachusetts, to any one the privilege of turning doctor with as little ceremony as some adventurers use in changing their politics." No. Our support is tendered upon higher grounds, of a two-fold character—protection to the Practitioner, and protection to the subject. If the Legislature compel the Practitioner to acquire the requisite knowledge to practice his profession with benefit to the community, by the previous fulfilment of a prescribed *curriculum*, it is

bound afterwards to protect him in the full enjoyment of every privilege derivable from the position in which he is placed by its authority, and under its auspices for the public good. But, in the second place, we accord our support on a still higher principle—on the general good which would result to the community at large, by the protection afforded from the enormities practised upon it by designing knaves. Viewed in this light, the penalty clauses appear but as the performance of a simple act of duty. By effecting the removal of a swarm of ignorant impostors, whose presumption leads them to tamper with diseases of the most serious description—for “fools rush in where angels fear to tread”—an amount of good, the extent of which can only be appreciated by those who are cognizant of the full evils which are the direct offspring of the present posture of affairs, will be realized—a good which consists essentially in the preservation of life, and the happiness of countless families.

TO SUBSCRIBERS.

The third number of this Journal is now before the Medical Profession and the Scientific community of the Canadas. Whether or not we have succeeded in the object which we had in view in commencing it, viz., that of making it “a meet tribute from them to the store of general Science,” and rendering it “worthy of the Profession” is not for us to decide. So far as we ourselves are concerned, we have endeavoured to secure these objects to the utmost of our power. The number of copies printed having been very large, and their circulation having been effected as widely and extensively as possible, we think it but an act of justice to ourselves, to be made immediately acquainted with the full extent of our actual subscription list, that the impression, to use technical phraseology, may be commensurate with it. We therefore respectfully request those who wish to become, or purpose to continue, subscribers, to advise the *Publisher*, (as from the low price of the subscription it has been decided to have no agencies,) in a post-paid letter, of their intention, before the issue of the next number, while at the same time we announce that it will be discontinued to all who do not. The propriety of this step will be acknowledged by every friend to the undertaking.

An objection has been urged against the Journal, that it contains *too much* matter of a purely Medical, and *too little* of a more strictly Scientific nature. Our answer is a plain one. Our pages have already contained communications of Scientific interest, and our sincere desire is that they should be continued. But that they do not contain a greater number of such articles, is less a fault of ours than of those who have urged the objection,

and who would wish to see it otherwise. We may here state that several important papers on Physical as well as Medical subjects are in progress.

One of the greatest difficulties which we have had to encounter, has been to obtain paper for the Journal of the requisite quality. We thought that the Spring importations would have satisfied our every wish in this respect, but we have been grievously disappointed. We have, however, taken such steps in the matter now, as will remedy this difficulty for the future. The ensuing number will, we hope, be issued on paper better adapted to our purposes.

*Medico-Chirurgical Society of Toronto.*—This Society appears to be in a flourishing condition. Dr. Diehl, of Kingston, has lately presented to it a valuable donation of medical works, through Dr. Widmer, of Toronto, for which the thanks of the Society were unanimously awarded to him.

FICTITIOUS IODIDE OF POTASSIUM.

To the Editor of the *British American Journal*.

STR,—The present scarcity, and consequent high price, of the Preparations of Iodine, have induced their adulteration; and as I believe it is for the interest of the medical man, as well as those who compound, that every medicinal agent should be of the purest and best description, and that every attempt at adulteration should be exposed, I would mention the fact that an article purporting to be Hydriod. Potas., was offered for sale in the city a short time since, by the travelling agent of a New York drug house, which, on submitting to the usual tests, was found to be crystals of Potas. Bicarb., and not to contain the least trace of Iodine. It was put up in ounce phials, labelled Potas. Hydriod., and the price asked was 5s. per oz., the original cost of which could not have been over 2d. The agent stated that he had disposed of a considerable quantity in the Upper Province.

Trusting this will be a caution to those purchasing this article in future from such individuals,

I remain your obedient servant,

A CHEMIST.

Montreal, 10th June.

*Meeting of the District Medical Boards.*—The Medical Board for the District of Montreal, held held its Quarterly Meeting, at the Court-House, on Tuesday, May 6th, and having examined the following gentlemen, recommended them for License to practice:

*As Physicians and Surgeons.*

Mr. John Lawrence, M. R. C. S. L.

“ Louis Lemieux,

“ Joseph Varin,

“ André Fournier,

“ P. E. Brossard,

“ Theodule Pomainville.

*As Apothecaries, Chemists and Druggists.*

Mr. Joseph Alfred Sanders,

“ John Musson,

“ William Edward Bowman.

And at the quarterly meeting of the Quebec District Medical Board, held on the same day as the preceding, the following gentlemen were recommended for License to practice as Physicians and Surgeons:—

Mr. Hospice Desjardins,

“ W. Evans,

“ F. Jacques,

“ M. Thyfault,

“ L. Duquet,

“ P. Ouellet,

“ John Watt,

“ L. Tremblay,

“ Terence Sparham.

On the 26th ultimo, the degree of M.D. was conferred on Mr. Petrus Fortin, of Laprairie, by the University of McGill College. This gentleman's exercises were gone through in a most satisfactory and highly creditable manner, demonstrating that he brings to bear upon the responsible duties which he has undertaken, talents of no mean order.

REPORT OF THE MONTREAL GENERAL HOSPITAL FOR THE MONTHS OF APRIL AND MAY.

DISEASES AND ACCIDENTS.

Abscessus.....	4	Gelatio.....	1
Acne Rosacea.....	2	Gonorrhoea.....	6
Ambustio.....	2	Hysteria.....	1
Amaurosis.....	1	Hydrocele.....	1
Anasarca.....	1	Icterus.....	2
Anthrax.....	1	Iritis.....	1
Ascites.....	1	Morbus Cordis.....	1
Bronchitis.....	14	Laryngitis.....	1
Catarrhus.....	2	Leucorrhoea.....	1
Cataract.....	2	Oorchitis.....	1
Cerebritis.....	1	Ophthalmia.....	8
Contusio.....	7	Otorrhoea.....	1
Constipatio.....	2	Peritonitis.....	2
Cyananche Tonsillarlis.....	1	Phthisis.....	4
Delirium Tremens.....	1	Pleuritis.....	2
Diarrhea.....	6	Pleurodynia.....	2
Dislocatio.....	1	Pneumonia.....	7
Dyspepsia.....	5	Rheumatismus.....	17
Dysuria.....	1	Rupia.....	1
Elephantiasis.....	1	Scabies.....	1
Erysipelas.....	2	Syphilis.....	3
Febris Com. Con.....	21	Ulcus.....	10
Intermit.....	1	Variola.....	3
Typhus.....	3		
Fractura.....	4	Total.....	174
Gastritis.....	1		

DR. BRUNEAU,  
DR. HALL,

} Attending Medical Officers.

NUMBER OF PATIENTS TREATED DURING MONTHS OF APRIL AND MAY

Remained.....	85	Discharged, Cured.....	99
Admitted.....	89	Died.....	2
		Remaining.....	73
Total treated.....	174	Total.....	174

IN-DOOR PATIENTS TREATED.		OUT-DOOR PATIENTS TREATED.	
Belonging to Montreal.....	146	Belonging to Montreal.....	461
Emigrants.....	3	Emigrants.....	8
Seamen.....	25	Seamen.....	6
Total.....	174	Total.....	475
Males.....	118	Males.....	270
Females.....	56	Females.....	205
Total.....	174	Total.....	475

An operation was performed by Dr. Crawford for the restoration of the columna nasi. The disease which caused the destruction of the columna was secondary syphilis, aggravated by the improper employment of mercury at the time of his admission. He had lost the inferior spongy bones and the columna nasi. The whole lining membrane of the nares and back of the pharynx was covered with ulcerations, and there was a characteristic papular eruption over his body. These complaints were removed by mercury, iod. of potass, iron, quinine, and sarsaparilla, with local applications. About two months after the remedies had been discontinued, the operation was performed by cutting a portion of the upper lip  $\frac{1}{2}$  of an inch broad, extending from the base of the former columna down through the free margin of the lip, from which a small portion was removed, and a corresponding surface was denuded on the tip of the nose. The surfaces were kept together by means of a needle and ligature, and two hare-lip pins brought the lip to its new situation. The parts all healed accurately and well, and the operation has removed a very unsightly deformity.

WM. E. SCOTT, M. D.,  
House Surgeon.

Case of "Charbon," (Malignant Pustule.)

(Reported by Mr. G. D. Gibb, Apothecary, M. G. H.)

Joseph Gibson, ætat 54, farmer, was admitted into the Montreal General Hospital by Dr. Hall, on the evening of Sunday, May 4th, with the right forearm and hand much swollen, the cellular substance presenting a hard indurated feeling, and an erisipelatous tendency. A pustule of a threatening aspect is observable about three inches below the bend of the elbow, on the anterior part of the forearm, about an inch in diameter, with a phlyctenous elevation of cuticle, and dark livid edges. The pain from it is intense, accompanied with burning heat. There is but slight constitutional dis-

turbance beyond a sensation of weakness, but considerable mental depression.

He attributes his disease to infection caught by the introduction of his arm into the rectum of a bull, which was labouring under what appeared to be a dysentery, and of which it died. He afterwards assisted in skinning the animal. This occurred about the 18th April. He did not prick nor scratch himself, but in a few days his arm began to swell. The disease at first made its appearance in the form of a small vesicle of a greyish colour, gradually deepening in tint, and it, as well as the surrounding swelling, progressively increased in extent from the 28th, when he first observed it, till the date of his admission. Hot fomentations of acetate of lead were immediately applied, with the exhibition of sulphate of magnesia in infus. sennæ. At the visit hour the following day—

May 5th, the erisipelatous inflammation was observed to be extending up the arm. There was still but slight constitutional disturbance, pulse 84, natural—tongue clean, bowels freely moved by the laxative of yesterday. The pustule was laid freely open by a longitudinal incision, and a poultice containing port wine applied to the whole arm. This morning another pustule, presenting the same character as the original one, was observed on the palmar side of the wrist, gradually increasing to the size of a plum by the evening.

6th. The primary sore has discharged a little unhealthy looking pus, and two additional pustules have appeared near the thumb, and are augmenting in size. He passed a restless night, pulse 88, and becoming small. He was ordered quinine, gr. ij., ter. in die., and an anodyne of acetate morphia at night. The port wine in the poultice to be doubled in quantity.

7th. Slept a little during the night, but suffered great pain in the hand and wrist. The erisipelatous inflammation has now extended upwards to the shoulder, and side of the chest below the right breast. The three vesicles on the wrist are larger, the original pustule flat, with a distinct line of demarcation. A fresh vesicle has arisen on the back of the hand, and many smaller ones are shewing themselves. He experiences a good deal of uneasiness about the body, and feels chilly, but has had no distinct rigor. Appetite, however, is good, pulse 80, and small. Treatment persevered in.

8th. Looks and feels much better, pulse 72. Erisipelas begins to subside, and the three large vesicles in the anterior part of the wrist have fallen, as well as the one on the dorsum of the hand, and sloughs are beginning to fall from all the sores.

On the 10th the port wine poultice was discontinued; the arm to be firmly bandaged, as well as each finger

separately; flannel wet with warm water over the bandage, and the whole lastly covered with oil silk.

On the 13th the appearance of the arm was much improved, and in consequence of the fautor of the discharge, a solution of chloruret of soda was added to the warm water, for the double purpose of correcting the fautor, and facilitating the detachment of the sloughs.

On the 26th, the report states—arm continuing to improve; during the week two sloughs were detached from the spots where the larger pustules existed, leaving ulcers of the size of halfpenny pieces; the surface round the ulcers reddened, and slightly oedematous; erisipelatous inflammation is entirely subdued; swelling and tension of the whole arm much abated, although the former is not entirely gone; feels little or no pain; can flex the forearm and fingers, though some stiffness still exists. As his farming interests were suffering from his absence, he was discharged on the 27th May.

June 6. He came to the Hospital to show his arm, which was found to be doing well, the two ulcers healing fast; the dorsum of the hand is still swollen. He has been using the red wash locally since the 2nd June, conjoined with baudaging.

#### TO CORRESPONDENTS.

Letters have been received during the month from Dr. Haller, (L'Assumption,) and Major Lachlan, (Colchester, C.W.) We thank the latter for the pamphlet enclosed, and earnestly request his co-operation. Dr. Parant, (Quebec,) will observe that his wish has been complied with. Dr. Nault, (Quebec,) has our thanks in responding so promptly to the call made upon him; we request a continuance of the same favour, at the proper time, and we shall be happy to hear from him on other subjects. To Dr. Grasset, (Toronto,) our acknowledgments are due for his kind wishes for the success of the Journal, and the enclosure. We assure Dr. G. that our object is to make the Journal, the organ of the Canadian Profession generally, but we must be supported. To the Rev. C. P. Reid, (Compton,) and Dr. Russel, (Carlton, C. W.,) the Journal has been forwarded according to their requests. We have also to acknowledge the receipt of a letter from Dr. Howard, (Kingston.) The subject matter of it is satisfactory. A letter with enclosure has also been received from Dr. Howard, (St. Andrews.) The first number was duly mailed to him. A fault lies somewhere, and we shall be obliged by similar notifications of the non receipt of numbers by subscribers generally, to get the matter rectified. We have in the mean time forwarded to him another copy. A letter has also been received from Dr. S. McDonald, (Drummondville.) The Journal will be regularly sent. Professor Robb's note, (King's College, Fredericton, N.B.,) with enclosure from self and Dr. Toldervy, has just arrived. We thank these gentlemen for their attention and suggestion, which shall be duly attended to.

We have received the "Boston Medical and Surgical Journal," regularly with its issue. The May number of the "New Orleans Medical Journal," and the June number of the "Philadelphia Medical Examiner," have also come to hand.

MONTHLY METEOROLOGICAL REGISTER AT MONTREAL.—MAY, 1845.

DATE.	THERMOMETER.				BAROMETER.				WINDS.			WEATHER.		
	7 A.M.	3 P.M.	10 P.M.	Mean.	7 A.M.	3 P.M.	10 P.M.	Mean.	7 A.M.	Noon.	6 P.M.	7 A.M.	3 P.M.	10 P.M.
1,	+17	+66	+50	56.5	29.88	29.82	29.70	29.80	S. by W.	S. by W.	W. S. W.	Rain	Fair	Fair
2,	" 40	" 61	" 48	50.5	29.75	29.77	29.80	29.77	W. by S.	W.	W.	Rain	Fair	Fair
3,	" 41	" 79	" 54	60	30.0	29.94	29.83	29.92	N. N. E.	W. by S.	W. S. W.	Fair	Fair	Fair
4,	" 50	" 73	" 55	61.5	29.85	29.74	29.73	29.77	N. N. W.	W. S. W.	W. by S.	Fair	Fair	Fair
5,	" 48	" 57	" 42	52.5	29.98	29.99	31.05	30.01	N. N. W.	W. N. W.	N. N. W.	Fair	Fair	Fair
6,	" 42	" 67	" 50	54.5	30.04	29.91	29.74	29.86	S.W. by W.	W.	S. S. E.	Fair	Fair	Fair
7,	" 54	" 44	" 32	49	29.66	29.87	30.02	29.85	N. N. E.	N. N. W.	N.	Fair	Snow	Fair
8,	" 29	" 55	" 44	42	30.16	30.12	31.06	31.11	N. by W.	N.W. by N.	S. W.	Fair	Fair	Fair
9,	" 40	" 56	" 43	48	31.10	31.18	30.30	30.19	W. by S.	W. by S.	N.W. by W.	Fair	Fair	Fair
10,	" 42	" 61	" 53	51.5	30.38	30.27	30.19	30.25	W.	S.W. by W.	W. S. W.	Fair	Fair	Fair
11,	" 54	" 82	" 65	68	30.04	30.04	29.93	30.00	W. by S.	S.W. by W.	W. by S.	Fair	Fair	Fair
12,	" 61	" 75	" 53	64.5	29.98	30.02	30.07	30.02	W. by S.	N. N. W.	N. E.	Fair	Fair	Fair
13,	" 53	" 76	" 65	64.5	30.04	29.98	29.87	29.96	N. E.	N. E.	N. E.	Fair	Fair	Fair
14,	" 61	" 87	" 59	74	29.90	29.71	29.66	29.76	S. W.	S. W.	S. W.	Fair	Thund	& Rain
15,	" 42	" 41	" 35	43	29.78	29.81	31.00	29.84	N.E. by E.	N.E. by E.	N.	Rain	Sleet	Rain
16,	" 33	" 53	" 45	43	31.12	30.12	30.10	30.11	N.E. by N.	N. E.	N.W. by N.	Fair	Fair	Fair
17,	" 44	" 67	" 54	55.5	30.15	30.09	29.98	30.07	N. W.	N. W.	N. W.	Fair	Fair	Fair
18,	" 50	" 54	" 52	52	29.81	29.70	29.66	29.72	N. E.	N. E.	N. E.	Rain	Rain	Rain
19,	" 52	" 69	" 58	60.5	29.68	29.70	29.73	29.70	S.W. by S.	W. by S.	N.W. by N.	Rain	Fair	Fair
20,	" 53	" 70	" 52	61	29.79	29.83	29.92	29.85	W.	W.	W.	Fair	Fair	Fair
21,	" 47	" 65	" 44	56	31.00	31.02	30.05	30.02	W. N. W.	W. by S.	W.	Fair	Fair	Fair
22,	" 52	" 62	" 48	57	30.05	29.94	29.88	29.96	W. by N.	W. by S.	W. by S.	Fair	Fair	Fair
23,	" 49	" 66	" 46	57.5	29.90	29.75	29.93	29.86	W.	W.	N. N. W.	Fair	Fair	Fair
24,	" 38	" 52	" 36	45	29.96	29.93	29.90	29.93	N.W. by N.	N.W. by N.	W. by S.	Fair	Fair	Fair
25,	" 39	" 58	" 50	48.5	29.90	29.86	29.76	29.83	W.	W.	W. by S.	Fair	Fair	Fair
26,	" 27	" 62	" 45	44.5	29.60	29.66	29.76	29.67	W. by N.	W. S. W.	N.W. by N.	Rain	Fair	Fair
27,	" 49	" 75	" 60	62	29.90	29.82	29.74	29.86	W. N. W.	W. S. W.	W. S. W.	Fair	Fair	Fair
28,	" 58	" 70	" 51	64	29.65	29.63	29.65	29.64	S. S. W.	S. W.	W. S. W.	Fair	Rain	Rain
29,	" 36	" 50	" 39	43	29.97	30.02	30.08	30.02	N.	N.	N.	Fair	Fair	Fair
30,	" 35	" 57	" 43	46	30.20	30.20	30.20	30.20	N.	N.	N.W. by W.	Fair	Fair	Fair
31,	" 45	" 58	" 55	51.5	30.21	30.21	30.21	30.21	W. S. W.	W.	S.W. by W.	Fair	Fair	Fair

THERMOMETER, { Maximum Temperature; 87° on the 14th.  
 { Minimum " 27° " 25th.  
 Mean of the Month, 54° 2'

BAROMETER, { Maximum, 30.38 Inches on the 10th.  
 { Minimum, 29.63 " " 28th.  
 Mean of Month, 29.929 Inches.

OBSERVATIONS METEOROLOGIQUES POUR LA HAUTE VILLE DE QUEBEC.—AVRIL, 1845.

Jours.	Thermomètre.			Baromètre à 60° F			Vents.	Etat du Ciel.		
	6h.A.M.	MIDI.	6h.P.M.	6h.A.M.	MIDI.	6h.P.M.		MIDI.	6h.A.M.	MIDI.
1	43	48.5	44.5	29.769	29.517	29.451	N E	couvert	pluie	pluie
2	33	44.5	38	29.742	29.717	29.571	S O	nuages	couvert	couvert
3	27	26	26	29.514	29.745	29.901	N O	nuages	couvert	nuages
4	20	28	27	29.594	29.353	29.415	N E	couvert	couvert	neige
5	17.5	27	2	29.587	29.715	29.929	N O	beau	quelq. nuages	beau
6	7	30	27	29.854	29.947	29.905	S O	beau	beau	beau
7	18	23	30	29.884	29.872	29.870	N E	beau	couvert	nuages
8	28	32	31	29.709	29.616	29.601	N E	neige	couvert	couvert
9	26	30	32	29.717	29.764	29.758	N O	couvert	beau	beau
10	24.5	31.5	29.5	29.592	29.384	29.333	N.	couvert	couvert	neige
11	30	40	34	29.414	29.589	29.722	N E	couvert	couvert	couvert
12	31	42	35.5	29.912	29.827	29.892	N O	beau	couvert	couvert
13	22	46	31.5	29.823	29.583	29.494	N O	beau	couvert	pluie
14	33	51	42	29.596	29.631	29.703	N O	couvert	couvert	nuages
15	32.5	52	41.5	29.755	29.733	29.859	S O	neige	beau	nuages
16	27	44	37	29.987	30.014	30.015	S O	beau	beau	beau
17	33	38	36	30.083	30.157	30.171	N E	couvert	couvert	couvert
18	33	41.5	40.5	29.298	30.145	30.182	N E	couvert	couvert	couvert
19	36	49	41	30.083	30.022	29.943	N E	nuages.	beau	beau
20	35	45	41	29.939	29.950	29.949	N E.	beau	couvert	couvert
21	34.5	50	48	30.025	30.027	29.967	N E	quelq. nuages	beau	beau
22	33	52.5	52	30.062	31.048	29.949	S.	beau	beau	beau
23	49	63	58.5	29.986	29.925	29.791	S O.	beau	beau	beau
24	47	55	52	29.787	29.752	29.837	S O.	pluie	couvert	couvert
25	48	40.5	36	30.096	30.074	30.057	S E	beau	beau	couvert
26	28.5	31	32	30.030	29.969	29.932	N E	neige	couvert	couvert
27	34.5	45	39	29.833	29.724	29.759	N E	couvert	couvert	couvert
28	34	47	37	29.915	29.951	29.987	S O	nuages	quelq. nuages	nuages
29	37	40.5	41	30.135	30.234	29.235	N E.	nuages	beau	beau
30	48	51	52.5	30.811	30.283	30.011	N E	beau	nuages	couvert