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**CASE OF EXOSTOSIS WITH CARIES.**

By WM. MARSDEN, M. D., Nicolet.

Louis Houle, of Ste. Monique, ætatis 50 in the spring, called on me on the 19th of August, 1844, with a large immovable osseous tumour on the back part of the right shoulder, corresponding to the situation of the scapula. In form, it resembled an obtuse cone, the diameter of whose base was about six inches. At the inferior angle of the scapula was a small opening, connected with two fistulous cavities, the one running transversely inwards, and the other, and more considerable one, upwards and slightly inwards, from which an offensive purulent discharge constantly exuded. The introduction of a probe gave a rough grating sensation, as if rubbing against a rasp.

The history of his case was as follows:—When about seven years of age, he fell from a gallery, and injured his shoulder; but no attention was paid to it for nearly two months after, when his parents, finding he had but a very imperfect use of his arm, took him to a *rumancheur* (bone-setter), who stated that the shoulder was dislocated, and pretended to set it. Notwithstanding this, he continued to suffer pain for four or five weeks longer, when it began to subside, and the use of the arm to return. When about ten years old, he perceived for the first time, a hard tumour (*bosse*) on the spine of the scapula, nearly the size of a filbert. It continued gradually to increase in size, but without pain; and when he had attained his twenty-fifth year (at which time he married,) his wife states, that it was about the size of a hen's egg. From this time, until the month of February, 1844, it continued regularly increasing in circumference until it had attained its present size, when, for the first time, he felt lancinating pains, which increased until April or May following, when it suppurated. Until February, his general health and strength were unimpaired; and he had never until then been prevented from devoting himself regularly to agricultural labour, but since, strength and appetite have both declined.

When I first saw him, on the 19th of August, he was pale and emaciated, suffering under great constitutional irritation, broken rest, impaired appetite and disordered bowels, occasionally lax but more frequently constipated. On examining the tumour, I at once advised its

removal as the best, if not only means of affording relief. Finding he had an insuperable aversion to its removal, until some other remedial means had been tried, I called in Dr. J. J. Hayes, who chanced to be on a visit to Nicolet, who added his recommendation to mine for its removal, but ineffectually. He consented, however, to allow the fistulæ to be laid open, but wished to try the effect of any medicine I might suggest, previous to performing the operation, to which he said he would consent, in the event of other means failing. I proceeded to lay open the tumour in the direction of the fistulæ, exposing the bones which I found carious throughout their course; but on turning back the integuments slightly, I found the caries was partial, and confined to the course of the fistulæ, and that the tumour was smoother and the periosteum entire where the caries had not extended; and that part of the tumour was more hard, compact, and brittle, than the carious portion of which I detached three or four small pieces; but he would not suffer more at that time. I injected a solution of nitric acid into the wound, in proportion of twelve drops to sixteen ounces of water, and united the edges with isinglass plaster, leaving room for the escape of matter. I ordered the solution to be injected into the opening, night and morning, with muriatic acid internally, and a nourishing diet, wine, etc. In giving muriatic acid, I did so, less with the hope of dissolving the calcareous matter, or at all acting on the assimilating vessels of the bones, than for its tonic and antiseptic properties, and on account of the tendency to constipation, which I hoped thereby to diminish. The foregoing plan of treatment was continued for nearly a month, when it was suspended by the patient himself, and nothing more done until the 29th of November following.

At this time, there was an irregular opening, about the same situation as the first one, and an irregular cavity extending upwards, from which a purulent discharge continued to flow. He informed me, that from forty to fifty small pieces of carious bone (*puant*) of different sizes had been discharged by the opening, since I had last seen him. His countenance was pale and anxious; pulse 94, tongue red and clean, respiration slightly increased, pain in the right hypochondrium, occasional

thirst, restlessness and sleeplessness, especially during the night, urine sometimes scanty and high coloured, bowels more regular than formerly, but inclined to be lax, appetite much impaired. Complains of coldness, occasionally followed by rigors, during which the pain in the shoulder is much increased.

I again urged the immediate removal of the tumor, to which, without hesitation, he consented. The operation was simply as follows:—I introduced a director into the fistula upwards, and with a sharp pointed bistoury laid it open to the top, and then with a scalpel extended the incision upwards to the spine of the scapula, cutting down to the tumour. I then made a transverse T incision in the direction of the spine through the integuments. I next, having laid back the integuments, commenced breaking up the tumour with a pair of bone forceps (long blades) and a small chisel-shaped lever, and removed the whole of it as high up as the spine of the scapula. The tumour, excepting the carious portion, was extremely compact, hard and brittle, *not having the slightest trace of cartilaginous substance*. It was removed in various sized irregular pieces, without difficulty, and very little hæmorrhage, leaving a tolerably smooth and even surface. The portions removed weighed ʒiij ʒviss. The supra spinatus muscle with its strong fascia was almost wholly destroyed, exposing nearly the whole inferior dorsum of the scapula, and its place supplied by bone, and yet the action of this shoulder was nearly, if not quite equal to its fellow, shewing how wonderfully nature adapts herself to circumstances.

Having injected a little warm water into the cavity, to detach any small fragments or spicula of bone that might remain, I applied dry lint, and a roller, uniting the integuments, but leaving room for the escape of matter. I again ordered a generous diet with wine and quinine, which was continued until the 14th December, when the quinine was omitted. On the 7th of January following, the wound was completely healed, free from pain, and the general health restored.

The foregoing case presents several points of interest, and I have not met with any author who describes a precisely similar one. Almost every surgical writer, from Sauvages to the present day, who has adopted a system of nosology, has found a place for exostosis; but except some variation in the system itself, each seems to have followed in the track of his predecessors. Trimmæus, Vogel, Sagar, Home, Pott, Cullen, S. Cooper, Abernethy, Sir Astley Cooper, and all the authors I have met with, either nosologists or general writers, seem to have adopted one common view of these diseases. Good is the only one I have met whose system embraces anything like this case. Under his emphyma,

exostosis, ostea, he says: "This variety is found in most of the bones of the body, but chiefly perhaps in the bones of the cranium; where they are sometimes excrescent, and composed of bony spicula, resembling crystallizations; sometimes exquisitely hard and glabrous analogous to ivory; no doubt from their being composed of phosphate in a greater measure than carbonate of lime." Sir Astley Cooper, from whose essay on this subject I will make a few extracts, describes only two varieties, cartilaginous and fungous. From the name given to the first variety, one might imply that bony tumour was not meant, yet he says; "Exostosis is a preternatural growth of ossific matter, generally producing a circumscribed tumour upon the bone on which it originates." Further, "exostosis has two seats; it is either *pereosteal* or *medullary*." "With regard to its nature, exostosis is of two kinds, either *cartilaginous* or *fungous*. By *cartilaginous*, it is intended to express that species which is preceded by the formation of a cartilage, which forms the nidus for the ossific deposit; and by the *fungous* is to be understood a tumour of softer structure than cartilage, yet firmer than fungus in other parts of the body, containing spicula of bone, malignant in its nature, depending on a peculiar state of constitution and action of vessels, &c." Of the seat of diseases he says; "I know no bone in the body which is not liable to the formation of these diseases, although, there are some in which it much more frequently occurs than in others." "Upon the bones of the cranium we see both kinds of exostosis." "Exostosis of the facial bones is a very frequent occurrence." "The alveolar process of the upper and lower jaw, are very frequently the seat of this disease." "Exostoses of the spine are of rare occurrence." "The ossa innominata are also sometimes affected with this disease, etc." "Exostosis of the clavicle is extremely rare if we except the venereal enlargements of that bone; *nor do I recollect to have met with any instance of this affection of the scapula*." He then proceeds to say that he has seen exostosis of the bones of the humerus, ulna, radius, metacarpal bones and fingers, and then adds: "The os femoris of all the bones of the body is most frequently the subject of this disease." "Next to the femur the tibia is most frequently affected with exostosis of the *pereostial* kind." He also states that the fibulæ, metatarsal bones and toes, especially the great one, are sometimes the seat of exostosis. I find little written as to the most common duration of this species of exostosis. In the case before us, it is evident that the exostosis was the gradual produce of *forty-three* years growth.

I will sum up (fearful of extending my remarks to too great a length) by asking, 1st. Could any remedial course have

either checked or removed this disease without operation? I apprehend not. No general plan of which I am aware, could have checked the disease, and healed an offensive sore, that had already produced so great a degree of constitutional irritation, and so far reduced the vital energies as to threaten speedy dissolution.

2d. Will the tumour be reproduced? To this, I answer yes, as the morbid action, which first produced it, in all probability still exists.

3d. What then have we gained by operating, and will the morbid action be greater or less for the time to come? I answer, we have gained time; prolonged life indefinitely, and that the growth is not likely to be more rapid than in youth, nor yet so rapid; but even supposing it were the same, he may still live to a good old age. However, the growth will probably be slower than in early or middle age, as we generally find the morbid tendency in old age (when the excrements, both absorbent and secretory, begin to diminish), is towards the parenchyma, blood vessels, viscera, etc., and lime is secreted in smaller quantity in old age and infancy than at any other period of life.

In fine, it is evident that the cause of this disease, in this unusual situation, was fracture of the scapula, together with a peculiar state of the constitutional powers and vascular system.

Nicolet, 8th January, 1846.

## FRACTURE OF THE SACRUM IMPEDING DELIVERY.

By A. H. DAVID, M. D., Montreal.

Madame C——, of delicate frame, 30 years of age, about four months pregnant with her fourth child, was coming down stairs when her foot slipping, she fell and bounded on several steps till she reached the bottom one. She immediately felt excruciating pain in the region of the sacrum, and was obliged to be carried to her sofa, as she was quite unable to rise. The pain continuing, her ordinary medical attendant was called to see her. He bled her and gave her an anodyne, and ordered the part to be rubbed with strong camphorated liniment; he was very anxious to make an examination to discover the cause of the great pain, but she would not consent to his doing so. The pain continued for some weeks, but gradually subsided, and some three months after the accident was able to attend her ordinary duties for a short time, but the pain soon returned again, and continued, with such unabated violence, till the full time of her pregnancy, as to induce serious apprehensions for her safety.

Labour commenced on the 22d, June, and Dr. Badaeu finding it impossible to deliver, requested me to see her with him, after she had been about five and

twenty hours in labour. The pains were very active, and, as far as could be ascertained, the os uteri was fully dilated, but the vagina was almost completely closed by a hard tumour, connected, apparently, with the sacrum, and, on inquiring into the case, learned the foregoing history. She was exceedingly weak and emaciated, to a degree, for the length of time she had been suffering, viz., from the end of January to the end of June, and from the certainty that the child had been dead for some time, I suggested the propriety of immediately performing craniotomy, in which Dr. Badaeu fully coincided with me. After much loss of time before Madame C—— could make up her mind to submit to the operation, I proceeded, towards the morning of the 24th, to break down the head, and succeeded with more ease than I had anticipated, from the closure of the vagina. After completely succeeding in this, I desisted from proceeding to extract the child for a short time, at her earnest request, and on my wishing to do so, some two hours after, she most distinctly refused to allow me to do anything; and notwithstanding the repeated wishes of her Priest, who was with her all the time, and the entreaties of her husband and friends, declared her readiness to die sooner than allow herself to be touched, and as she persisted in this determination, we had no course left but to see her gradually sink before our eyes, and during her expiring efforts, the mutilated remains of her child came from her.

Having obtained permission to make an examination of the sacrum, we found that bone broken into four pieces; two of them projected out of its usual line, and all were joined by a firm callous band, which formed the projection into the vagina, and completely prevented a natural delivery.

Montreal, Jan. 12, 1846.

## A LECTURE

ON THE USES AND ABUSES OF PHRENOLOGY.

*Delivered before the Natural History Society on the evening of February 16, 1846, by the Rev. W. T. Leach, A. M., Montreal.*

It is now about thirty years since the doctrines of the phrenologists were made generally known by the publication of the work of Dr. Spurzheim in 1815, for it was this work, and the very popular and fascinating manners of Spurzheim that procured for them a very general notice, though they were elaborated and first promulgated by Dr. Gall of Vienna. These doctrines since then have been embraced by multitudes of intelligent persons in every country and many have devoted themselves to the strenuous study of them and engaged enthusiastically in their elucidation. Their novelty, the great facility with

which they can be communicated and made intelligible to every understanding and the singular kind of satisfaction that arises from their application, (if the results of such application of them were true,) by way of forming a judgment of the character of others and measuring their capacities, were causes that could not fail to excite attention to them and win for them a very general favour, especially where evidence of a very taking kind and sometimes very convincing, could be always at hand and appealed to. The most remarkable circumstance, however, connected with the history of phrenology is this, that while there are very few who totally reject its doctrines—very few who do not admit that some of them are susceptible of a very surprising though restricted application, a very small number of persons distinguished for their general attainments and ability have adopted it in all its parts and regarded it as a science that has established any indisputable theory. This is the more remarkable, inasmuch as the study of phrenology is attended with few of those difficulties which bury or conceal their evidence from the cultivators of other sciences. Every head is a fact or rather a number of facts—almost every head can be seen or handled—no difficult instruments are required for observations, no long journeys, no laborious watchings, no expensive nor ingenious experiments. The phrenologist seeks for facts, he professes to build his doctrine on the foundation of facts alone—upon the rock of the Baconian philosophy, and facts are every where accessible and as abundant as the individuals of the species, the laws of whose mind he claims the discovery of, and professes to elucidate; all these advantages for the accumulation of evidence, together with the increase that years have made to the accuracy and extent of our knowledge of the anatomy and physiology of the human subject, as well as other animals in the order of their descent—for all these numerous and very obvious advantages, it cannot but be regarded as something remarkable in its history, that nearly all those most competent to pronounce a judgment on phrenology have rejected its doctrines as expounded and applied by its professed students and admirers.

Nevertheless the pursuits of the phrenologists have been productive of various beneficial effects, for which they are justly entitled to lasting gratitude and respect. Whatever be the fate of their system, whether it be received or rejected, and whether it be sound or unsound, it will be allowed on all hands that for the collection of facts which they have made and published, moral and intellectual science stands indebted for a valuable portion of its treasures, and that they have conferred incalculable benefits upon medical science by their contributions to the study and structure of the human brain. No medical student will be unwilling to concede the obligations which medical science has to acknowledge in favour of several

of the distinguished persons who have engaged so enthusiastically in defence of this their favorite system; and though it cannot unquestionably, in its present state, be taken as a theory of the mind itself—as a just exposition of the laws by which the mind acts, by exhibiting the brain as the organ of the mind and showing it to be more or less dependant upon the healthiness of its functions, it has provided, so to speak, both for the safety and improvement of the mind. Whether the brain be termed the organ or the medium, there is no doubt but that its state affects the mind itself; consequently, by investigating and ascertaining the causes that serve to impair the healthy exercise of its functions, or to destroy them altogether, what vast sources of evil may not thereby be removed, what a field, cleared for the most beneficial operations. If the causes that distress and injure it can be clearly pointed out, if you can describe before-hand the sources of its weakness, the quarter from which the attacks of its enemies are most formidable, the mind forewarned of the dangers that surround the brain, the agent of its counsel and action is thus armed beforehand and prepared to thrust away the threatened evil. It only requires to defend the outworks, to maintain unbroken the lines of circumvallation, and with an ordinary degree of prudence and potentiality may preserve its own sovereignty and sit a spiritual essence secure on the throne of its cerebral dominions. By directing attention to the functions of the brain, several mental phenomena which were before veiled in very great obscurity have been successfully explained by phrenologists;—for example, the effects produced in the mind by the too intense and over long continued exertion of the cerebral mass; the operation of this as an exciting cause of disease, and the effects of moral impressions upon the whole human economy, preserving or restoring the balanced powers, the health and tone of the constitution of man or undermining and destroying it. It is certainly to be ascribed to their exertions that the brain is now known to exert its so marvellous share of influence, supplying all other members of the system with the energy by which they are enabled to discharge their respective offices. It is now explicable how the mind suffers so exquisitely and directly with every shock or injury that may be sustained by the organs dependent upon it for the supply of that invisible and unknown power which the brain conveys to them for their sustentation; it is now explicable also how the structure of the brain can never be destroyed nor even be materially injured or disordered without producing a corresponding derangement of other organs. In the human economy the powers of digestion are the prime ministers of life. How close is their dependence upon the brain. Cut through the pair of nerves that act as a railroad between them, that form a direct and principal me-

dium of communication between the brain and the stomach, and the supply of the gastric juice is instantaneously stopped and consequently the powers of digestion are at an end. What becomes of the process of respiration when the spinal marrow is divided from the brain near their point of junction? It is admitted by anatomists that all organs performing most important functions in the human system, such as the urinary bladder and the rectum, the upper portion of the intestinal canal and the superior extremities will be completely paralysed by injury or division of the spinal chord. In fact all sensibility to external impressions and the power of voluntary motion are instantly lost to all members furnished and supplied with nerves from the spinal cord, when these nerves are given off from it at any point below where it is divided. There are indeed hundreds of facts which justify the phrenologists in ascribing to the brain its royalty or high rank at the head of the human economy. The description and classification of the causes that have the effect of impairing the perfect operation of its duties or destroying its ability—the exhibition of the means by which its powers can be best preserved in harmony and health, whether these means be moral or physical or prudential, (and they are means whose beneficial effect may be extended to every condition of human life, to every department of human activity and sympathy,) in these respects the value of the studies of the phrenologist is very great, their uses admirable and worthy of all honour. They suggest motives, they appeal to the reason and the manifest interests of mankind, and supply, in a degree, that knowledge which is necessary for self-government upon which the healthful and happy existence of the individual depends. It is true that these studies are not confined to the phrenologists and the honours due to a successful prosecution of them must be divided with others whose vocation it has been to labour in the same field without signifying an adherence to their creed, or perhaps homologating their errors, yet as so much is owing to the labours of the first phrenologists for the valuable additions they have made to the previous imperfect knowledge of the human brain, and to others for their useful applications of it, they may be ranked among the most meritorious of the benefactors of mankind.

That the doctrines of the phrenologists have some foundation in nature, there is no one, I believe, that denies. That there is commonly a correspondence between a well shaped head and individual character happily constituted and marked with general ability; that there is very often a remarkable correspondence between specific protuberances of the cranium and specific manifestations of a moral and intellectual description observable in the cases of individuals, I am so far from denying that I could

appeal to observations taken in course of the last twenty years in evidence of this correspondence; on the other hand that this correspondence of protuberance with specific ability, or sentiment, or propensity, is universal, I deny. I reject the doctrine that this frequent or occasional correspondence is such as to warrant the phrenologist interpreting it as a law of nature that the diverse propensities, moral sentiments and intellectual powers, have their origin in and derive their force from distinct parts or organs of the brain, and that the size of these organs as exhibited in the protuberances of the cranium are measures of the force of these mental affections and powers. The system of phrenology in all the minuteness of its details, the general law which it assumes as its substratum, I reject, at the same time that I freely recognise the brain as the organ\* of the mind, the best type of the human head as indicating the best character, and a very common correspondence between some particular protuberances and particular manifestations of character. These are very important admissions and to persons unaccustomed to the species of reasoning which such subjects require, it may seem that all is granted that the phrenologist demands, that he requires little more for the establishment of his theory, and that his theory must be true, if so much is ascertained to be true. By no means; a theory may be utterly unfounded and fallacious, i. e., it may be no theory at all, nor have a particle of truth, although a variety of facts may be explained by the hypothetical assumption of it. To construct a theory, is to demonstrate the laws that nature follows in the particular department which is the field of investigation. A theory is admitted to be such when it satisfactorily explains all the phenomena that belong to its department. If it fails to accomplish this, it is not received as a theory at all; it is merely an inadequate attempt, a frustrate and defective effort to unriddle the rule of nature. The phenomena presented by the revolutions of the bodies that belong to the solar system are explained by the law of gravitation. Various and innumerable are the facts which it elucidates. It is complete, i. e., it is a theory. But let us suppose for a moment that one of the bodies of the system, having ponderosity, should be found exempt from the effects of its influence though manifestly placed within the legitimate range of it, here would be a flat contradiction of the assumed theory—a positive demonstration of its absurdity, proving that it never was such a thing as a theory. What establishes a theory, then, is evidence of its completeness to account for all the phenomena. Where the evidence is defective, it cannot be admitted; it has demonstrated nothing; it has ascertained no general law as the basis of a theory, it is no theory, it is no system; and if its rank as a science is dependent upon this demonstration of a general law, it is not entitled either to the name or the credit of a science.

\* By the term "organ," I do not mean the cause; I know nothing that can be warrantably asserted of the brain more than this, that in our present constitution it is the necessary condition and instrument of the mind.

As an instance of such defective evidence for an assumed science in many respects applicable, as seems to me, to phrenology, take that of physiognomy. Physiognomy has a foundation in nature as well as phrenology; it is specious in its reasonings, it is apparently confirmed by many striking facts. It is much more susceptible than phrenology of an extended and fascinating illustration. The zoology of all nature furnishes analogies among which the philosopher might revel to his heart's content in general probabilities and by which he might be enabled to give an imposing character to his doctrines and make a claim upon public attention. Physiognomy has some foundation in nature; there is the glare of the lion's eye and the grin or snarl of the dog, &c., and there are, no doubt, in "the human face a variety of peculiar muscles that serve no other purpose than to express intellectual or social emotions." In point of fact, these are commonly used by the observer as indices of human sentiment. But are these muscles, are the peculiarities of the brutal and human physiognomy to be interpreted as an infallible alphabet of the powers and passions and sentiments of the character? are they to be taken as the sure signs of the instinctive faculties? are these muscles to be labelled as the representatives and denoted as the measurable characters of the mind? These muscles are for the purpose of expressing emotions, but do they effect this completely? Can you push these rudimentary phenomena into a law of universal application? Can you make a theory of them? This is not the way of nature who, in her world of commencements, is apt enough to confound the dogmatizing of the theorist who seeks to push his conclusions too far and snatches at them too soon. All the teeth in nature were never *intended by nature* for the chewing of food, and let me say, with deference, that all protuberances in the region behind the ear may not be intended by nature for the purpose of smashing.

What these observations respect is this, that the admissions before made with regard to the very frequent correspondence between a particular protuberance on the cranium and some particular manifestation of moral or intellectual power are not corroborative of the phrenological theory. These correspondences may be true and yet the theory may be unfounded. Its views may have some foundation in nature and its conclusions may yet be false: moreover, that it is the only justifiable and philosophic course—that the history of human knowledge renders it imperative in a world ever teeming with the most plausible and captivating hypotheses in every province of science, to reject every presumed theory where an inadequate explanation of the facts shows an *insufficiency of evidence* for its adoption. I shall now proceed to show in what respects phrenology seems to me *to lack the evidence* which would give it a claim upon us, and

to intimate some of the abuses to which its disciples are led by the application of its assumed principles.

The division of the brain into thirty-five regions, each possessed of a distinguishing power, receives no authority from the anatomical structure of the brain. We should naturally expect that regions discharging offices so distinctive and so various would present some traces by which these organs so different from each other might be distinguished from each other. We look in vain, however, for the slightest vestige or shade of such distinction in the structure of the brain. No such thing is indicated by any membrane or line or diversity of fibrous structure. Nothing is perceptible to show the various boundaries of the different organs. The manner of dividing the cranium into numbers of distinct provinces is unwarranted by any visible internal divisions of the cerebral mass corresponding with these provinces. If any boundaries of organs exist, they cannot at least be discovered to exist. This fact may not be conclusive evidence against the existence of distinct organs, but it is certainly not in favour of the phrenological hypothesis, because on the supposition that there is no natural limit to the organs with respect to each other, it is impossible that one could be exerted without the others being exerted, it is impossible that one could be exerted in a great degree and the others not be exerted in a proportionably great degree;—and again it is impossible that the action of one could be suspended without the action of the rest being suspended. The supposition of distinct organs without any specific limitations would lead us to this; if the organ of conscientiousness is excited or active, the organ of acquisitiveness must be active; if the organ of benevolence is active, the organ of size or of combativeness must be active; if the organ of constructiveness is in action, the organ of destructiveness is in action, and all this be it observed at the same moment of time, the brain, upon the supposition of no distinction of parts, being an indivisible a homoeopathic and perfectly sympathetic substance. This would be a mechanism for the production of madness, than which it is impossible to conceive any thing more complete. The fact, however, of their being no *observable* limits to the different organs is not conclusive, because there *may be such* limits though it has yet been found impossible to detect them by any instruments of observation fine enough. All that we infer, therefore, from the above consideration is simply this, that the doctrines of the phrenologist derive no support from the anatomical structure of the brain, the very object of his investigation, and this serves to narrow the range of evidence by which his doctrines are to be sustained.

Again, the phrenological theory derives no support from the method of reasoning analogically upon the ascertain-

ed facts in the history of inferior species and orders of animals. We are naturally led to expect that animals exhibiting some of the like qualities would possess an arrangement of parts similar in proportion to the degree and number of those qualities manifested by them. We should naturally expect among the inferior vertebrate animals, according to their position in the sliding scale, some general corresponding defect in the region of the higher order of instincts. This is found, however, not to be the case. The corresponding and proportionate deficiency takes place, or rather *makes* it, not in the anterior but in the posterior region of the brain, a law the very opposite to that suggested by the phrenological hypothesis. On the other hand where we discover almost a total disappearance of the peculiar organization which phrenology associates with the animal instincts, we should expect to observe a defect and inferiority in the degree and kind of instincts possessed by the objects whose organization is thus defective. Neither is this expectation fulfilled. There is no hiatus, no distinction in the whole scale of animated being with regard to organization in the point in question so great as that between the vertebrate and invertebrate animals. Yet, there is no such diversity and inferior force of animal instincts as correspond to this very great difference and inferiority of cerebral organization. You cannot call the ganglia of an insect brains—brains then they must have in their gullet, in their thorax, their belly and their tail. You may as well make every nerve of their body an organ. The special organization which phrenology associates with the instincts is certainly not to be found where the instincts nevertheless are very various and powerful. The spider, for example, has undoubtedly instincts superior to those of fish, notwithstanding the vastly inferior style of its organization. Contemplate its instincts; what an organ of cautiousness would it require to have, what an organ of acquisitiveness and secretiveness, what an organ of size, and form, and order? Upon the whole, then, the doctrines of the phrenologist receive no support from reasonings founded upon any analogy that subsists between man and any other animal, although this is precisely the field whence we should have expected support to have been procured. This is all that I infer from the above considerations, and it serves, as you will observe, still to narrow the range of evidence by which the doctrines of the phrenologist are to be sustained.

The doctrines of phrenology give no satisfactory explanation of mental phenomena. If this proposition can be proved, it obviously deducts from the evidence of the reality of the law which is assumed to estimate the ability or power of the original faculties of the mind—i. e., it is evidence against the theory which is supposed to exhibit the law by which these faculties are estimated.

Causality, comparison, and order, are noted by phrenologists as three distinct organs, each exercising a special function and a different power. Causality gives the tendency, and is the power by which the relation of cause and effect is perceived. Now the objects of this relation, or the objects between which this relation is observable, are connected in the mind simply as antecedents and consequents. The detection of this relation can be discovered or become known only by the comparison of the objects. It is only by comparing them that any difference between the one object and the other can be detected; it is only by comparing them that any similarity between them can become known. The points of similarity to be discovered, in order to the perception of their relation as cause and effect, are the constancy and uniformity of their recurrence under similar circumstances or conditions, or the infrequency and irregularity of their recurrence. This knowledge is the result of the comparison instituted, and it can result from nothing else. Dr. Thomas Brown, the most distinguished philosopher of modern times for his ability, in mental analysis, discovers nothing in the relation of cause and effect, but the connection of the objects as antecedents and consequents. His organ of causality was not large enough on this the very question of his earnest investigation to discover the speciality of function which the phrenologists hold this organ of causality to exercise. But supposing that there is in each antecedent of a series of objects connected as causes and effects some particular inherent power to produce a particular effect, according to the popular idea of a cause—some unknown concentration of energy, suitable to some certain apprehended results, it is still by the comparison of such antecedent, with others of a similar nature and under the like conditions, that we predict a similar effect from it. It is still the *comparison* of objects, only of objects more compounded and various in their properties, that gives us the perception of their relation as cause and effect. All this then, I say, is the work of comparison. If there is an organ of comparison that gives the tendency and the power to compare objects in order to give us the knowledge of their points of resemblance and difference, the whole business of perceiving the relation of cause and effect, is begun and concluded by it. What then, I ask, is the duty—is the office of causality? Let the phrenologist show; he has two distinct sets of organs for the performance of the same operation. We have again the organ of order distinguished from those of comparison and causality, and likewise exercising a special function. What is the function then that it exercises? Is it right to say, that it gives the tendency and the power to arrange objects or ideas as we please, by the means of their various properties or our perceptions of these pro-



perties. It gives the tendency and the power to arrange objects. Now objects can be arranged or classified only by means of the similarities and differences of their various properties, such as time and place, colour and configuration, size and weight, &c.; and the perception of these similarities and differences belongs essentially to comparison; they are the result of it. It is comparison, then, that enables us to be sensible of order or arrangement, and the same that makes us sensible of disorder or confusion. The essential thing in order is some similarity or identity of property or properties. It is manifestly by comparison of these properties that we become cognisant of their similarity or identity, and by means of this that we are enabled to accomplish order or arrangement. Here again, we discover the same organs producing a tendency to the same mental operation, and giving the power of executing the same function. All that would remain for the organ in the mental process, would be to decide upon the eligibility of this or that juxtaposition of the forms or colours of the objects brought into comparison; and here again it would be performing the office of other organs, of that which gives the perception of cause and effect, pointing out the inconveniency of the juxtaposition; or of configuration, *giving offence* to the original perception of beauty of form or of colour, or otherwise agreeable and gratifying to these perceptions.

It was supposed by phrenologists that the organ of order bestowed upon the individual the power of philosophical generalisation; that it was the peculiar faculty by which we are enabled to see the one in the many; in other words, that it was the power by which we are prompted and enabled to apply that rule of all reasoning—whatever can be predicated of the genus may be predicated of the species and of all the individuals comprehended in it. If the above criticism is correct, it is not in possession of this sovereign prerogative.

There are various other parts of the phrenological system which I had noted with a view to a similar examination. There is configuration and colour and size—abstract colour and size from configuration; and what do you mean by configuration—abstract them from an object and you can have no idea of its configuration, and yet here is an organ said to bestow the tendency to observe and the power to express what belongs to other organs. It is the contrast of colours that gives us the idea of form abstractedly from magnitude. There is the organ of concentrativeness—which is said to communicate to the other powers the powers which they are already supposed to possess by an organisation designed for them respectively—a general fund of power that has no specific office but to furnish a well out of which all the other powers may drink, when if their organisation had been satisfactory or fitted for their supposed ends, they would not

have required it. There is memory, which is not an organ, but a power separately possessed by each organ, of reproducing sensations and sentiments according to its kind, although there are sensations that are reproduced mentally, which the brain has no organ assigned to it for their reproduction, such as the sensation of smell and taste. How do we remember them? There is individuality that prompts the desire to know, and gives the power to know objects as mere existences or substances, it is said, without regard to their qualities, their modes of action or their effects. What objects can we possibly know in this manner? take away from objects their properties, their modes of action, and their effects, and *what are they that you can know them?* There is surely something fallacious in doctrines, which, when traced to their legitimate conclusions, leads us to these inconsistencies, something fallacious in the theory, thus defective in the explanation of psychological phenomena. Phrenologists are in the habit of pointing to *facts* as the basis of their system, let them appreciate these and they will find, if they are at all disciplined in the fallacies of science, that they do deduct from the evidence of their theory. That theory can never be established independently of such inquiries as those I have shortly entered upon. It is indebted to them for its proofs. It holds the doctrine of a correspondence between the cerebral organ and the mental operation. How can the mental operation be described without the reflection of the mind upon its own acts? How can it be known otherwise?

Phrenology professes to teach the degree of power with which the mental faculties which are inherent in individuals are endued: and one of the means which they employ, is admeasurement of the external protuberances of the skull overlying the respective parts of the cerebral mass, which parts are the organs of the faculties or powers. In this there is direct appeal to universal observation. There has been long enough time to test the correctness of this method, there has been abundance of objects for the application of it. If it had been found to be a steady and invariable rule of nature that the powers intellectual and moral of the individual, manifested in his character and actions, always bore a strict resemblance to the size of the protuberances which are taken to represent the powers, long before this phrenology would have borne down every thing before it, and could not fail to have been acknowledged in its entirety wherever it was known. Many objects, in whom the protuberances, and consequently the cerebral organ indicated the possession of great intellectual powers, have been found to possess them in no great degree. The largeness of the head, as a whole, is no measure of intellectual ability, when the intellectual organs are proportionally large. For a term of years, I had daily inter-

course with a head of this description. It was the largest head in the place. The owner always required a *hat* to be made for his particular use. All the intellectual organs were well developed, both intellectual and moral, agreeably to the proportion of his capacious head. He had every advantage of early training and constant practice through life, in literary and scientific pursuits, and had lived in habits of familiar intercourse with many distinguished persons of his country. He was not what you would call deficient, yet he reasoned only indifferently, he was far from being a good reasoner. He wrote and spoke with fluency. He was generally accurate in his observations of external objects, but upon the whole, his cerebral organisation would have led any one, and he has been examined by phrenologists, to an estimation of his character and powers far superior to what he possessed. It must indeed strike every one as fatal to the practical application of phrenology, that the range of difference between the same protuberance, bears no proportion, that it suffers by estimation between the actual powers of one man and another. If a person possessed of ordinary intellectual powers have a head of the ordinary size, Sir Isaac Newton ought to have had a head as large as the French Church, or a hay-stack at least; the phrenological measure can never be a measure of a disparity of powers so vast, as in this case and in every other where the difference is so great. What an organ of ideality ought Shakespeare to have had—we are not informed that there was anything monstrous in his appearance. No person could have distinguished phrenologically, with a distinction bearing any approximation to the faculties they actually possessed, Sir Walter Scott, Napoleon, or Pope, or Locke, or Lord Bacon. You will find heads very differently developed achieving the same intellectual victories equally well. Cases of this kind are so numerous, that phrenologists themselves have abandoned this test of size of protuberance as an invariable and accurate source of the knowledge of men's mental powers. It is fallacious by their own admission, and never can be used with certainty in any case; not even among tribes of savages, where education has introduced none of the manifold distinctions of civilized society. I say nothing of some of the anatomical facts, such as the largeness of the frontal sinus and variable thickness of the superciliary ridge, which must always be sources of error.

The uncertainty that cleaves to the measurement of the protuberances of the cranium as a means of estimating the inherent mental powers, it is attempted to supplement and remove, by taking in as an auxiliary means, the different temperaments of individuals. Exactly—before you can decide upon the internal by the external, you must consider a great many things which are themselves additional sources of error, and which complicate your

inquiry at every step as you go; you are to consider whether the individual is of a sanguine temperament or lymphatic; you are also to consider *what kind* of a body or brain he has, and how much he has exercised it, and whether he is old or young. What are temperaments? Are they also classified according to their properties and degrees of their properties? Are there instruments for measuring *them* also—graduated instruments? Are they each of them variable or invariable quantities? Variable and not to be measured. Look again what a gap for fallacious judgment. There is certainty in no one detail of the system. There is nothing which we can light upon as a constant and demonstrable law. Now what is the amount of evidence. Nothing surely that leads to the certain demonstration of the phrenological theory or of the law, that the mental powers have each and all certain distinct organs in the cerebral mass, which are to be ascertained and measured by the protuberances of the cranium. This is a law that has no authority from the anatomical structure of the brain; it has no authority from the cerebral development of any other species of animal; it fails in giving us an explanation of psychological phenomena—it is self-contradictory, assigning to diverse organs the functions of others; it is defective, some mental phenomena being altogether left out, and unprovided for by the system of organs. The external test of measurement is admitted to be fallacious, and the supplementary considerations are likewise in their very nature uncertain and intangible. It is surely not too much to say that such a theory is far from being established; it is not too much to deny its title to be received as such. All that appears to remain for certain in its doctrines, are the admissions before made, that in a number, a great number of striking instances, a correspondence has been observed between external protuberances and mental powers. The same thing can be said of physiognomy; the same thing can be said of the phenomena of dreams; some dreams are true, but are they all true, and always true?

I trust, in making these observations, no phrenologist will suppose that I am actuated by any dislike to the study, or that I have any objection to the prosecution of it. If it had seemed to me that anything I might have said, should have had the effect of abating any one's enthusiasm for the study, I should have said nothing. It will have been seen that I am not entirely an unbeliever in it, and if I have shewn that something yet requires to be done, let me hope that this will only sharpen the zeal and the cautiousness of its cultivators.

*Twenty-fifth Annual Report of the Bloomingdale Asylum for the Insane, New York, 1846.*

The Bloomingdale Asylum is one of the oldest and best Institutions for the reception of the Insane in the

United States, and possesses the advantage of being under the professional supervision of a gentleman, Dr. Earle, every way competent to the full discharge of the responsible duties with which he has been invested. There appears to have been a steady increase in the number of admissions during the last three years, the number for the respective years being 85, 106, and 138, and we regard this as an additional proof of the estimation in which this Asylum is held.

During the last year 138 patients were admitted, making with those remaining in the Asylum at the commencement of the year, 242, who, during the period specified, received medical treatment. Of these, 61 were discharged cured, 12 much improved, 20 improved, 20 unimproved, and 12 died, a proportion less than in the two preceding years.

After having enumerated in tabular form the exciting causes of the insane conditions of the patients admitted during the year, Dr. Earle, of whose pen the "Report" is the production, offers the following observations, which are well worthy of attentive consideration:—

While the exciting cause is often so clearly manifest as not to admit of a doubt, it is not unfrequently very obscure, and sometimes entirely beyond detection.

Nearly all the older authors agree in the opinion, that of the two classes of causes, the mental are more frequently productive of insanity than the physical. From more recent observations, it has been made to appear that the reverse of this proposition is the fact. This change of opinion may have been effected by confounding the remote with the proximate, the predisposing with the exciting causes.

Thus, it is possible that a large proportion of the cases arranged under the head of physical causes, in the above table, might be traced to some agent acting upon the mind. Intemperance, cerebral disease, epilepsy, typhus fever may be induced, and frequently are, by mental influences. With this view of the subject, the relative numbers in the two classes of causes might be essentially varied.

The number of patients admitted during the past year, as compared with the annual admissions for several of the preceding years, being assumed as the data upon which to found an opinion, the necessary inference is, that mental disorders are increasing. Whether the increase be in a greater ratio than that of the population of the city and its adjacent country, is a proposition which cannot easily be demonstrated. However this may be, it is an unquestionable fact, that the exciting causes of mental alienation were never in time of peace more active, among any people, than at the present day among the inhabitants of the United States; and particularly so in the States, which, bordering upon the Atlantic, were the earliest peopled by European emigrants.

Intoxicating liquors are so cheap that the labor of a few hours will procure enough to addle the brain for a week, and prevent the healthy exercise of reason perhaps a much longer period. The avenues to wealth, place and power are open to all: the child of the cottager thus entering into the strife of competition with the son of the most wealthy citizen. The progress of civilization and refinement, and the comparative ease with which the products of both nature and art in every quarter of the globe are here obtained, have a direct tendency to foster a luxurious life. Hence, human desires and human wants are greatly multiplied, while both mind and body are exerted to the utmost power of endurance to gratify the former and supply the latter. The almost unavoidable effect of the artificial mode of living thus produced, is either a debility of the system, or an augmentation of nervous excitability, either of which facilitates the invasion of mental disease.

Art has made advances so rapid towards the annihilation of time and space, that if life be measured by the proper standard—the number of events, circumstances, and conditions, seen, felt or

perceived—the amount of pleasure enjoyed and of pain endured—the people of the present generation have an existence of ten fold longer duration than their forefathers. As if this were not enough, the mind is forced into an activity corresponding with the new era of art. Children, before the body has acquired sufficient tone, or the brain sufficient firmness, to endure much mental exertion with impunity, are placed in schools where the intellectual faculties are unduly urged, while the physical exercise necessary to the due development of the frame is too often neglected. Under such circumstances, the head will expand, but the body cannot grow in size or vigour sufficiently to maintain "a balance of power."

If the child escape the more immediate dangers thus produced, he arrives at manhood with an unnatural susceptibility of mental excitement, as well as an increased disposition to diseases of the brain, by what causes soever they may be induced. He enters the arena of life, and engages in the general struggle for advancement before alluded to. If a merchant, he is subject not only to the ordinary fluctuations of trade, but to those financial revolutions which appear to be consequent upon an unsettled policy of government, and an instability of the laws affecting commerce. Whatever may be his occupation or condition, he may become interested in some of the prevalent doctrines in politics, morals and religion, which are both maintained and opposed by a partizanship, a zeal, an enthusiasm, in many instances too nearly allied, it is feared, to madness.

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*The American Journal of Science and Arts, conducted by Professor SILLIMAN, B. SILLIMAN, junr., and JAMES D. DANA. Second Series. January, 1846. New Haven. Published on the first day of every second month. 8vo. fol. 152.*

The January number of this old, and valued American scientific periodical, is the first of a New Series, to appear on the first day of every second month. It was formerly a quarterly periodical; the object in this change, being in terms of the Prospectus announcing it, "chiefly to accommodate authors with more frequent opportunities for publication, and the public with a fresher posting up both of European and American Science." No difference is made in the price of subscription, which is retained at \$5 per annum, and which we consider low for the amount of valuable information afforded. The plan of the publication is still unaltered. The first part is devoted to original communications on scientific subjects, of which the present number contains nine; all of which are valuable. Among the authors we notice the names of W. C. Redfield, Esq., Rev. Dr. Morris, Dr. Leedom, and Professors Hare, Gray, and Twining. Two charts accompany this number to illustrate Mr. Redfield's paper, "on three hurricanes in the American seas, &c," one of which exhibits the track of the hurricane of September 1, 1842, the other the tracks of various hurricanes, as observed in the Gulf of Mexico. The second part is a resumé of new discoveries or facts in Chemistry, Mineralogy, and Geology, Zoology, Botany, and General Physics. In this department the editors possess several valuable collaborators, the consequence is that the selections are judiciously made, and embrace almost every feature of interest in connection with those rapidly advancing sciences. Fully persuaded, that the new series will

sustain the envied reputation enjoyed, and deservedly merited, by the old, we heartily recommend this periodical to the notice of our scientific readers.

*The Half-yearly Abstract of the Medical Sciences, being a practical and analytical digest of the contents of the principal British and Continental Medical Works, published in the preceding six months, together with a series of critical reports on the progress of Medicine, &c., during the same period, edited by W. H. RANKING, M.D., Cantab. Part 2. Vol. 1. July to December. Octavo, Fol. 373. American reprint. New-York: T. & H. G. Langley.*

We acknowledge the receipt from the publishers of the second part of the first volume of the above valuable digest of medical science. Two parts, together forming a volume of about 700 pages, have now appeared. The American reprint, which is well got up, is sold at the low rate of one dollar per annum. Besides containing a copious digest of important facts in medical and surgical science of a really practical character, like Braithwaite's, this number is furthermore enriched by a series of valuable reports on the various branches of medical science, as medicine, surgery, therapeutics, midwifery, and diseases of women and children, anatomy and physiology, physiological and pathological chemistry, forensic medicine and materia medica. These reports are seven in number, and embodying as they do, all recent observations, disclose the advancing progress which each has made. These reports present, therefore, an admirable and attractive feature in the publication, and one which will recommend it to the very favourable opinion of the Profession. We shall avail ourselves as liberally as possible of its contents.

## SURGERY.

[In Nos. 2, 6 and 7, of this Journal, we laid before our readers, the particulars of several cases of aneurism of the Popliteal and Femoral arteries, cured by compression, on the vessel above the tumour. We now present them with the details of a dissection of one of those successful cases, which is interesting not only on account of its being the first dissection that has been made since the re-introduction of this method of treating aneurisims, but also from the fact of the patient having been cured of two aneurisims, (one in each limb) by this most important improvement in surgery. We also subjoin the interesting discussion which followed the reading of the paper.]

### ACCOUNT OF THE DISSECTION OF A SUBJECT WHO HAD BEEN CURED OF POPLITEAL AND FEMORAL ANEURISM (IN OPPOSITE LIMBS) BY COMPRESSION; WITH OBSERVATIONS UPON THIS METHOD OF TREATMENT.

DR. BELLINGHAM said the case which he was about to read to the society was one of considerable interest in the present stage of the history of compression in aneurism; and the preparation which he had the opportunity of exhi-

biting to the meeting afforded additional proofs of the efficacy and permanency of this mode of treatment.

James Hayden, a servant, aged about 35, was admitted into St. Vincent's Hospital, December 19, 1845. He had been twice previously in hospital, having been admitted in March 1843, labouring under popliteal aneurism on the right side; the treatment by compression was adopted, and he was discharged cured in June of the same year. He was re-admitted in June 1844, labouring under femoral aneurism in the opposite limb; compression was again employed, and he was dismissed well in September of the same year, and returned to his occupation. He has been in service in the country since, and left it to come up for the last time to hospital.

He stated that about three months ago he began to suffer from pain in the chest on stooping at his work, or on stretching himself; this was slight, was referred to the left nipple, and only felt occasionally. After a time it increased in severity, and was referred to the region of the left scapula as well as to the nipple, and he described it as a scalding pain, resembling that of a blister rising. Six weeks ago the pain became much more severe and more constant, he was unable to sleep owing to it, and he has seldom since been free from pain.

The pain now is principally referred to the region of the left scapula behind, extending to the nipple in front, and sometimes shooting to the epigastrium, or to the right side of the chest. He can cover the space behind where the pain is most severe with three fingers, this is a little below the spine of the left scapula, near the centre of the space between it and the lower angle of the bone, its lowest point being about on a level with the fifth left rib. He describes the pain as having a boring or a burning character behind, from which it shoots to the præcordial region, or from the latter to the former. The pain is always more severe at night than during the day, increases about ten o'clock, p.m., and persists until four in the morning, during which period he gets no sleep; latterly, it has extended to the middle of the left arm. There is no pain on pressure at the part, indeed pressure rather relieves it. The pain is most severe and distressing a little above the lower angle of the scapula, and in the nipple, shooting from one to the other.

He states that while in the country he was bled, that blisters were several times applied to the seat of the pain, and that he has taken medicines, of which he does not know the nature, but without deriving the slightest benefit.

On examination the action of the heart is normal, its impulse indeed is rather feeble than otherwise, and its sounds are natural. No præternatural pulsation is to be detected anywhere, and the sound on percussion is clear over every part of the chest where it ought to be so. On applying the stethoscope in the left scapular region, where the severe pain is complained of, a distant and feeble double sound, resembling that of the heart, is audible; it is heard over a space about the breadth of the hand, from the spine of the scapula downwards, and towards the vertebral column; it is not audible below the fifth rib; it resembles accurately the feeble beating of the heart heard at a distance, and is accompanied by no abnormal murmur. On tracing it round by the left axilla it is lost, while the respiratory murmur is loud here; the double sound re-appears again as we approach the præcordial region, but here it is the ordinary double sound of the heart, which closely resembles the other, but is louder.

There is neither dyspnoea cough, or difficulty of swallowing; neither congestion or œdema in any situation; neither palpitation or feeling of pulsation in any part of the chest, nor can any be detected by the hand; no dulness on percussion in the region where the pain is complained of; no bruit de soufflet or other abnormal murmur; the pulse

at each wrist has the same strength and fulness. The patient complains of nothing but pain, and to all appearance is in perfect health.

December 25th. The patient complained that the pain had been more severe than usual last night; it commenced at ten o'clock and continued until four this morning, and extended from the left side of the chest to the left arm; it entirely prevented his sleeping, and he attributes its severity partly to his having omitted to take his opiate. This morning the acute pain had subsided, and he had had some sleep,—indeed he was asleep when visited. Between twelve and one o'clock this day, he was sitting up in bed, conversing with some friends (who had come to visit him) when he coughed up blood two or three times, became faint, leaned back, was slightly convulsed, and died in about ten minutes.

*Post-mortem examination.*—Body well formed and muscular. On laying open the thorax, the left pleura was found to be full of blood, which had coagulated, the crassamentum occupied the lower, the serum the upper portion of the cavity; it amounted to above two pounds, had pushed the heart over to the right side, and had come from a rupture of an aneurism of the aorta seated in the descending portion of the arch.

The aneurismal sac was about the size of a hen's egg, its walls were thin, and were necessarily injured in the removal, in consequence of its firm adhesions to the vertebral column; it sprung from the upper part of the descending portion of the arch, and was firmly adherent to the left side of the bodies of the fourth, fifth, and sixth dorsal vertebrae, the bodies of each of which were slightly corroded, that of the fifth being more so than the fourth or sixth, while the intervertebral cartilages were apparently uninjured. The orifice by which the aorta communicated with the sac was seated at its outer and posterior wall, and was of considerable size, its edges not as smooth or as accurately rounded off as in aneurisms of older standing. The contents of the aneurismal sac were merely a little coagulated blood, there was no deposition of fibrine. The sac had likewise formed adhesions with the upper lobe of the left lung posteriorly, and had burst partly into it, a portion of the lung here being infiltrated with blood, and the serous membrane readily separated from its surface at the part. This accounted for the expectoration of the small quantity of blood which occurred immediately preceding the patient's dissolution.

The heart was about the normal size, an unusual amount of fat was deposited upon its surface, which extended to some depth into the substance of the left ventricle; the scalpel was greased in laying it open; the cavities of the heart were all empty, the valves sound. The thoracic aorta was of the normal size, its coats not thickened, but its lining membrane presented patches of disease. The abdominal aorta was healthier. All the viscera in the abdomen were healthy; the lungs on both sides were from adhesions.

The arteries of the lower extremities were injected from the abdominal aorta, as it was of great importance to ascertain the condition of the vessels upon which the compression had been exercised. The femoral artery upon each side is seen to be quite pervious down to the site of the original aneurismal sacs;—on the right side (on which the popliteal aneurism had existed) to near the popliteal space; on the left side (where a femoral aneurism low down had existed) to the tendinous canal formed by the adductor magnus and vastus internus muscles.

At the site of each aneurismal sac the artery is quite impervious, and presents the appearance of a solid, thick, flattened band; and at these two points the vein is so firmly adherent to the artery that they cannot be separated. Indeed through the whole course of the femoral arteries upon each side the vein was more intimately attached to

the artery than in ordinary cases, so much so that had the operation by ligature been performed, the femoral vein could not possibly have escaped injury. The femoral arteries appear to be rather smaller than usual, while the profunda and all the branches which proceed from it, particularly the perforating and circumflex arteries, are much enlarged; the branches which come off before the femoral artery divides, are likewise enlarged. Below the site of the aneurismal sacs, the continuation of the canal of the femoral artery is contracted on both sides, and the anterior and posterior tibial arteries in each limb are diminished in diameter near their origin.

*Observations.*—The patient, the subject of the present communication, was (as I have observed) first admitted into hospital in March, 1843, labouring under popliteal aneurism of the right side, compression was employed, and he was dismissed cured in June of the same year. He was re-admitted in June, 1844, labouring under femoral aneurism in the opposite limb, compression was again employed, and he was discharged cured in September of that year, and remained perfectly well until about three months previous to his last application.

On admission last month he was to all appearance in perfect health, and none of the signs of thoracic aneurism, which are laid down in books as characterizing this affection, were present. Thus there was no external tumour, no abnormal pulsation or murmur in any part of the chest; he complained of neither palpitation, dyspnoea, cough, or difficulty in swallowing; there was neither venous congestion or œdema of any part; neither hoarseness or alteration of the voice; the pulse at each wrist had the same strength and fulness; the respiratory murmur was perfectly normal upon each side; and there was no dulness on percussion at any part of the chest.

The only general sign present was severe pain; and the only physical sign was a double sound, resembling the beating of the heart at a distance, which was audible posteriorly on the left side, about the situation where the pain was most severe. These two signs, taken in connection with the patient's previous history, led at once to the suspicion of thoracic aneurism—indeed the patient was himself under the impression that his disease was of this nature.

The patient obviously had the aneurismal diathesis, evidenced by his having twice previously laboured under aneurism of a large artery. He suffered very severe pain in the chest, referred to the situation of the descending portion of the arch of the aorta, which presented the characters Dr. Beatty and Dr. Law have so well pointed out as almost peculiar to aneurism of the aorta acting upon the spine, or when it occurs in a situation where the unyielding nature of the parts about it binds down the sac, and prevents it from enlarging. These signs, taken in connection with the feeble double sound, resembling that of the heart, heard posteriorly on a line above the fifth rib on the left side, and with the absence of the ordinary symptoms of aneurism of other parts of the aorta, led to the diagnosis of its seat being the descending portion of the arch.

The case, therefore, as an example of aneurism of this part of the vessel, is an exceedingly instructive one, and illustrates remarkably well the improvement which has taken place within a recent period in the diagnosis of thoracic aneurism. But as I wish now to call the attention of the society to other points connected with the case, I shall not dwell any further upon it; nor shall I delay to notice the connection which there would appear to be here between a fatty state of the heart and the disposition to aneurism in the large arteries, which would seem to be something more than a mere coincidence.

The principal point of interest connected with this case—indeed the object which induced me to bring it before

the society—is, that it exhibits the results of compression some time after a cure had been effected, and when the patient had remained well in the interval. As this patient had been twice the subject of aneurism, both of which were treated by compression, the preparation upon the table has still more value, exhibiting, as it does, the results of compression in two aneurisms cured at different periods.

As the treatment of aneurism by compression appears to be now an established practice in every case where the situation of the aneurismal sac permits of pressure being applied to the artery leading to it, there is no necessity to trouble the society with observations upon its advantages over the ligature. I shall therefore confine my remarks in a great measure to points illustrated by the dissection in the present case.

It was some time since, and perhaps with reason, urged against this method of treating aneurism, that the period which had intervened since its reintroduction was too short to allow a positive opinion to be pronounced as to the permanency of the cures, or the contrary. Here, however, we have demonstrative evidence that in fifteen or sixteen months from the date of the cure of an aneurism of the femoral artery by compression, the tumour has completely disappeared, the contents of the sac have been absorbed, and the artery at the seat of the aneurism has become quite impervious, so that it would be utterly impossible for pulsation to return, or for an aneurism to form again at the part. Indeed from the mode in which a cure is effected by compression, it seems hardly possible for the pulsation to return, though many instances have occurred where pulsation has returned after the application of a ligature.

Upon a former occasion I laid down the proposition, that to cure an aneurism by compression; such an amount of pressure is never necessary as would cause inflammation and adhesion of the opposed surfaces of the vessel at the point compressed. An examination of the preparation upon the table fully bears out the correctness of this proposition, as we see the femoral artery upon each side to be pervious and uninjured down to the site of the original aneurismal sacs, at which points only its channel is obliterated.

I also laid down the proposition, that it is not necessary to carry the pressure so far as completely to intercept the circulation in the artery at the point compressed, but that the consolidation of the aneurism will be more certainly brought about, by allowing a feeble current of blood to pass through the sac—in fact, that to apply compression successfully, the velocity and force of the current through the artery leading to the aneurism are to be diminished, while the amount of blood passing into the sac is to be lessened, by which the deposition of fibrine will be encouraged, until the sac no longer permits of the entrance of blood. A cure will then be effected in the manner in which nature, under the most favourable circumstances, brings about the spontaneous cure of aneurism.

This process is necessarily slow and gradual, and must take some time to be accomplished; but when the cure is rapid, and is brought about after the application of pressure for a few days only, (as happened in one of the aneurisms under which this patient laboured,) the period is apparently too short for such a result. Here the cessation of the pulsation in the aneurism, in all probability, depended upon the formation of a coagulum or clot in the aneurismal sac during the action of the compression, which, on the pressure being discontinued for a short interval, was impelled by the strong current of the blood into the vessel leading from the sac, and was so firmly impacted in it as completely to obstruct its channel; the circulation was then determined to the collateral channels, and a cure was effected in a somewhat similar mode to that

which follows Brasdor's operation for aneurism. If this is a correct view, it tends in some degree to confirm the theory upon which Brasdor's operation was founded; and that such a result might follow the employment of pressure is evident from what does occasionally occur in the cavities of the heart, when the circulation is much impeded and a coagulum forms, which is carried towards the orifice of the outlet of the blood, and either obstructs it or prevents the action of the valves, and so occasions the death of the patient. It appears probable also that this was the mode in which an unexpected cure was accomplished in several cases of popliteal aneurism on record, where a bandage had been merely placed round the limb, with a compress upon the tumour, and the patient was confined to bed.

There is a point connected with the employment of pressure in aneurism to which I have not before alluded, but which is illustrated by the dissection in the present case; it is that the mode in which compression effects the cure of aneurism seems to be more simple, and to require (if I may use the expression) less assistance from nature than the ligature. For instance, when a ligature is placed upon an artery in the usual situation at a distance from the aneurismal sac, to prove effectual it must cause the obliteration of the vessel at the point to which it is applied: the blood contained in the sac, or that which finds its way into it by the anastomosing branches (as there is no *vis a tergo*) coagulates, and the main artery of the limb comes eventually to be obliterated both here and at the site of the ligature; whereas, after a cure by compression, the artery is obliterated *only at the seat of the aneurism*. Indeed for this reason, the application of a second ligature higher up the artery, in cases where secondary hæmorrhage had occurred, almost necessarily fails, and we can hardly be surprised at gangrene attacking a limb, the main artery supplying which is obliterated at three points in its course.

In addition, the cure of an aneurism by compression is more likely to be effectual, and ought to be more permanent, than one treated by ligature; because in the former case the sac becomes gradually filled by fibrine, or the vessel leading from the sac is completely obstructed, and no longer permits of the passage of blood, although all pressure is removed; whereas, after the application of a ligature, a loose coagulum of blood alone remains in the sac, which does not fill it, and may or may not extend into the main artery; the parietes of the sac must therefore necessarily shrink considerably, and the artery supplying it must be closed up before the cure can be pronounced to be permanent. That this sometimes requires a long time to be effected, is shown by the pulsation having returned after a considerable interval in cases where the ligature had been used.

The only objection which it appears to me can be urged with any fairness against the treatment of aneurism by pressure is, that it will probably prove more tedious than the ligature. Admitting this (although in several of the recorded cases it was less tedious), yet when we take into account its perfect safety, its almost absolute certainty; and on the other hand, the risk, the danger, and the uncertainty of the operation by ligature, (particularly in the case of certain arteries) we cannot, I think, hesitate to give it the preference.

There appears to be but one form of aneurism in which compression is liable to fail—viz., where the tumour is formed by general dilatation of all the coats of the artery—in fact, where no true aneurismal sac exists; but in such a case it is very probable the ligature would equally fail. If the blood is very poor in fibrine, the treatment is likely to prove much more tedious than usual, or might even fail, as little or no deposition would take place in the sac under such circumstances; and the formation of a coagulum even would be interfered with by the rapidity of the circulation.

In such cases, before we commence applying pressure, we should endeavour to improve the condition of the blood, and to increase the quantity of fibrine in it by medicines and by proper attention to diet and regimen.

It has been urged as an objection to this mode of treating aneurism that it is not only tedious but painful. I do not mean to deny that pressure is not painful; indeed it is not unlikely some patients may find it so irksome as to call for the operation, the pain of which they consider will be only momentary, and of the danger of which they are ignorant. But after the pressure has been employed for a time, the pain diminishes materially, and there are modes of applying compression which occasion comparatively little suffering, but to which I need not here more particularly allude. I may, however, mention one which was employed in the present case, which could be continued for almost any length of time without occasioning pain, and which the patient preferred to every other mode. This consisted in a pad made of a piece of bandage rolled up, and laid upon the femoral artery as it passes over the ramus of the pubis, upon which a weight, sufficient to diminish materially or to check the pulsation in the aneurism, was placed, and maintained in that position by the patient as he lay in bed, with the thigh flexed upon the pelvis. It was an accident which obliged me originally to have recourse to this proceeding, the instrument employed having gone out of order upon a Sunday, when there was no possibility of having it repaired, it occurred to me to try the effect of this simple means. A four-pound weight was first used, this was subsequently changed for a seven-pound weight, which was found to answer remarkably well. I mention it here, merely because the same mode of applying pressure is stated to have been employed with advantage in a case reported some time subsequently, in which no allusion is made to its having been used previously—an omission which I am sure was accidental on the part of the reporter of the case.

As their appears to be some misconception abroad respecting the modern method of treating aneurism by compression, and as it is frequently stated to be nothing more than the revival of an old mode, I will take this opportunity of saying a few words upon these points. That it could hardly be the mere revival of an obsolete and abandoned method must be apparent to any unprejudiced person from the success which has attended its employment in so many cases recently: whereas formerly, success was the exception to the general rule; and that it is not the mere revival of an old mode of treatment is proved by the written testimony of the authors themselves who put it in practice.

For instance, the older practitioners who employed compression in the treatment of aneurism aimed either at obliterating the vessel at the point compressed, or they applied the pressure directly upon the aneurismal tumour, or they made general pressure upon the aneurism and entire extremity by means of a compress and roller carried round the limb. As might have been anticipated, they very seldom succeeded—indeed so seldom that the plan came, not only to be entirely abandoned by surgeons, but it is discountenanced in every standard work on surgery, and represented to be tedious, painful, and doubtful, and uncertain in the extreme,—in proof of which I shall delay to quote a few authorities, whose remarks, I may observe, refer only to the most eligible site for the application of the pressure—viz., between the aneurismal tumour and the heart.

Mr. Samuel Cooper (in his *Surgical Dictionary*) speaking of compression, observes—“In order that pressure may succeed, the coats of the vessel at the place where it is made must be sufficiently free from disease to be susceptible of the adhesive inflammation. Few patients (he remarks in another place) can endure the pressure of such an instrument a quarter of the time, when put on sufficiently tight to afford any chance of obliterating the artery, and on account of the

sufferings which they produce they are rarely used by modern surgeons.”

Mr. Guthrie (in his work on Aneurism) observes—“The application of pressure by means of a spring pad has been tried, and has sometimes though very rarely, succeeded. The process is long, the pain great, and their is danger of the part sloughing; the pain, indeed, is so great that few persons can be persuaded to submit to it, and those surgeons who have tried it once will not again put it in competition with the ligature.”

The cases of success which have followed the employment of compression, M. Begin (in the article Aneurism in the *Dictionnaire de Medecine*) observes—“Are few compared to the number of instances in which it has been tried. The difficulties in this method are inherent in it, and can be overcome by no instrument. No matter what precautions we employ—no matter upon what part we apply the compression, or with what care we graduate the pressure, it soon becomes painful, and in the great majority of cases unsupported. The greatest courage and the firmest resolution are not equal to it.”

Mr. Gibson of Philadelphia (in his *Treatise on Surgery*) observes—“Compression is now rarely resorted to, experience having proved its general inefficacy. The process has been found, moreover, even when successful, so extremely painful and tedious, that few patients can be induced to submit to it, or to persevere sufficiently long to accomplish a cure. That it operates partly upon the principle of the ligature (when it does succeed) there can be no doubt, by compressing the sides of the vessel, causing the effusion of lymph, and finally obliteration of the channel, so as to force the blood to abandon the sac, and pass off by the collateral branches.”

Many other authorities might be enumerated; the foregoing are, however, sufficient for the present purpose. But we have seen that in the mode in which compression is employed now (for the cure of aneurism) the obliteration of the artery at the point compressed is never aimed at—indeed the amount of pressure necessary is not even so great as completely to check the current through the artery leading to the sac; neither is pressure applied to the aneurismal tumour itself, either of which proceedings would necessarily occasion so much pain that few patients would be found willing to submit to it; and the latter would probably do much more harm than good, and might occasion the rupture of the sac and the conversion of a circumscribed into a diffused aneurism. Nor is the application of a tight bandage round the limb, with or without a compress upon the aneurismal sac, advisable—indeed it would probably act rather injuriously than otherwise, by interfering with the return of the venous blood, or with the establishment of the collateral circulation, particularly with the enlargement of the articular arteries about the knee, which always increase remarkably in size, after the filling up of the sac, in cases of popliteal aneurism.

In conclusion, it may, I think, be laid down from what precedes, that the ancient and modern methods of employing pressure are essentially different; and although the two proceedings bear the same name, their is really no more resemblance between them than between the old operation for aneurism (in which the sac was laid open and the artery tied above and below it) and the Hunterian method, in which the vessel is tied at a distance from the sac and in a situation where its coats are healthy.

The PRESIDENT could not feel surprised, he said, at the demonstration of applause from the cross benches—though contrary to rule—upon the delivery of Dr. Bellingham's highly valuable remarks on a system of treating aneurism which solely belongs to our own day. Dr. Bellingham, he considered, was entitled to the highest credit for having pointed out the true principles by which we should be guided in the employment of pressure, which it had hitherto been deemed necessary to apply in such a way as to com-

pletely obliterate the main trunk,—a proceeding which, as shown by Dr. Bellingham, so far from being necessary, is decidedly injurious. The object to be obtained by pressure is not to obliterate the artery by causing adhesion of its sides, but to obstruct and retard the flow of blood through it to a degree that will permit a firm coagulum to form in the sac, and thus to force the blood by the collateral vessels into the lower part of the limb. There is at the museum of the Richmond Hospital (the President observed) one of the most beautiful preparations perhaps extant of the collateral circulation after the successful operation of tying both femoral arteries in the same individual for popliteal aneurisms. These operations were performed by the late Mr. Todd. There is just now, also, in the Richmond Hospital, he would remark, an exceedingly interesting case under the care of Dr. Macdonnell, who tied the artery of one limb three or four years ago for popliteal aneurism. The man returned some time since with the same affection in the opposite limb, and pressure was employed, he was happy to say, with the most fortunate results, for he is now neither pulsation nor tumour to be found in the ham. As Dr. Macdonnell was present, he hoped he might trespass on that gentleman for a more full statement of this case. A great advantage attendant on this mode of treatment (the President observed) is, that when the patient complains much of pain at any particular point, the instrument may be shifted to another on the line of the artery.

Dr. MACDONNELL had great pleasure in laying before the society the heads of the case alluded to by the President. It was one, he said, highly interesting indeed, and corroborative of everything that could be said in favour of this new method of treatment in external aneurisms. He fully concurred in opinion with Dr. Bellingham, that the practice was entirely new, and one of the greatest improvements effected in surgical science since the days of Hunter. In his (Dr. Macdonnell's) opinion, all the credit arising from this very important addition to the science must be traced to the happy results of a case treated in this way by Dr. Hutton in the year 1842, and it was his belief that there are few names with which an advancement in surgical science could be more worthily associated than Dr. Hutton's. Dunne, the subject of the case, at present under his (Dr. Macdonnell's) care, about five or six years ago, got a large aneurism in the left popliteal space, but at this period the case presented no feature of particular interest. The ordinary operation at Scarpa's angle was performed, after which the man completely recovered, and Dr. Macdonnell saw nothing of him until about six months since, at which time he came to him saying, that a few days before, in lifting a heavy weight, he perceived a snap, accompanied with intense pain, in the popliteal space of the leg, opposite to that formerly operated on. He soon after felt a small pulsating tumour, which had but little increased in bulk when first seen by Dr. Macdonnell, who, at this time, recommended the man to come to the hospital, but he put off coming on some excuse or other for two or three months. On admission now, however, he was submitted to the treatment by pressure, the heads of which were simply these. A single instrument was applied at the groin, but owing to the imperfection of its construction, it by no means commanded the circulation, for pulsation was still to be felt at the ham; nevertheless, during its use, and while a more perfect instrument was being made, he felt satisfied that the case was progressing, as the aneurismal tumour was manifestly becoming firmer. As soon as a second instrument was procured, and the original one improved, it became possible, by using them alternately, one applied at the groin, the other about the middle of the thigh to command the circulation completely and extinguish pulsation in the aneurismal tumour; and by using them as long at a time as the patient could bear, sometimes for six or eight hours consecutively, pulsation at the ham entirely ceased in about two days, and has since—now a period of

two months—never returned, and the tumour has now diminished by absorption fully two-thirds its original volume. The man remains in the hospital at present more from the degree of interest attached to the case, and for the purpose of observation, than any other reason, for the cure may be looked on as perfected. Dr. Macdonnell would be happy to exhibit him and the instruments employed to any of the members of the society.

The PRESIDENT said that he had asked Dr. Macdonnell's patient on one occasion, when he complained of pain from the pressure used, whether he would prefer the treatment he was under or the operation; and the man's reply was, that he would much rather submit to the operation; but here the society must remember that this was the choice of an ignorant man who knew nothing of the dangers of such an operation. He would venture to say that there was no surgeon present who would not give the preference to the mode of treatment by pressure in all available cases, so that one should be very slow to give way to the complaints of patients under these circumstances. Knowing, too, as we now do, that pressure is not to be applied to the extent of obliteration of the artery, the compressing means may be removed for a time and again replaced. He looked upon this method of treatment therefore as an improvement of the highest importance, but the value of which, it appears strange, our English neighbours seem to be very slow in appreciating.

Professor HARGRAVE fully agreed in the opinions generally expressed in favour of the treatment of aneurism by compression in every instance in which that method could be made available, and it was of the utmost importance, he considered, to work out completely the establishment of the practice, the truth and value of which it is not possible to gainsay. The practice had clearly been revived in this country, first by Dr. Hutton, and afterwards so ably acted on by Dr. Bellingham. Yet, as he had just observed, the problem still remains to be worked out to its clearest demonstration; for even in Ireland itself doubts exist on the minds of provincial practitioners in reference to facts which had emanated from this very society. There are, undoubtedly, certain cases in which compression will not answer, an instance of which had been mentioned to Dr. Hargrave a few days ago by a gentleman who is a pupil. The subject of this case had been a patient in George's Hospital, London, some months ago, but was of so irritable a habit that he could not endure the treatment, so that the artery had to be cut down upon, and a cure was thus finally effected. With regard to the remarks of Dr. Macdonnell respecting the employment of partial pressure, that point, he might observe, had been investigated in an interesting manner in a case detailed by Sir Charles Bell which had occurred in a black. In tying the vessel below Paupart's ligament, pulsation was observed to have returned even before the patient was removed from the table. Sir Charles, turning to those present said—"It cannot be helped; all that it was possible to do had been done." The man was therefore put to bed, but died some days after of diffuse inflammation. Sir Charles, feeling great anxiety to ascertain the cause of the return of pulsation, found on examination the very rare irregularity of a double superficial femoral artery, coming off below Poupart's ligament; there had been notwithstanding this, a perfect coagulum formed in the aneurismal sac, thus establishing the fact, that only half-cutting off the supply of blood is sufficient to effect a cure. A preparation of a similar irregularity is contained (Dr. H. observed) in the museum of our own college. He believed it and the one described by Bell were the only two instances of the kind on record. In reference to the symptoms indicative of the thoracic aneurism which proved fatal in the communication then before the society, he would allude to the single one of pain, which may now be considered as diagnostic of it, when much anxiety exists as to the true nature of the affection; a parallel case was presented to his own observa-



tion in the person of a strong, tall carpenter, of most regular and moral habits. For some months before his death he complained of nothing but intense, almost continued pain, referred to the inferior angle of the left scapula, circumscribed to a spot, the size of a shilling; also of an uneasy cord-like constriction round the edge of the thorax, for which he was bled, with permanent relief. The stethoscopic phenomena indicated healthy lungs and heart, and a normal condition of the thorax. No treatment relieved this pain; the man had been seen during Dr. Hargrave's attendance on him by Dr. Morgan and by Mr. Crampton. His death was sudden; as he was sitting up in bed he fell back and instantly expired. The post-mortem examination exhibited the lungs perfectly healthy; the heart slightly loaded with fat; the left pleural cavity was full of blood and serum; a long rent was found in the costal pleura, through which the blood had issued from a ruptured aneurism, situated in the commencement of the descending aorta, the bodies of three of the vertebræ—the third, fourth, and fifth—were eroded; some of the intervertebral cartilages also were destroyed, which permitted the blood to circulate in the spinal canal: this pathological specimen (Dr. Hargrave said) is to be found in Dr. Bevan's museum in Peter-street. Again, he would call on the surgeons of this city to work out this practical problem, as the character of surgery emanating from this society and this college had been impugned.

Mr. ADAMS entirely agreed with Dr. Hargrave, that much of the improvement in the treatment of aneurism by compression of the main artery leading to the aneurismal sac was to be considered as due to the exertions of Irish surgeons, although he would not be understood to say that the principle of compression had not been adopted previously. He would go so far back as the time of Mr. Todd, who had pointed out the advantages to be derived from the employment of compression preparatory to the application of the ligature, in order (as Mr. Todd said) to prepare the collateral channels for the reception of the increased quantity of blood thrown upon them as the result of the operation. Dr. Cheyne had also told Mr. Adams that the full report of a case of popliteal aneurism, successfully treated by compression at the Richmond Hospital by Mr. Todd, was placed by that gentleman in Dr. Cheyne's hands, and was intended for publication in the next volume of the Dublin Hospital Reports, but which the lamented death of Mr. Todd prevented. Subsequent to that time also, a case occurred under the care of the late Dr. Duggan, which would most likely be remembered by Mr. M'Coy. The case of Scarlet a tide-waiter in the revenue, in whom a neglected popliteal aneurism became diffused, rendering amputation necessary, after which the man recovered. In two or three years after the man got aneurism of the femoral artery of the same limb, which was perfectly cured by compression with the instrument used by Mr. Todd, and which Dr. Duggan borrowed. The same man had been in the Richmond Hospital about two years ago from a complaint in the hip-joint. He might also remark, that Dr. Harrison had a case treated by compression in Jervis-street Hospital; in fact, in almost every hospital in town, cases of the kind had occurred; so that the question plainly resolves itself into one respecting the relative merits of the operation by the ligature and the treatment by compression, for as to the applicability of the latter practice, there could be no possible doubt. The President had alluded to a case of double popliteal aneurism, the injected preparations of the arteries of both limbs of which, he might remark, is contained in the museum of the Richmond Hospital. In this case both arteries had been tied by the late Mr. Todd many years before the patient's death, which took place under his (Mr. Adams) care in the Richmond Hospital from cancer of the stomach, and with the assistance of his friend Mr. Smith, he had made a beautiful preparation from the case. When the appearance of the in-

jected arteries in this case is contrasted with those now exhibited to the society by Dr. Bellingham, the difference is seen to be this, that in the preparation there is obliteration of the femoral artery to the extent of about half an inch at each side, while in Dr. Bellingham's case the vessels are pervious all through. The effect produced by a slower current of blood to allow of coagulation in the aneurismal sac had been the same in both, but was obtained in that treated by Dr. Bellingham by safer means. The popliteal arteries both in Dr. Bellingham's and Mr. Adam's preparations were obliterated to an equal extent. Nobody could have supposed, he said, that the autopsy would have shown so trifling a difference in the anatomical characters of the vessels. He had seen a case of aneurism high up in the femoral artery treated by Dupuytren by compression of the iliac, but the man had not patience to submit to the treatment, and called for the operation, which was performed.

Mr. M'Coy would make a few observations in reference to the case mentioned by Mr. Adams, as one of the most remarkable perhaps on record in favour of the treatment of aneurism by pressure. He would not go into a particular detail of the case at present, as he had the honour to lay it before the society in full in 1843, in a paper he read on the subject of the present discussion, but though there was not an objection yet raised against meddling with an aneurism, not a discouraging circumstance attending the disease that was not to be found in that case. The man was of intemperate habits and reckless character; he had had a popliteal aneurism to which he paid no attention until one day going up a ship's side he felt something give way; the revenue surgeon was sent for, and Mr. Adams and he (Mr. M'Coy) accompanied him, when it was found that the aneurism had become diffused, and nothing seemed possible to be done for his safety but to amputate the limb; this was accordingly done, and the man recovered in the usual time. Two or three years after this, the revenue surgeon was sent for again to see this man, and he (Mr. M'Coy) accompanied him. An aneurism was found an inch and a half below Poupard's ligament, on the same side as the previous popliteal aneurism—it was the size of an egg, and pulsated strongly; an operation was deemed inexpedient for many reasons, and it was determined to try pressure, and Mr. M'Coy was directed by his master, Dr. Duggan to apply it. Mr. Todd had the kindness to lend him his own instrument for the purpose—it was accordingly put on, and carefully attended to from day to day, and finally the tumour diminished in size, became solid, and a perfect cure took place, which to-night he had the gratification to hear was permanent to the present time, after a lapse of five or six and twenty years. Here was a case where two aneurisms had come on after a considerable interval on a very large vessel,—the second occurring where that artery bifurcates into two nearly equal trunks; where, from position, it was difficult to apply or maintain the necessary pressure properly, and in one he (Mr. M'Coy) could safely say, who was never a day perfectly sober during the whole treatment. Every one conceded honour to him who introduced any improvement into surgical practice, but in his opinion a far higher honour was due to him who promptly laid it before the profession through the press for the benefit of society in general—he thought Dr. Hutton and Dr. Bellingham entitled to that honour in this instance. For himself he did not claim or desire any credit for being the first to draw the attention of the society to the chances favourable to the treatment of aneurism by pressure, as it was merely from the contingency of there being a disappointment in part of the business intended for an evening's sitting of the 8th April, 1843, that induced him to go home for his notes and read them at the meeting, as the secretary may remember. Among the excellent observations delivered by Dr. Bellingham, there

was one opinion he expressed of considerable practical importance, and to which he (Mr. M'Coy) was disposed to give his full assent—namely, that it is not necessary to use such a degree of pressure on the artery going to an aneurismal tumor as to entirely obstruct the passage of blood through its canal, to ensure a successful issue; when the femoral artery is tied for popliteal aneurism it is no uncommon occurrence to find some pulsation on the following day, perhaps in the ham; Mr. Liston had a case some time ago which was cured, and in which the pulsation of the tumour continued for twenty-four days. Mr. Colles was of opinion that when pressure is applied to the artery at some distance from the tumour, it should be sufficiently firm to bring the sides of the vessel in contact so as to induce adhesion, while if the pressure be applied to the aneurismal tumour itself, it should be applied as loosely as possible. Mr. M'Coy then alluded to cases of brachial aneurism, and a remarkable one of palmar aneurism, which he had himself succeeded in curing by the very slight pressure of graduated compresses of lint bound on with sticking-plaster, after failure by firm compression in some of them, the particulars of which he had laid before the society on a former occasion.

Dr. HUTTON felt it necessary to make one or two observations in reply to some remarks that had fallen from the previous speakers. He believed that the case alluded to, and to which Mr. M'Coy had borne testimony, had not occurred at the Richmond Hospital—at least no account of the circumstance had ever reached him, nor was he aware that such a case had been published. As to the question of priority of publication, Dr. Bellingham had in the handsomest manner, he said, mentioned his (Dr. Hutton's) name in connexion with the subject, and he felt assured Dr. Bellingham would not hesitate to admit that his (Dr. Hutton's) case, as also Mr. Causack's, had first appeared in print. Dr. Bellingham had, in the opinion of all, worked out the matter in the most admirable manner. To him was due, principally, credit of having improved the practice; for himself he certainly claimed the credit of its revival, but he fully admitted that he had adopted Mr. Todd's principle of treatment.

Dr. BELLINGHAM said that Dr. Hutton's case occurred six months, and Mr. Cusack's two or three months, previous to his; therefore there could be no question about priority.

Dr. WILLIAMS did not mean to enter into a discussion of the practical part of the question under consideration, but as regarded what had been stated in reference to Mr. Todd's case, he believed there was no doubt of its accuracy. Shortly before that gentleman's death he (Dr. Williams) had been a pupil in the hospital, and the notes of the case had come into Mr. Cusack's possession, by whom they were given to himself, and, to the best of his recollection, he still had them. The case had certainly occurred at the Richmond Hospital; whether it had ever been published or not, he could not undertake to say. Mr. M'Coy had inadvertently stated that it was.

Mr. Smith would be even able, he believed, to mention to the society the exact date at which Mr. Todd's case occurred; it was in the year 1825, the year in which he had the honour of being bound to the learned President. He (Mr. Smith) was at the time a very young man, but was sufficiently acquainted with the general fact, that ligation was the established mode of treatment for aneurism. Mr. Todd's death took place in six months, he said, after the date of his (Mr. Smith's) apprenticeship. He could point out the precise ward in which the patient lay, and also the position of his bed, which was placed next the fireplace, and behind the door. He had watched the case attentively to its termination, which turned out to be completely successful. The instrument employed was a sort of combination of tourniquet and truss.

Dr. Macdonnell begged to add that every man of any experience is aware that aneurism has been treated by compression for a great many years past, but the difference between all former cases and Dr. Hutton's is this, that the conclusion drawn by the profession from the previous cases was that compression was a practice to be condemned. These cases did not fructify, Dr. Hutton's has, and upon it the practice of compression in external aneurism has, he might say, been founded, and it will be the means of establishing fully this great improvement in the treatment of this disease.

Dr. Williams would by no means be understood to derogate in the slightest degree from the merit due to Dr. Hutton. He had accidentally become acquainted with Mr. Todd's case, to which Mr. Smith had given such accurate testimony; and he (Dr. Williams) felt it only right to mention what he knew himself on the subject. He would observe, in conclusion, that if possible he should produce the notes of the case, but he wished to state that it was possible, after a lapse of so many years, that he might not be able to get at them; he would again say, however, that this circumstance by no means interfered with the question of priority of claims in reference to the subject under discussion. The whole matter, he thought, was somewhat analogous to the question which lately occupied so much attention on the continent—namely, Callison's operation for artificial anus, which had, in the first instance, been universally condemned, but when Amussat took it up and demonstrated its practicability, it became universally recognized; for his own part, he considered a man entitled to so much the more merit for taking up and establishing as a valuable and practical method of treatment one which had previously got a bad name, and was, in fact, looked on as a failure.

Dr. Benson considered that the chief praise in the revival of this mode of cure was due to him who showed that the cure of aneurism could be effected by merely lessening the current of blood at the point of pressure. So long as obliteration of the artery there was supposed necessary, so long must failure be the consequence.

## PRACTICE OF MEDICINE AND PATHOLOGY.

### GANGRENE OF THE VULVA IN AN INFANT TREATED BY THE ACTUAL CAUTEY.

The subject of this case was of the age of two years, of the lymphatic habit, but otherwise in a healthy state. At the time that it was admitted into the hospital (Des Enfants Malades) it had a gangrenous patch on the inner side of the labia majora, completely encircling the clitoris. No apparent cause could be discovered. The child had been tolerably well nursed, and did not appear in the least in a condition likely to give rise to mortification. When seen the next day the gangrene had made considerable progress, wherefore M. Guersent determined to lose no time in the endeavour to check it. As an external application, he touched the diseased part with an iron heated to whiteness; internally he exhibited wine and quinine. In spite of this treatment the sloughing gained ground, and a second and deeper cauterization was had recourse to. From this moment the disease was arrested; the eschar speedily detached itself, and disclosed a healthy granulating surface. The child continued the quinine for some time longer, and was discharged cured.

This form of disease is not uncommon in the crowded hospital for sick children in Paris, and, like the cancrum oris, appears to depend upon a general vitiation of the fluids, induced, mainly, by deficient ventilation; the action of the cautey was decided in this case.—*Gazette des Hôpitaux*, No. 66.

## ON GANGRENOUS STOMATITIS.

By JAMES F. DUNCAN, A.M., M.B., Lecturer on the Theory and Practice of Medicine, Park Street School of Medicine, &c.

The subject which is found to be so ably treated, and of which the following remarks are an abstract, is one which has, within the last few months, been invested with more than ordinary interest, in consequence of several medico-legal investigations which have been instituted in cases of ulceration of the mouth, with the intent of affixing the charge of *mala praxis* upon the medical attendant. The similarity between the disease in question, and the sloughing which occasionally follows the profuse use of mercury, is sufficiently close to excuse the public in the error of confounding them. But it is full time that the profession should be better instructed in those distinctive marks, which, if rightly understood, will in all cases prevent misapprehension, and will enable them to rescue a brother practitioner from, in the great majority of cases of gangrene of the mouth, the unjust obloquy of having produced it by the injudicious use of mercurials. In furtherance of this object, the observations contained in the contribution of Dr Duncan are some of the best we have met with.

This gangrenous ulceration of the cheeks and gums has lately appeared in an epidemic form, in the establishment to which Dr. Duncan is attached, and, as will be seen, clearly depended upon an impaired state of the constitution, as the gangrene was not necessarily confined to the mouth, but in some cases attacked other mucous membranes, and particularly the pudendum. The ages of the patients varied from a year and a half to five years, and, in some cases, more than one member of the same family was attacked. The disease was usually preceded by a diarrhoea, a symptom which too often failed to attract attention, inasmuch as it was naturally attributed to the effects of dentition. "The children," observes Dr. Duncan, "did not at first seem to suffer from pain in the bowels, and could bear the usual amount of pressure without inconvenience. The alvino evacuations were either thin and watery, though not deficient in bile; or they were whitish and exceedingly offensive. In almost all cases, blood was discharged, either in a fluid state or mixed with mucus. When these symptoms had continued for a few days, the mother would mention that the child had a sore mouth, and on examination it would be found that the gums were ulcerated, and the fangs of the teeth exposed." As the disease advanced, the gums became spongy, and bled upon slight pressure. In no case, however, did the teeth fall out. Death seemed to depend rather upon the high fever which accompanied the local affection, and the persistence of the diarrhoea, than on any changes effected on the condition of the mouth.

This condition of the gums presenting a certain resemblance to the effects of mercury, might easily lead to serious mistakes as to the cause of the affection. In the present case, however, the author does not doubt the constitutional origin of the disease, as many of the children had been for months in the house previous to the attack, and had taken no medicine whatever; and as he had, moreover, been in the habit of exhibiting mercury freely in various infantile diseases, but had never witnessed the disease until the commencement of last winter. "Mercury," he observes, "so far from having a tendency to produce the disease, can be exhibited safely while it exists, and exerts rather a beneficial influence in checking its advance."

In the diagnosis of this and the mercurial affection, the author thus remarks:—

"The importance, therefore, of establishing a correct diagnosis between this disease and the common form of mercurial ulceration of the mouth is self-evident, and as all the reasoning about to be produced in support of the opinion, that mercury is in no respect to be regarded as an exciting cause of the disease, applies with equal force to cancrum oris. I shall take the liberty of referring to it at some length. It may fairly be inferred that the two affections differ only in intensity, the infant constitution in the one case yielding to the violence of the fever, before the gangrene of the cheek has developed itself. Many persons believe that although some cases of cancrum oris occur, independently of mercury, the majority of those usually met with arise from the incautious use of this medicine, and that blame is, of course, to be attached to those persons who have been the agents of its administration. Were this opinion to be sanctioned by authority, we should be obliged to abandon the use of this valuable medicine under all circumstances, for as no one can discover, before-hand, the presence of the idiosyncrasy which renders its use hazardous,

the only alternative would be the total disuse of mercurial preparations on the one hand, or, on the other, the risk of occasionally producing this dangerous result. But if it can be shown that mercury has nothing at all to do with the disease, all this unpleasant apprehension will necessarily vanish.

"It is quite plain that, in order to sustain the opinion that mercury is the real cause of cancrum oris, it would be necessary to prove that it never occurs except in persons to whom that mineral has been exhibited, a proposition which is known to be decidedly erroneous. Many cases are on record, where it has been ascertained that not a particle of mercury has been used, either internally or externally."

[Although few medical men, perhaps, maintain that mercury is the sole cause of the disease, there are many who hold the intermediate opinion, that it may be so produced in certain constitutions—the arguments with which such persons endeavour to support their opinions are principally derived from the situation of the affection, and the symptoms it produces. Dr. Duncan proceeds to examine their validity in these words:—]

"In cancrum oris, as well as in mercurial action, we have ptyalism, factor of the breath, ulceration of the gums, and loss of teeth; but these symptoms, carefully inquired into, do not present the same appearances in the two cases. In the first place, the salivation of cancrum oris is moderate in quantity, and the factor of the breath does not present the peculiar and characteristic odor by which we are enabled to recognize the incipient effects of mercurial action. But the ulceration of the gums is, perhaps, the most satisfactory proof, because, unlike the ordinary appearance of mercurial ulceration, it is confined to a part only of the alveolar process. \* \* \* Not to mention the extreme rarity of mercurial action in children, it is well known, as Marshall Hall observes, 'that the effect of calomel, when it does take place, is uniformly diffused over the gums, the tongue, and internal parts of the cheek.'

"The arguments, therefore, adduced in support of the opinion, that the development of the disease is due to the action of mercury upon an unhealthy constitution, are without force. It remains to mention those arguments which have an opposite tendency.

"In the first place, the disease in question is almost exclusively confined to children, who are, as is well known, scarcely susceptible of the ordinary effects of mercurial action; very few instances of ptyalism having occurred under the age of sixteen years. Cancrum oris, also, is a rare disease, while the use of mercurial medicines in infantile diseases is exceedingly common.

"Again, it is well known that the existence of fever is quite sufficient to prevent the usual physiological effects of mercury developing themselves, and that the manifestation of ptyalism indicates a remission in the violence of the constitutional disturbance. Now it has been observed by the best writers on this disease (cancrum oris) that it is always connected with this very state of the system, in which it is so difficult to salivate the patient.

"But perhaps the strongest argument in favour of this view is that which is derived from the effects of remedies. I have already stated, that if mercury be the exciting cause of the disease, it would be worse than useless to administer any of its preparations in the subsequent treatment. It is a remarkable fact, however, that many cases have been thus treated, not only without injury, but with marked benefit." Dr. Cumming, of Armagh, (Dublin Hosp. Rep., vol. iv.) did not hesitate to use calomel as a purgative in these cases, and the author himself states that he has uniformly found mercurial purgatives preferable to any others in general use among children. [Other arguments in favour of the opinion that mercury is not the cause of gangrenous stomatitis, are based upon the fact that the gangrene in some cases attacks the pudendum and not the gums, in which case the mineral could not obviously be accused of the mischief. The paper is concluded by the relation of several highly instructive cases. The treatment confided in by Dr. Duncan consists in attention, in the first place, to the intestinal affection which precedes the gangrene. The cure of this is most readily accomplished by speedy and decided counter-irritation of the abdomen. The best internal medicine is acidulated decoction of bark, or infusion of calumba and nitric acid. To regulate the secretions hydr. c. creta, with Dover's powders is recommended. Wine was freely given in all cases. But little confidence is exhibited in local applications to the gangrenous parts.]—*Dublin Journal*.

## ON ŒDEMA OF THE GLOTTIS.

By M. DE LESIAUVE, Physician to the Bicêtre.

[Laryngitis œdematosa, commonly known under the name of "œdema of the glottis," consists in the infiltration of serous or sero-purulent fluid in the submucous tissue of the larynx. The disease occupies especially the borders of the glottis, and the fold of the membrane covering the arytenoid cartilages, in which situation the cellular tissue is more than ordinarily lax. It was known to the ancients, and is described by both Hippocrates and Aretæus; in later times it has occupied the attention of Bayle, Bouillaud, Cruveilhier, &c. Bayle distinguishes two forms of œdema of the glottis, one idiopathic and arising spontaneously, the other consecutive, and subordinate to some other laryngeal affection.]

M. Bouillaud denies the existence of the idiopathic form, and regards the disease in all cases as distinctly inflammatory. MM. Legroux, Trousseau, and Belloc\* partake of the same opinion, and believe that idiopathic œdema of the glottis is an exceedingly rare affection.

Cruveilhier is still more exclusive, and rejecting the term œdema of the glottis, he describes the malady under the name of "sub-mucous laryngitis." MM. Brichteau and Vidal (de Cassis), and, in fact, the majority of the pathologists of the present day, regard the disease in the same point of view, affirming that it depends in all cases upon inflammation, either primary or consecutive.

The author regards the œdema as unconnected necessarily with inflammation, and, therefore, subscribes to the opinion of Bayle, that there is one form of the disease which is idiopathic, and independent of inflammatory action. He treats of the causes of the affection in the following order:—]

*Predisposing Causes.* 1st. *Age.* With the exception of two cases, one of which was 8 years, and the other  $7\frac{1}{2}$  years old, all the instances occurring in the author's practice were adults. The majority were between the ages of 18 and 54.—2d. *Sex.* Lisfranc affirms that females are more liable to this disease than males. The author's observations falsify this: of 35 cases, 22 were men and 13 females.

—3d. *Employment.* This is mentioned in 28 cases; among these sedentary occupations predominated; they were as follows: tailor, 1; shoemakers, 2; cook, 1; washerwomen, 2; sempstresses, 2; porter, 1; soldiers, 3; students, 2; labourer, 1; stone-mason, carter, and lawyer, each 1; and lastly, hospital nurse, 1.—4th. *Season.* The influence of season is difficult to determine; notes of this were taken in only 23 cases; of these, 3 occurred in January; 1 in February; 1 in March; 3 in May; 3 in June; 2 in July; 2 in August; 3 in November; and 3 in December.—5th. *Prior Disease.* A previously deranged state of health is a marked predisposing cause of this disease. Of 37 cases, 34 occurred in the course of other ailments. Of these, 7 occurred during continued fever; 2 in bronchitis; 2 towards the close of cardiac disease, with general dropsy; 2 during the desquamation of scarlatina; 2 in articular rheumatism; 1 after confinement; 1 as a consequence of severe uterine disturbance; 9 were the subjects of habitual cough; 3 were syphilitic; and lastly, in two there was considerable swelling and disorganization of the larynx and neighbouring structures.

*Exciting Causes.* Cold is, according to all writers, the most frequent exciting cause. Of 8 cases in which the circumstance was mentioned, this agent was accused in 6. M. Lisfranc places the abuse of mercury among the causes of the disease. In one of the author's cases the affection appeared to be induced by mercurial fumigations.

*Progress of the Disease.* The duration of œdema of the

glottis is indeterminate; generally, however, it proves fatal within the first week, unless the means employed are successful. The invasion may be sudden, but usually the access of suffocative dyspnoea does not occur until some time after the patient has complained of pain in the region of the larynx. The attacks of dyspnoea are very variable, both in severity and in the period of their occurrence; in some cases the paroxysm lasts five or six minutes, or even longer. As the fatal termination approaches, the duration of the paroxysms increases, and they become more violent. Symptoms then arise which indicate imperfect aeration of the blood, and the patient dies asphyxiated. In favourable cases the intervals between the paroxysms of dyspnoea gradually become longer, and in some instances a crisis puts an end to all danger.

*Symptoms.* The symptoms chiefly arise out of the obstruction to respiration; it is seldom that fever either precedes or accompanies the disease. 1st. *Pain.* The first symptom is generally pain of variable character; the patient has the sensation of a foreign body in the larynx, which he endeavours to dislodge by violent expiratory efforts.—2d. *Cough.* To the pain is added generally, but not universally, cough. This is generally short and dry.—3d. *Alteration of the voice.* This is one of the most remarkable of the symptoms. It becomes hoarse, stifled, and gradually more and more feeble, a phenomenon which depends not merely upon a narrowing of the laryngeal canal, but upon the loss of elasticity in the tumefied parts.—4th. *Respiration* becomes more and more short and hurried, especially in the night; at length suffocative dyspnoea, with paroxysms, occurs; as was remarked by Bayle, although inspiration is difficult, expiration is comparatively easy.—5th. *Deglutition.* This function is in general unaffected; sometimes, however, it is painful, but in such cases there is usually an extension of inflammation to the pharynx.—6th. *Expectoration.* This symptom has attracted but little observation, the secretion being for the most part scanty, and easily expelled.

[With this brief account of the symptoms of the disease, the author passes on to the consideration of the anatomical appearances. Bayle has remarked the persistence of the animal heat long after death, as a phenomenon coincident with the fluidity of the blood contained in the large vessels. The same phenomenon has been noticed by the author, but he does not venture upon an explanation of it.]

The œdematous infiltration sometimes appears in the form of a round, shining, pellucid ring, which may be either tense or flaccid, and somewhat gelatiniform. The contained fluid differs considerably in different cases. It is seldom found to be clear and serous, but most commonly consists of plastic lymph, which cannot be expelled without great difficulty. The seat of the infiltration is in those parts in particular which are below the rima glottidis, such as the chordæ vocales, the arytenoidæ folds. The effusion is not, however, in all cases limited to these parts, but may extend both above and below. Thus the epiglottis on the one hand, and the mucous membrane of the upper part of the trachea on the other, may be implicated in the disease.

Independently of these lesions, which are peculiar to the disease in question, there are others which are in a measure the effects of the malady rather than of necessity connected with it. Such are the vascular injections and the ulcerations situated on the surface of the epiglottis; the erosions, ossifications, and caries of the cartilages; the abscesses, vegetations, &c., often found upon the chordæ vocales; and lastly the purulent and gangrenous deposits which are sometimes discovered among the muscles external to the larynx.

*Diagnosis.* As the author observes, the differential diagnosis of œdema of the glottis is a point of great importance. The affections most likely to be confounded with it are

acute laryngitis, croup, laryngeal phthisis, syphilitic vegetations, polypus of the larynx; aneurism of the aorta, tumors situated in the course of the trachea, enlargement of the thymus, (?) and retro-pharyngeal abscess. In addition to these, Bayle enumerates angina pectoris, and the crowing respiration of infants.—1. Acute laryngitis, and angina œdematosa, are thus distinguished by the author:—The pain in the former is severe and tearing; that of the latter is less acute, and is rather an inconvenience than actual pain; in laryngitis the expiration remains free, and those accesses of suffocation so common in the œdematous form, are not observed excepting in some few cases of unusual severity. The fever, moreover, precedes and accompanies the former, but is seldom observed in uncomplicated œdema glottidis.—2. Croup is a disease of infancy. Angina œdematosa, on the contrary, is rare at this period of life. In the former, the cough is harsh and ringing, the voice peculiar, the respiration whistling; in the latter, cough is not frequent, the voice hoarse and almost extinct, the inspirations are more convulsive, and less sonorous.—3. It is not easy to distinguish laryngeal phthisis with œdema of the glottis; the voice is hoarse and feeble in both, but in phthisis those paroxysms of suffocative dyspœna which mark the latter disease, are not observed.—Venereal affections of the throat may be recognized by their being in general accompanied by other syphilitic symptoms, as blotches, nocturnal pains, &c.—5. Polypi of the larynx are not common, but when they do occur, are difficult of diagnosis. In some cases, their true nature cannot be ascertained until after death. The same may be said of laryngeal vegetations.—6. Foreign bodies in the larynx are generally the result of an accident, the occurrence of which may be clearly ascertained; if it were not so, the violent irritation which they produce, the sensation of a body moving up and down the trachea, the constant sensation of imminent suffocation, sufficiently mark the true nature of the case.—7. Retro-pharyngeal abscess may readily be mistaken for œdema of the glottis; there is, however, one sign, namely, difficulty of swallowing, which will serve to distinguish the two affections. All doubt may, in general, be removed by careful examination of the pharynx by the finger, when the site of the abscess will be clearly ascertained.—8. The convulsive asthma of infants offers considerable analogy to the disease in question, but a mistake may be avoided by the consideration that œdema of the glottis is not a disease of infancy, and that the spasmodic asthma has periods of perfect remission, which is not the case with the former disease.

**Prognosis.** œdema of the glottis is a severe disease, but not an inevitably fatal one. The author saved fourteen cases out of forty-eight. The disease is more to be dreaded in proportion as the patient is debilitated, either by the disease, or by previous circumstances. The occurrence of inflammation is a severe complication.

**Treatment.** In the treatment of this disease, the author recognizes two periods, one in which the chances of cure are not remote, the other in which the disease must inevitably prove fatal, unless certain extreme measures are adopted. In the first period, the remedies most commonly employed, are bloodletting, emetics, purgatives, opiates, astringent gargles, &c. The author places but little confidence in bleeding, as might be expected from the foregoing views of the pathology of the disease; in this he differs from the majority of writers. Emetics are highly prized by him, as also are opiates; he also places great confidence in the production of ptyalism, by means of stimulating gargles. The action of mercury is considered by him to be too slow. The author refers also in favourable terms, to scarification of the œdematous ring, which is seen to surround the glottis, and cites the authority of M. Lisfranc in its support. The latter surgeon by this means cured six out of seven, in which it was adopted. The mode of per-

forming the operation is as follows:—"The jaws being kept apart by a suitable contrivance, a curved bistoury guarded to within a line of its point by lint, is guided to the part by the two fingers of the left hand, and a few distant scarifications are made."

The second period of the disease above alluded to, that in which all less hazardous remedies have failed, calls for the performance of the operation of tracheotomy. In order, however, that the operation should be successful, the author reasonably exclaims against its being delayed until death by asphyxia is imminent. The mode of operation preferred by the author, is the division of the crico-thyroid membrane, because by choosing this spot, we not only admit of the patient's respiring, but we are able at any subsequent time, as was pointed out by Vidal (de Cassis), to scarify the diseased parts by passing the bistoury upwards.—*Annales de Chirurgie*, 1844, '45.

[The same disease has been lately made the subject of a memoir presented to the Academy of Medicine by M. Valleix. The following remarks upon prognosis appear to us to be exceedingly judicious:]

"In pronouncing upon the degree of gravity from the symptoms observed, each case must furnish its own elements for decision. In a general manner we can only say, that if the strength yet continues, the pulse is regular and not deficient in power, if the features are not much changed, and the face is not livid; if the efforts to inspire are as yet energetic, and if the wheezing or other noise is heard in the larynx, with sufficient power to show that the air penetrates the lungs, we may have hopes that the disease will terminate favourably. If, on the other hand, the patient is prostrated; if his features are changed, his lips blue, his eyes haggard, his face cadaveric, if he has no longer the power to make effective respiratory efforts, if the inspiratory 'sifflement' have lost its energy, without respiration becoming deeper and easier, we must not allow an apparent calm to deceive us, for the patient is devoted to a speedy death."—*Notice in Medico-Chirurgical Review*, July, 1845.

## MUSCÆ VOLITANTES.

BY WM. MACKENZIE, M. D.

[*British and Foreign Medical Review*: from the *Edinburgh Medical and Surgical Journal*, July, 1845.]

The appearances seen before the eyes, known under the name of muscæ, are of two principal kinds, such as have both apparent and real motion, and such as have apparent motion only—motion depending on that of the eye itself. These two kinds of muscæ are distinguished by the names of *floating* and *fixed*, and are quite different in their nature.

**Floating muscæ.** These are the most common kinds of muscæ. Overlooking the real motion which these muscæ present, some have viewed them as subjective sensations, depending on some intrinsic change of state of the optic nervous apparatus. That they are truly objective sensations, however, occasioned by the presence of particles in the interior of the eye indeed, but extrinsic of, and in front of the retina, admits of mathematical demonstration. But more than this; the particles appear to be of normal occurrence in the eye, for the appearance of floating muscæ may in general be seen by any person, by simply looking through a small aperture in a card at the clear sky, or through the eyeglass of a compound microscope at the flame of a candle two or three feet distant.

On contemplating the spectra thus brought into view, viz.—the beaded filaments, the distinctly and indistinctly defined globules, and the watery-like filaments, called by Dr. Mackenzie, respectively, the *pearly spectrum*, the *distinct insulo-globular spectrum*, the *indistinct insulo-globular spectrum*, and the *watery spectrum*, it is observed

that they are situated in different planes, one behind the other, "that they never mingle with one another so as to change the order in which they stand before the eye, but the pearly spectrum always appears the nearest, then the sharply-defined insulo-globular, then the obscurely defined globules, and farthest-away the watery threads."

*Seat of the particles the presence of which occasions floating muscæ.* A spectrum, like opaque spots surrounded by a halo, which occasionally seem to run together into dots, which again divide and disappear, and which ascend after every nictitation, which is sometimes seen and which appears to be produced by the layer of mucus and tears on the cornea,—called therefore, by Dr. Mackenzie, *mucolachrymal muscæ*—has been confounded with floating muscæ, and the latter attributed to the same cause. That the particles which occasion floating muscæ, however, are situated in or behind the vitreous body, but in front of the retina, admits of being mathematically demonstrated, as also that they occupy different situations—those producing the pearly spectrum being the nearest to the retina, those producing the watery spectrum the farthest from the retina, the insulo-globular intermediate.

As to the nature of the particles, this admits of less satisfactory determination than their existence and seat.

The action on the light by the particles, whatever they may be, which cause muscæ, appears to be diffraction or inflexion.

Though floating muscæ thus depend on a cause extrinsic to the retina, their being ordinarily seen is owing to a morbid and excitable state of the retina,—a state, however, which has no necessary tendency to run into amaurosis.

*Fixed muscæ.* These appearances, which are in their nature amaurotic symptoms, never change their position either in regard to each other or to the optic axis. They have thus no real motion, but merely apparent motion depending on the motions of the eyeball. It often, however, requires some attention and power of observation on the part of the patient to distinguish real from apparent motion.

Fixed muscæ vary in number, size, and form. At first semi-transparent, they afterwards become black, or at least dark. They appear like blotches when the patient looks at a sheet of white paper. Fixed muscæ are owing to spots of the retina becoming insensible. The insensible spots are apt to increase in size gradually, until the whole retina is overspread with insensibility,—is amaurotic. Examples of temporary fixed spectra depending on natural states of the eye, are the vascular spectrum in Purkinje's experiment, and the phenomena of accidental colors and ocular spectra.

## MIDWIFERY.

### ON RHEUMATISM OF THE UTERUS.

By ISAAC TAYLOR, M.D., New-York.

(*American Journal of the Medical Sciences*, July, 1845.)

Rheumatism of the internal generative organs of the female appears to have been known as long back as the year 1685, when Dr. Charlton, of London, published an essay entitled "*Inquisitio de causis Catameniorum et Uteri Rheumatismo.*" Since which time it has been noticed by several writers both in this and foreign countries. The latest authors who make mention of it are M. Chereau (*Mémoire pour servir à l'étude des Maladies des Ovaires*), and Dr. Rigby (Reports on the Diseases of Females, *Med. Times*, 1844-5), who traces the connection between rheumatic affection of the ovaries and dysmenorrhœa. The disease appears most commonly to attack females towards the close of gestation, but may also appear in the unimpregnated condition. In the former case the intensity of the pain commonly gives rise to the suspicion that labour is far advanced, and from its similarity to true labour-pains can only be recognized as rheumatic by examination per vaginam. The diagnosis of the affection is thus laid down by the author:—

From *neuralgia* of the uterus it is distinguished by the fact that the former is more generally periodic in its character, the remissions being longer and more decided. The pain also is lancinating, and is chiefly confined to certain points. The patient is both able and willing to move about, the abdomen is not universally tender, but only on the points alluded to, neither is the distress of countenance so great as in the rheumatic affection. *Hysteritis* is distinguished by its access not being sudden or paroxysmal; by the existence of fever; by the pain, being confined to the hypogastrium.

Spurious labour-pains are of frequent occurrence, and often harass the patient for weeks antecedent to labour; these, however, are readily distinguished from rheumatic pains. They generally come on in the night and terminate by morning; are uncertain in their appearance, the patient is able to move in any direction, and does so, being very restless. There is no tenderness, nor anxiety of countenance.

In natural labour there is not much tenderness, except during the last stage; the patient is able to move about; the pains come on regularly-increasing in power till they reach their acme, and then declining.

Having thus briefly glanced at the various species of pain for which uterine rheumatism may be mistaken, the author gives the following observations as distinctive of the latter:—Rheumatic pains come on suddenly, soon become *expulsive*, and of many minutes' duration; remissions short; pain attacks the entire uterus, which contracts firmly, inducing the patient to scream with agony; the position of the patient is upon the *back*, *unwilling to move*; the slightest excitement of the uterus produces pain; tenderness of the abdomen is diffuse; countenance anxious from the first. When the disease terminates, it does so either by profuse perspiration or by discharge of urine.

The treatment consists in the exhibition of Dover's powder in ten or fifteen grain doses every two or three hours, with emollient applications or belladonna plaster to the abdomen. The extract of belladonna may likewise be rubbed upon the os uteri.

As the subject of rheumatism of the womb has not met with very general attention, we shall here bring before our readers one of the best accounts of the affection with which we are acquainted, extracted from a recent work by M. Cazeaux (*Traité Théorique et Pratique de l'Art de Accouchements*.)

"Rheumatism of the womb," says M. Cazeaux, "after having long attracted the attention of the German practitioners, was but little known in France, when M. Dezeimeris, in his journal (*l'Expérience*), made public a series of facts already known and published by certain German authors. About the same time M. Stolz, who had become acquainted with the labours of our neighbours on this subject, studied the affection at the Clinical Hospital at Strasburg, and communicated the results of his researches to his pupils. One of these gentlemen, Dr. Salathé, has very recently defended a thesis on this topic. To his work, and to the bibliographical researches of M. Dezeimeris, I am indebted for what I am about to say upon this disorder, which is hitherto unknown to our French nosologists.

"According to Radamel, rheumatism may attack the non-gravid womb; but our business here is to study it only as occurring in pregnant women. It may attack at any stage of gestation, and we shall, therefore, after some general considerations on the subject, point out the influence it may exert in pregnancy, in labour, and in the lying-in.

"*Causes.* All such circumstances as are favourable to the development of rheumatic affections, may likewise lead to an attack of rheumatism of the womb. Thus exposure, whether momentary or prolonged, to dampness and cold, insufficient clothing, sudden transposition from an elevated to a very low temperature, and all other causes, constitutional and atmospheric, regarded by medical authors as occasional or predisposing causes of rheumatism, may also produce that of the uterus. But, besides these general causes, there is one peculiar to the malady under consideration. I allude to the facility with which this organ, under the thinned integuments of the abdomen, feels the impression of cold in the latter months of pregnancy; the abdomen being guarded, where it incloses the uterus, by extremely light garments, which are closely in contact with it, and the antero-sacral region being often badly protected by jackets of insufficient length.

"*Symptoms.* Rheumatism of the womb often attacks persons constitutionally predisposed to nephritis. It may coexist with a general affection of the same nature; but, in a majority of cases

the uterus alone, and the adjacent structures, are the seats of disorder. It has, besides, been frequently found to be a consequence of the sudden cessation of rheumatic pain originally situated in some other part, and suddenly transposed to the womb. Whatever may be the mode of its onset, the disorder is easily recognized by very decided characteristic features. Its principal symptom is pain; where not the least violence has been offered to the organ, the womb becomes the seat of a general or partial pain, the intensity of which varies from the very slightest sense of weight up to the most insupportable agony. It may affect the uterus wholly, or only attack some particular part of it, as the orifice, the fundus, or the cervix. Where the rheumatism is fixed in the fundus only, the pain is felt in the region of the umbilicus. It is increased by pressure, by the contraction of the abdominal muscles, and sometimes by the mere weight of the clothes; the patient, often, is unable to move; if the disorder is seated lower down, there are shooting pains that run from the loins towards the pelvis, the thighs, the external genitals, and the sacral region, along the ligaments of the uterus. Lastly, when the cervix is the affected part, it may be known by the vaginal touch, which gives rise to excessive suffering. But of all the causes that serve to exacerbate the pain, none is so distressing as the incessant motions of the child.

“Like other rheumatic pains, those of the womb are movable, and are observed occasionally to pass suddenly from one portion of the organ to another. They often suddenly cease, and proceed to attack some other organ. This is most apt to happen, when the uterine rheumatism has been preceded by a fixed pain in some other part of the body, and where remedies are in use calculated to recall the pain to its original seat.

“These pains are characterized by frequent exacerbations that are variable as to their duration and intensity; according to the stage of the malady, they are succeeded by remissions, during which the patient only complains of a vague sense of weight.

“The pains of uterine rheumatism are generally attended with a degree of rectovesical tensusmus, which is violent in proportion to the severity of the pains and the approximation of the seat of the rheumatism to the lower segment of the organ. In such cases, the patient is tormented by perpetual desire to urinate. The discharge of the urine is accompanied with smarting pain, sometimes with severe pains, and in some instances the discharge cannot be effected at all; the efforts to discharge the contents of the rectum are, in some cases, equally fruitless. Most of the German authors attribute this double recto-vaginal tensusmus to the rheumatic disease, which is not always confined strictly to the uterus alone, but may likewise invade the circumjacent organs. M. Stoltz seems disposed to think that it arises from the close sympathetic relations of parts so nearly approximated to each other. Should these new pains be owing to a vesical or rectal rheumatism, those of the womb would disappear, or, at least, be diminished in degree, according to the views of M. Salathe in his Thesis.

“It is to be supposed that there is a degree of heat and swelling of the affected parts; but it is easy to perceive the difficulty of absolutely determining this point, one which we are compelled to admit from analogy.

“Pains of such violence, situated in an organ so important, must of necessity produce a pretty severe general reaction. The disorder, like most of the inflammatory diseases, generally commences with a slight rigor, which lasts fifteen or twenty minutes. The succeeding fever diminishes, or may even wholly cease during the interval between the attacks, yet while they last, it is commonly quite severe; the pulse is hard and frequent, the face flushed and excited, the tongue red and dry, the thirst urgent; the skin is hot, and the patient is often found to be extremely agitated and restless. Towards the close of the paroxysm, there frequently supervenes a copious sweat, which seems to be the harbinger of a decided improvement. After this, these general symptoms are appeased, together with the uterine pains, only to reappear with them, after the lapse of a few hours, or even of several days.

“1st. *Influence of rheumatism on the progress of pregnancy.* Where the attacks may have persisted for a length of time, or where they have been very violent, they are followed by uterine contractions; and may, in this way, bring on premature delivery. In such a case, the patient suffers from severe tensive pain. This feeling of tension is not equable, for it rises to a great height, and then subsides—to begin again and pursue the same course at different intervals. At first the womb becomes partially, and afterwards universally hardened during the pain. The cervix becomes

rigid and partially dilated, but its dilation is at first slow and difficult, and its subsequent progress does not correspond with the paca of the pains. The abortion, with which she is now menaced, is more likely to take place in the febrile than in the apyretic form of rheumatism. Indeed, abortion is not so common an occurrence in the case as might be presumed. In some instances the os uteri has been observed to dilate to the extent of two or three centimeters in diameter, the bag of waters has been formed, and afterwards withdrawn little by little, the orifice closing again, and all symptoms of labor wholly to disappear. As long as the diameter of the os uteri does not reach the extent of five centimeters, we may reasonably hope to put off the labor. Those uterine rheumatic pains may simulate labor pains, and lead to the belief that they are really labor-pains, while in fact they are not at all so. The characteristic signs of the rheumatic pains, given in the following paragraph, should serve to prevent such a mistake. It is surely to mistakes of this kind that we ought to refer those cases of supposed protracted pregnancy, and those instances of real labor, begun, and suspended again for weeks, and even for months together.”

On the 21st January, 1842, Mrs. O., aged 28, in her first pregnancy eight and a half months, was suffering with the symptoms of severe rheumatism of the womb, which had afflicted her since about the 12th of the month. On the 15th of the month, fearing that labor was begun, I examined and found the os uteri dilated fully a quarter of an inch, and the cylindrical tubule of the cervix wholly gone: but on the 29th of the month, or fourteen days later, during all which time she suffered more or less, the os uteri was not only closed up, but the cylindrical tubule of the cervix was reproduced, and continued so until her child was born, on the 16th day of February.

About three years since, a lady, a missionary, landed here from a voyage from Madras, of one hundred and twenty days. She walked a good deal on the day of her debarkation, and was seized with the signs of labor the same evening, being not quite eight months gone with child. The pains were strong; I found the os uteri an inch and a half in diameter, with the membrane tensely drawn across the opening. The labor was suspended in the night, but returned again the next afternoon; and during the twenty-four days that she continued to be annoyed, more or less, with signs of labor, the os uteri never closed, and at the end of that time she gave birth to a small, but healthy male child. I have had many occasions to see persons threatened with labor, and even precipitated into it by rheumatism of the womb.

M. Cazcaux says nothing of the diagnosis, which I regard as one among the most difficult that can be presented to the mind of a physician. To make the diagnosis between pleurisy and pleurodyne, is often a very difficult task, and one of considerable moment too; but to make out satisfactorily all the points of difference betwixt rheumatism of the womb and the acute inflammation of the organ, especially in the lying-in, is still more momentous. Rheumatism is, so far as my experience of it enables me to speak, most apt to attack very nervous and susceptible women, who have become weakened and reduced in strength, from whatever cause. In such subjects, it is highly desirable to get through the case without much resort to the stronger antiphlogistic measures; but if we mistake an intense metro-peritonitis for a case of rheumatism of the uterus, we shall abstain from any vigorous and eradivative employment of the lancet, under the vain hope of curing our patient by milder and less costly processes than the exhausting venesections which are so indispensable in the true inflammation.

I have had such great difficulty in settling, to the satisfaction of my own judgment, the diagnostic difference betwixt the two maladies, in several violent cases that have fallen under my notice, within a few years, that I should be thankful for the indication of a clear method of coming to the decision. In both maladies is the fever often violent; in rheumatismus uteri there is rheumatic neuralgia of other parts, and a preceding history, that may enlighten the practitioner to his decision. In the two diseases there is equal sensibility of the abdomen; meteorismus may accompany both. The heat of skin, and frequency and volume of the pulse, are alike in each, the decubitus similar; but the tongue is clean, so far as I have noticed it in the rheumatic case. Distracted with the uncertainty and doubt in which the case is involved, I have commonly been able to satisfy my mind by a direct appeal to the organ itself, in the operation of *touching*. In both maladies the *ouch* is at first painful; in metritis and metro-peritonitis it is so under all circumstances, but in rheumatismus uteri, though the

first touch of the womb is painful and quick, yet, when the organ is gently and slowly raised upward with the index and modius, the pain either ceases wholly, or is much mitigated, by taking off in this way the tenesmus uteri; not so in the inflammation, where every touch is more painful the more it is prolonged. I may be permitted to add, that I have heard of several cases of death from puerperal fever, where, upon an autopsy, not the least vestige of inflammation was discovered, either in the peritoneum, the uterine veins, the substance of the uterus, or any of its appendages. Is it uncharitable to suppose that such patients died, not with the malady for which they were treated, but with another disorder, to wit, rheumatism uteri, which demanded quite a different mode of cure? But I fear to extend this note too far; and therefore, M. Cazeaux proceeds as follows:

"2d. *Influence of rheumatism upon labour.* An attack of uterine rheumatism generally retards the progress of a labour, and sometimes even renders the spontaneous expulsion of the fetus wholly impossible. In addition to the general phenomena I have described, there are here some special ones to be met with. 1st. It is well known that a normal contraction does not begin to be painful until it has accomplished the greater part of its task, and is in the act of dilating and distending the os uteri: in other words, the true pains of labour do not begin until the instant at which the energy of the corpus uteri begins to overcome the resistance of the cervix. In rheumatism of the womb, on the other hand, the uterine contraction begins to be painful from the start, and before the least power is exerted on the neck, so that the cause of the pain is not in the violent distension of the orifice, but in the contraction itself, in other morbid circumstances, and in other relations of the nerves and contractile fibres of the womb. 2d. In a natural labour the contractions commence at the fundus uteri, and are directed towards the lower segment. In rheumatism, instead of commencing at the fundus, they commence at the painful point, and run towards the neck in an irregular manner. Again, the pains exist before the contractions of the womb, and, under their influence, when they are established, acquire a high degree of intensity. Their violence sometimes arrests the contractions before they have run through their ordinary cycle. They are, in such a case, brisk, short, and grow less and less frequent. 3d. Towards the close of the labor, when the action of the womb requires to be sustained by the voluntary contraction of the abdominal muscles, the woman, for fear of increasing her sufferings, refrains from contracting her abdominal muscles, which causes the labor to be excessively slow. The patient is in a state of extreme anxiety; the frequent pulse, the hot skin, the thirst, the urinary tenesmus, are much augmented. When the sufferings are too much protracted, she at last falls into a collapse (which is often a fortunate event for her) during which the pain is suspended. Under these circumstances, a profuse sweat has been observed, which has had the happiest effect on the rest of the labor. But in other instances the womb grows more and more painful; it is rather in a state of permanent contraction or fibrillar vibration, than of real contraction; the pulse becomes accelerated, and now the woman is under the influence of a metritis, which renders the labor extremely painful.

"3d. *Influence of rheumatism of the womb on the puerperal functions.* One may conceive, a priori, that uterine rheumatism, by causing irregular or partial contractions of the organ, immediately subsequent to the birth of the child, might be the occasion of much difficulty in the delivery of the placenta; but this is not the place to discuss that point.

"In health, after the delivery, [the womb contracts, and thus prevents hemorrhage. But in rheumatism, this return of the organ is very incomplete; it remains above the pubis, and is large. The after-pains are now very painful, and continue for a long time. The uterine vessels are less compressed, whence may arise very copious floodings. On the other hand, the state of suffering in which the organ is placed diminishes the lochial discharge and the secretion of milk. The persistence of abdominal pain, added to the symptoms of a general re-action, might lead to the diagnosis of a peritoneal inflammation, though none such should really exist.

"*Prognosis.* Rheumatism of the womb is not a disease capable of causing the loss of the mother's life, but from the pain it occasions, and the mistakes to which it leads, it nevertheless merits all the attention of the physician. In pregnancy it may cause abortion, and though it does not generally exhibit itself until the sixth month, it is always unfortunate for the child to be born before full term. We have already remarked upon the unavour-

able effect produced by the disorder on the course and character of labor-pains. On many occasions it has led to the necessity of artificial delivery. It may likewise render the delivery of the after-birth difficult, and derange the course of the phenomena that ought naturally to follow after the birth of the child. At this period it is often confounded with phenomena that are purely inflammatory, and is then treated by measures that are hurtful rather than beneficial.

"The disorder is for the most part less favourable when attacking at an early than a late period of gestation, because it has a more unfavourable influence on the progress of the gestation, as yet incompletely established and settled, and also because it has a tendency to be reproduced again and again, before the completion of the term, and on account of its disposition to return during the labor, which it is apt to render laborious.

"*Treatment.* 1st. During pregnancy, bloodletting, intestinal revulsives (ipecac., castor oil) baths, opiated lotions for the abdomen, anodyne potions, sudorific drinks. Such are the measures which have been most constantly successful. In cases where the affection of the uterus had followed the sudden disappearance of a rheumatic pain of some other part, revulsives should be applied to the part first affected. 2d. During labor the same means are applicable; should they fail, and the os uteri, as to its dilatation, admit of it, let the delivery be effected by means of turning, or the forceps. 3d. After delivery, sudorific drinks, anointing the abdomen with opiated ointments, baths, leeches to the vulva, and when the lochial discharge has failed, ipecac. and opium combined."

## CHEMISTRY, MATERIA MEDICA, AND PHARMACY.

### RESEARCHES UPON THE PHENOMENA THAT ATTEND THE PROJECTION OF BODIES UPON HOT SURFACES.

By M. BOUTIGNY.

Notice would have been taken of these researches before, had it not been from a desire to present a review of all his memoirs at one and the same time; the third has not yet appeared, but the results already obtained are too interesting to remain longer unnoticed.

The peculiar phenomenon that a drop of water or other liquid presents when thrown upon a red hot surface, that is to say, of assuming a spheroidal form and evaporating but slowly, has been known for a very great length of time, but has never been critically studied. The author has endeavoured to determine.

1st. The ultimate limit of temperature, at which this phenomenon takes place.

2d. The law of the evaporation of water in its spheroidal condition.

3d. The temperature of the liquids in their spheroidal state, as well as that of their vapors.

4th. If the radiated caloric traverses the spheroids or is reflected.

5th. If all bodies can pass to the spheroidal condition.

6th. If their is contact between bodies in their spheroidal condition and the surfaces upon which they are formed.

7th. If this phenomenon plays any part in the explosions (*fulminantes*) of steam boilers.

The first, concerning the limit of temperature at which the liquids become spheroidal, was determined by the following experiments among others. A drop of water was thrown into a polished silver capsule heated to 392° Fahr., then carefully transferred to an oil bath heated to 302° Fahr., and the water was found to maintain its spheroidal condition until the temperature of the bath descended to 288° Fahr.; then it moistened the surface and evaporated rapidly. This then has been found to be the lowest temperature at which the water maintains the spheroidal state. If the quantity of water consisted of several drops, its *sphericity* was lost at 308°. It has been ascertained that the lowest point at which alcohol and ether retain the same form, bears the same proportion to their boiling point, as 308° does to the point of ebullition of water,—it being 272° for alcohol, and 142° Fahr. for ether. Anhydrous sulphurous acid does not follow this law, but it is not an easy substance to experiment with; it, however, assumes and retains the spheroidal condition much below the boiling point of water, which is ascertained by placing a capsule in boiling water and letting the acid fall into it; a large quantity



may thus be made to assume the spheroidal shape, but it soon becomes hydrated in absorbing and congealing the watery vapor; thus we have the singular phenomenon of the congelation of the vapor of water in boiling water.

These facts establish that *the temperature necessary to cause a body to pass to the spherical state, is higher as its boiling point is greater.*

The next series of experiments was to ascertain the law of the evaporation of the water while in its spheroidal condition. At 392° Fahr. a grain and a half of water took 3.30 minutes to evaporate; at 752°, the same quantity of water was evaporated in 1.31 minutes; at a dull red heat, in 1.13 minutes; and at a bright red, in 0.50 minutes,—*the evaporation increasing with the temperature, which is contrary to the rule laid down by Klapproth on the subject; but the experiments of the latter were made in iron vessels, and the oxidation of the metal interfered with the accuracy of the results.* As regards the temperature of the body while in the spheroidal condition, the author has established the following general rule: *bodies in their spherical condition remain constantly at a temperature lower than that of their ebullition, without regard to the temperature of the containing vessel.*—

That of Water being . . . . .	206° Fahr.
“ Absolute alcohol, . . . . .	168° “
“ Ether, . . . . .	109° “
“ Chloric ether, . . . . .	51° “
“ Sulphurous acid, . . . . .	13° “

M. Boutigny has been the first to experiment with sulphurous acid thrown on hot surfaces, and his results are exceedingly interesting. Heat to redness a platinum capsule, and pour into it several grammes of anhydrous sulphurous acid. On observing that part of the glass from which the sulphurous acid is let drop, and opposite to the hand, it is seen to boil rapidly, which ebullition ceases instantly as it falls into the red hot capsule, and its evaporation goes on with an incredible slowness and without any signs of ebullition. If the weather be damp, the acid becomes turbid, and finally loses its transparency, then solidifies, and upon examination the solid is found composed almost entirely of water. If the weather be dry, then no residuum is left. The singular phenomenon, of boiling sulphurous acid becoming colder when thrown into a red hot capsule, is not peculiar to it, as boiling water will exhibit the same fact, falling from 212° to 206° Fahr.

If we throw distilled water drop by drop into sulphurous acid in the spheroidal condition, it becomes frozen, even if the capsule be *white hot*; or if we plunge for about a half a minute a small glass bulb containing about fifteen grains of water into sulphurous acid in the spheroidal condition,—withdraw it, and break it, and a small lump of ice will be found within. A still more striking way of making the experiment, is to place the capsule containing the sulphurous acid at the bottom of a muffle, in a furnace heated to whiteness, when if the weather be dry, the evaporation goes on slowly without any residue,—if the weather be moist, ice will remain behind. Again, if a brick be placed upon the plate of an air-pump, around it a layer of binoxide of lead to absorb the acid vapor, and upon that a piece of brick heated red hot, having a cavity that contains a small capsule, into which sulphurous acid is poured, and a vacuum be rapidly produced; the sulphurous acid which ought, so to speak, to explode, does not boil, but evaporates slowly, just as in a white hot capsule, or as at the bottom of the muffle of the furnace; and what is still more remarkable is, that on a damp day the little water that the air of the receiver contains, congeals in the spheroidal sulphurous acid: all other liquids behave in the same way in the vacuum.

The vapors arising from the spheroidal liquids have their temperature much elevated; and where water and an iron vessel is used, it is decomposed, furnishing hydrogen gas.

*Does the heat traverse the liquids in their spherical condition without combining, or is it reflected?* This is important to determine, for up to the time of M. Boutigny's experiments, it was pretty generally admitted that it did traverse them; but he has proved most clearly that the heat is reflected and not transmitted. A platinum capsule was made red hot, and by means of a support, a small glass bulb containing water was placed very near the bottom of the vessel; the radiated heat soon heated the vessel, and made the water boil; it was now withdrawn, and water poured in, when it immediately assumed the spheroidal condition, and into it was plunged the small bulb before alluded to; but no signs of ebullition manifested themselves, showing clearly that no calorific rays penetrated the spheroid of water. Not is this result at all affected, if small particles of wood, sand, or iron be mixed with

the water and the iron, although so much heavier than the water, will not touch the capsule, but remains in the spheroid until its complete evaporation. If lampblack be mixed with the water, and into it the small bulb of water be plunged, no difference is seen from the former case.

*Can all bodies pass to this spheroidal condition?* From the author's experiments, he concludes that all bodies can pass to this state.

The experiment with iodine is brilliant, and can be easily repeated in a lecture room. Throw in about fifteen grains of iodine into a capsule (almost flat) heated to redness, when it at once assumes the spheroidal condition, and is surrounded with rare and transparent vapors of iodine; withdraw the source of heat, and in a moment after the iodine passes to its ordinary liquid state, moistens the capsule, boils with violence, and gives rise to an abundance of most beautiful vapors. This gives a good idea of the difference existing between the evaporation of a body in its spheroidal condition, and the evaporation of the same body by ebullition.

Experiments were made to ascertain whether the heated surface was touched or not. It is discovered that *the surface is not touched by the bodies in the spheroidal condition.* This was proved in various ways, among others, by placing a drop of water upon an almost flat capsule, (heated,) and on looking at a lighted candle placed at one side of the capsule, it can be seen perfectly without interruption between the capsule and spheroid.—*Ann. de Chim. et de Phys., vol. ix, p. 350, and vol. xi, p. 16.—From American Journal of Science and Arts, March No.*

#### TABLE OF FRENCH MEASURES.

The following table of French measures is taken from Dr. Walshe's translation of Louis on "Phthisis."

The French line =  $\frac{1}{12}$  of the English inch.

Measures of length.	English Inches.
Meter . . . . .	39.370
Decimeter . . . . .	3.937
Centimeter . . . . .	0.393
Millimeter . . . . .	0.039
Measures of weight.	Grains Troy.
Gramme . . . . .	15.438
Decigramme . . . . .	1.543
Centigramme . . . . .	0.154
Measures of capacity.	English pints.
Litre . . . . .	1.760

—Ranking's Abstract.

## British American Journal.

MONTREAL, MARCH 15TH, 1846.

### THE MEDICAL BILL.

In the course of a few days the Provincial Legislature will meet in session, and we have good reason for believing that a Medical Bill will be introduced as a Government measure. The complete inadequacy of the Bill introduced at the last session to meet the wants of the Profession at large, whether in Canada East or West, has been fully exposed in previous numbers of this Journal. Of what nature the precise tenor of the new one may be, we are unaware, but unless modified in some shape or other in accordance with our suggestions, which we have endeavoured to predicate on the general good, it will prove itself a very unsatisfactory one. Of one thing our readers may keep themselves assured, that we will advise them of the advances made in the measure, which in its consequences affects the

general welfare of the profession. We publish below, an address extensively circulated for signature among the profession in Canada West, with what success we know not. Much as we regret that *any circumstances* should have arisen to induce our Western brethren to seek a Medical Bill of their own, we yet cannot see why their interests should be so diverse from ours in Eastern Canada as to render an event of that kind imperative.

PETITION

To the Honorable the Legislative Assembly of the Province of Canada, in Parliament Assembled:—

The Petition of the undersigned Medical Practitioners of Canada West, humbly sheweth:—That it is highly desirable, that those persons who have the care of the health and lives of their fellow men, should, by their education, acquirements, and skill, be in every way worthy of so important a trust, that the majority of the public cannot reasonably be expected to justly estimate the qualifications of those who tender them their Medical services; consequently, most civilized nations have endeavored to establish such regulations as will secure to the afflicted, the services of educated men, worthy of confidence, and protect them from ignorant pretenders to Medical skill.

That your Petitioners have found, that the law now established with this view, has proved ineffectual for the object apparently designed; as empiricism flourishes to an extraordinary extent—to the discouragement of your petitioners, and the serious detriment and danger of the community. Men of skill and eminence are deterred from settling in the province; and several such now residing here, have been induced to relinquish their profession, to follow other vocations better calculated to ensure them a competence, and to advance the interests of their families; moreover, no sufficient inducement is held out to young men of talent, to adopt a profession, in which there is so slight a prospect of obtaining an adequate return for the necessary, laborious, and expensive study required.

Your Petitioners are of opinion, that the act regulating the practice of physic, surgery, and midwifery, (8th Geo. IV, c. iii.) is inoperative, from two causes—one of which is, that no prosecution can be commenced one year after the offence. Parties transgressing, can thus readily evade the penalties of the law, by refraining from claims for their illegal practice, until more than that period has elapsed. Another, and probably the principal reason of the inadequacy of the law, is, that although the whole community suffer from infractions of it, they have been in the habit of looking to the regularly qualified practitioners to enforce its enactments; and it will not seem surprising that but few have been found willing to endanger their own prospects, by incurring the odium attached to the capacity of an informer.

Your Petitioners, therefore, deeply impressed with the uncertainty of individual action in promoting the interests both of the public and of the medical profession, beseech your Honourable House to take into favorable consideration, some measure, to unite into one body, the whole of the medical practitioners in Canada West. And as a preliminary step to establish *Medical Societies* in each district—to which it shall be imperative on all medical practitioners to attach themselves in their respective districts.

Your Petitioners pray, that these District Medical Associations shall be authorized to make By-laws for the management of all local matters connected with the profession—such as their tariff of fees, the suppression of illicit practice, and other objects calculated to advance the combined interests of themselves and the public.

Your Petitioners further consider it desirable, that, for the examination of candidates, granting licenses, the expulsion or suspension of unworthy members, and other purposes, there should be established a *General Provincial Medical Board or Council*, possessing the confidence of their brethren in the profession. They, therefore, humbly pray that each District Society shall be authorized to nominate to that honorable office, two of its members, subject to the approval of the Governor General, and to be annually re-elected.

A *Provincial Medical Society, or Board*, so constituted, would unite in one common centre, the views and wishes of the whole profession; and it is earnestly hoped, that it would confer upon

the practitioners of medicine, the independence, respectability, and advantages, which the incorporation of the Law Society has obtained for its members, and thus ultimately raise the medical profession to that position in public regard to which it is, by its utility and importance, so justly entitled.

Your Petitioners are the more emboldened in thus beseeching the intervention of your Honourable House, that they feel that, in complying with their requests, you will not only cheer and encourage them in the performance of their benevolent and most laborious duties, but you will confer an immediate and permanent benefit on the country.

And your Petitioners will ever pray.

CORRESPONDENCE.

(To the Editors of the British American Journal of Medical Science.)

GENTLEMEN.—I have read with much pleasure, the comments you offer, in the last number of your valuable Journal, on Professional Etiquette; and trust you will extend them in future numbers, as such editorial castigations maintain a wholesome discipline in the *corps Medical*, and serve as a guide and caution to what Percival in his medical Ethics terms, the "Professional busy-body."

I am led to make the above remarks from the unbecoming conduct I experienced from a medical man who was called to see a patient under my care, and who without the slightest allusion to the practitioner he was told was in attendance, suggested a change of treatment, thereby succeeding in what no doubt was his *only* object—getting the patient for himself.

Is not such conduct unbecoming the dignity of a member of a liberal profession? And can we not with propriety assume that the person alluded to, is another proof of the truth of the remark of Lord Bacon, that the man of science is always a man of humility, and respects the feelings and opinions of others—and we might add that where this humility does not exist, we find ignorance and presumption hand in hand.

The position of the person referred to is so high, that he was about the last man from whom such unprofessional conduct could have been expected—and as there are rumours of such things having before occurred in Montreal, it is time that a stop should be put to them, and should any such "busybody" cross my path again, I will most assuredly forward you his name to be placed No. 1, on your list of the "Proscribed."

Your obedient servant,

M. D.

Montreal, Feb. 28, 1846.

Our Correspondent has given us the name of the party alluded to in the above letter, and with him we cannot but express our surprise at his conduct in the case, the particulars of which he has detailed to us.—(Eds.)

OBITUARY.

Died, of Phthisis Pulmonalis, on Saturday morning last, the 14th inst., William Macnider, M.D., at the early age of 31 years. In the year 1836, Dr. Macnider graduated at the University of Edinburgh, after having previously become a Licentiate of the Royal College of Surgeons of the same place. He returned shortly afterwards to this his native city, and entered upon his duties as a practitioner. His career was for several years, the same arduous and difficult one that attends the path of almost every young physician. Possessed of talents of high order, and steady perseverance, with

studious habits, these difficulties he had gradually surmounted, and was, at the period of his decease, in the enjoyment of an excellent practice. In 1842, assisted by some influential friends, he succeeded in establishing the Montreal Lying-in-Hospital, an institution the first of the kind founded in this Province, an honour to its founder, and which has effected much good. In the discharge of the duties which devolved upon him as its attending Physician he was unremitting. In 1843, he was elected a Member of the Medical Board of the Montreal General Hospital, and delivered a course of lectures on Midwifery, the same winter, in the "School of Medicine" of this city. His physical powers being inadequate to carry him through this additional labour, he was compelled to intermit it, that course having been his only one. In 1844, upon the retirement of the then Physician to the Ladies' Benevolent Institution of this city, Dr. Macnider was, at his special request, elected in his place, the duties of which he continued to discharge until his health becoming so much impaired from the inroads of his disease, that he was obliged to discontinue. His was a heart that warmly responded to the calls of the suffering poor, who have in him lost a friend that deeply sympathized with them. His benevolence was unbounded and active. As a friend, he was warm and sincere; as a Christian, humble and devout. His "latter end" was emphatically one of perfect "peace."

Remained, . . . . .	116	Discharged, . . . . .	186
Admitted, . . . . .	176	Died, . . . . .	2
		Remaining, . . . . .	104
Total treated, . . . . .	292	Total, . . . . .	292

IN-DOOR PATIENTS TREATED.		OUT-DOOR PATIENTS TREATED.	
Belonging to Montreal, . . . . .	158	Belonging to Montreal, . . . . .	424
Immigrants, . . . . .	17	Immigrants, . . . . .	19
Seamen, . . . . .	1	Seamen . . . . .	1
Total, . . . . .	176	Total, . . . . .	444
Males, . . . . .	97	Males, . . . . .	250
Females, . . . . .	79	Females, . . . . .	194
Total, . . . . .	176	Total, . . . . .	444

ALEXANDER LONG, M.D., House Surgeon.

NOTICE TO CORRESPONDENTS.

The paper on "Purpura," from Dr. Grasset, Toronto, and Dr. Reynolds' paper on "A case of Poisoning by Camphor," are still excluded from want of room.

We acknowledge the receipt from Dr. Clarke, Chateau Richer, of an Essay on "Le Charbon," read before the Quebec Medical Society, June 4, 1827; and from Dr. Craigie, Hamilton, a paper "On the mean results of Meteorological Observations at Ancaster, C. W., from January 1835, to January 1846." Judging from the abrupt termination of the M.S. sent, (ending in the middle of a sentence,) we conclude that the whole has not been forwarded: and request Dr. Craigie's attention to the circumstance, which appears to us to be an oversight.

We take this opportunity of correcting an unintentional error in our notice of the Brandford action for Slunder, in the November number. The defendant's name should have been Dr. Peter Marter, instead of Dr. Peter Mercer.

The title page and index to the first volume of this Journal, which is now completed, will be forwarded to Subscribers with the ensuing or the May number.

REPORT OF THE MONTREAL GENERAL HOSPITAL FOR JANUARY AND FEBRUARY, 1846.

Dr. CRAWFORD, } Attending Medical Officers.  
Dr. SEWELL, }

DISEASES AND ACCIDENTS.

Abscessus, . . . . .	5	Morbus Coxarius, . . . . .	1
Ambustio, . . . . .	1	Necrosis, . . . . .	1
Anasarca, . . . . .	2	Ophthalmia, . . . . .	3
Bronchitis, . . . . .	15	Porrigo, . . . . .	1
Catarrhus Senitis, . . . . .	2	Paralysis, . . . . .	4
Contusio, . . . . .	7	Pleuritis, . . . . .	1
Cynanche, . . . . .	4	Pleurodynia, . . . . .	3
Delirium Tremens, . . . . .	1	— Pneumonia, . . . . .	1
Diarrhoea, . . . . .	1	Phthisis, . . . . .	1
Dislocatio, . . . . .	1	Phagadæna, . . . . .	1
Dyspepsia, . . . . .	3	Pneumonia, . . . . .	2
Dysenteria, . . . . .	3	Psoriasis, . . . . .	1
Dysuria, . . . . .	1	Rheumatismus, . . . . .	8
Erysipelas, . . . . .	3	Rubeola, . . . . .	7
Febris Com. Con., . . . . .	28	Rupia, . . . . .	1
" Typhoides, . . . . .	4	Sarcocelo, . . . . .	1
" Intermittens, . . . . .	2	Scarlatina, . . . . .	1
Fractura, . . . . .	4	Sciatica, . . . . .	1
Gelatio, . . . . .	4	Scirrhus, . . . . .	1
Gonorrhœa, . . . . .	2	Scrofula, . . . . .	1
Hematemesia, . . . . .	1	Stomatitis, . . . . .	1
Hemiplegia, . . . . .	1	Stricture, . . . . .	1
Hemoptysis, . . . . .	1	Synovitis, . . . . .	1
Hysteria, . . . . .	2	Syphilis, . . . . .	8
Icterus, . . . . .	2	Ulcus, . . . . .	17
Iritis, . . . . .	1	Ulceration of Cartilages, . . . . .	1
Mania, . . . . .	1	Variola, . . . . .	2
Morbus Cordis, . . . . .	2		

Total, 176

BOOKS, &c. RECEIVED

The half yearly abstract of the Medical Sciences, edited by W. H. Ranking, M.D., Cantab. Part 2, Vol. 1. July to December 1845. American Edition. New York, 1846.  
Boston Medical and Surgical Journal, Nos. 3, 4, 5, 6.  
Medical News and Library, Philadelphia, Feb. and March No  
Missouri Medical and Surgical Journal, Vol. 1, Nos. 1 and 2 . . .  
Provincial Medical and Surgical Journal, London, Vol. 3, Nos. 1 and 4.  
Dublin Medical Press, Dublin, Nos. 366, '67, '68, '69.  
Southern Medical and Surgical Journal, Feb. and March Nos.  
Lecture on Medical obedience, introductory to the course of Theory and Practice of Medicine, Pennsylvania College, Philadelphia, by W. Darrah, M.D., November 1845.  
St. Louis Medical and Surgical Journal, February.  
Report of the Pennsylvania Hospital for the Insane, for 1845.  
Valedictory Address, delivered before the Baltimore College of Dental Surgery, at its sixth annual commencement, by C. A., Harris, M.D., D.D.S. and P., Baltimore, 1846.  
American Journal of Science and Arts, March No.  
Buffalo Medical Journal, March.  
New York Journal of Medicine and the collateral Sciences March.  
New York Medical and Surgical Reporter, No. 11.

BILL OF MORTALITY for the CITY of MONTREAL, for the month ending FEBRUARY 28, 1846.

DISEASES	Male.	Female.	Total.	Under 1.	1 & under 3	3 — 5	5 — 10	10 — 15	15 — 25	25 — 35	35 — 45	45 — 55	55 — 75	75 upwards
EPIDEMIC OR INFECTIOUS,.....	Measles,.....	26	39	8	17	9	.	1	3	1				
	Scarlatina,.....	1	1	1	.	1	.	.	.	.				
	Whooping Cough,.....	1	1	2	1	.	.	.	.	.				
	Fever,.....	29	23	52	13	18	8	5	.	2	3		2	1
DISEASES OF BRAIN AND NERVOUS SYSTEM,.....	Water on the Brain	2	0	2	.	1	1	.	.	.				
	Dentition,.....	2	1	3	2	1	.	.	.	.				
	Paralysis.....	.	1	1	.	.	.	1	.	.				
	Convulsions,.....	1	0	1	1	.	.	.	.	.				
DISEASES OF THE RESPIRATORY ORGANS,.....	Consumption,.....	24	37	61	11	7	3	1	9	12	9	3	6	
	Croup,.....	6	3	9	6	2	1	.	.	.				
	Bronchitis,.....	1	1	2	2	.	.	.	.	.				
DISEASES OF ABDOMINAL VISCERA, AND CIRCULATING SYSTEM,.....	Dropsy,.....	1	1	2	.	.	.	1	.	.			1	
	Liver Complaint(?),.....	1	.	1	.	.	.	.	.	.	1	.		
	Cancer of Stomach	1	.	1	.	.	.	.	.	.	.	.		
	Age or Infirmitv,.....	2	3	5	.	.	.	.	.	.	.	.	2	3
OTHER DISEASES, AND DISEASES NOT SPECIALLY DESIGNATED,.....	Inflammation,.....	2	5	7	5	1	.	.	.	1	.	.		
	Child-birth,.....	.	1	1	.	.	.	.	.	1	.	.		
	Sudden & Accid'tal	3	.	3	1	.	.	.	1	1	.	.		
	Still-born,.....	4	3	7	7	.	.	.	.	.	.	.		
	Unknown,.....	1	2	3	1	.	.	.	.	1	1	.		
Total,.....	94	109	203	58	46	21	9	4	16	21	10	5	9	4

MONTHLY METEOROLOGICAL REGISTER AT MONTREAL FOR FEBRUARY, 1846.

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.	3 P.M.	10 P.M.
1,	-12	+ 6	- 2	- 3.	30.50	30.42	30.35	30.42		Fair	Fair	Fair
2,	+ 4	" 19	+21	+11.5	30.33	30.28	30.18	30.26		Cloudy	Fair	Fair
3,	" 23	" 31	" 34	" 26.5	30.00	29.96	29.85	29.94		Cloudy	Rain	Rain
4,	" 25	" 31	" 28	" 26.	29.97	29.91	29.78	29.89		Fair	Fair	Fair
5,	" 31	" 37	" 23	" 34.	29.59	29.76	30.02	29.79		Fair	Snow	Fair
6,	" 23	" 24	" 19	" 23.5	30.10	30.08	30.04	30.07		Fair	Fair	Fair
7,	" 16	" 32	" 34	" 21.	29.75	29.59	29.34	29.56		Fair	Fair	Fair
8,	" 0	" 7	" 2	" 3.5	29.80	29.82	29.92	29.85		Fair	Fair	Fair
9,	- 4	" 10	- 3	" 3.	29.99	30.10	30.22	30.10		Fair	Fair	Fair
10,	-10	" 5	+ 2	- 2.5	30.22	30.16	30.12	30.17		Fair	Fair	Fair
11,	-11	" 8	" 2	- 1.5	30.09	30.06	30.00	30.05		Fair	Fair	Fair
12,	- 8	" 12	" 7	+ 2.	30.24	30.28	30.17	30.23		Fair	Fair	Fair
13,	+ 4	" 20	" 10	" 12.	30.12	30.12	30.16	30.13		Fair	Fair	Fair
14,	" 0	" 16	" 10	" 8.	30.24	30.18	30.07	30.16		Fair	Fair	Fair
15,	" 2	" 10	" 5	" 6.	29.83	29.79	29.92	29.83		Fair	Fair	Fair
16,	- 2	" 17	" 8	" 7.5	30.04	30.03	30.09	30.02		Fair	Fair	Fair
17,	+ 3	" 21	" 7	" 12.	30.10	30.14	30.22	30.15		Fair	Fair	Fair
18,	- 1	" 20	" 6	" 9.5	30.29	30.30	30.33	30.31		Fair	Fair	Fair
19,	- 8	" 19	" 8	" 5.	30.40	30.32	30.16	30.29		Fair	Fair	Fair
20,	+ 8	" 21	" 15	" 14.5	29.86	29.70	29.44	29.67		Fair	Fair	Fair
21,	" 17	" 30	" 26	" 23.5	29.40	29.47	29.56	29.47		Snow	Snow	Snow
22,	" 22	" 33	" 20	" 27.5	29.66	29.60	29.66	29.64		Fair	Fair	Fair
23,	" 14	" 22	" 18	" 18.	29.78	29.76	29.78	29.77		Fair	Fair	Fair
24,	" 16	" 28	" 14	" 22.	29.95	30.00	30.14	30.03		Fair	Fair	Fair
25,	" 8	" 11	" 7	" 9.5	30.23	30.19	30.21	30.21		Fair	Fair	Fair
26,	- 3	" 12	- 3	" 4.5	30.28	30.33	30.43	30.35		Fair	Fair	Fair
27,	- 8	" 10	+ 6	" 1.	30.48	30.43	30.33	30.41		Fair	Fair	Fair
28,	+ 5	" 18	" 2	" 11.5	30.23	30.29	30.26	30.26		Fair	Fair	Fair

ⓘ Omitted in consequence of the severe illness of the gentleman taking these observations.

THERM. { Max. Temp., +37° on the 5th.  
 { Min. " -12° " 1st.  
 Mean of the Month, +11° 32

BAROMETER, { Maximum, 30.50 Inches on the 1st.  
 { Minimum, 29.34 " " 7th.  
 Mean of Month, +30.038 Inches.

MONTHLY METEOROLOGICAL REGISTER AT H. M. MAGNETICAL OBSERVATORY, TORONTO, C. W.—FEBRUARY, 1846.

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

DAY.	Barometer at Temp. of 32°.			Tension of Vapour.			Temperature of the Air.			Humidity of the Air.			Wind.			Snow.	WEATHER.
	7 A.M.	3 P.M.	10 P.M.	7 A.M.	10 P.M.	Mean.	7 A.M.	3 P.M.	10 P.M.	7 A.M.	3 P.M.	10 P.M.	7 A.M.	3 P.M.	10 P.M.		
1,	29.948	29.883	29.692	—	0.65	0.83	—	1.41	17.0	—	93	84	—	—	—	0.2	Clouded all day. Slight snow 9 a.m.
2,	29.907	29.822	29.637	—	1.06	1.30	—	21.6	29.8	—	89	78	—	—	—	—	Clouded all day. Slight snow 9 a.m.
3,	29.578	29.560	29.692	—	1.66	1.95	—	30.4	40.6	35.0	98	78	—	—	—	—	Densely overcast.
4,	29.788	29.606	29.878	—	1.06	1.40	—	28.8	35.6	39.2	66	68	—	—	—	—	Overcast. Halo round moon 7 p.m.
5,	29.411	29.615	29.761	—	1.41	1.30	—	35.8	36.9	31.2	67	70	—	—	—	—	Gently cloudy, halo 7 p.m., wind fresh p.m.
6,	29.806	29.673	29.516	—	1.21	1.64	—	24.4	38.6	33.9	90	70	—	—	—	—	Generally cloudy, wind brisk p.m.
7,	29.251	29.031	29.254	—	1.35	1.76	—	24.6	37.3	30.1	90	80	—	—	—	—	Clear a.m., rem't day detached clouds
8,	29.663	29.596	29.596	—	0.50	0.95	—	18.0	—	—	68	92	—	—	—	—	Clear a.m., wind high & sq'ly fr; 9 p.m. detached clouds.
9,	29.865	29.787	29.860	—	0.64	0.49	—	13.2	15.1	8.0	76	54	—	—	—	—	Clouded a.m. Mostly clear p.m.
10,	29.885	29.621	29.514	—	0.48	1.01	—	4.4	25.8	20.1	83	75	—	—	—	—	Clear to 8 a.m., sn. 10 a.m. & 6 p.m., to 0.
11,	29.409	29.433	29.673	—	1.21	0.96	—	0.84	18.8	13.4	95	91	—	—	—	—	Snowing constantly to 8 p.m.
12,	29.857	29.891	29.919	—	1.01	0.90	—	5.3	22.0	18.1	88	88	—	—	—	—	Generally cloudy.
13,	29.865	29.795	29.813	—	1.20	1.48	—	24.7	35.0	29.6	88	73	—	—	—	—	Generally cloudy.
14,	29.729	29.592	29.376	—	1.02	1.60	—	18.6	33.3	29.6	97	84	—	—	—	—	Halo 6 a.m., cloud all day, snow 10 p.m.
15,	29.250	29.369	29.369	—	1.15	1.21	—	20.6	28.5	—	100	95	—	—	—	—	Halo 6 a.m., cloud all day, snow 10 p.m.
16,	29.560	29.468	29.551	—	1.08	1.30	—	25.6	25.6	21.4	92	92	—	—	—	—	Snowing constantly to 4 p.m.
17,	29.680	29.732	29.827	—	1.01	1.54	—	11.5	19.4	30.6	92	90	—	—	—	—	Overcast all day, sn. fr. noon to 11 p.m.
18,	29.923	29.965	29.964	—	0.67	1.11	—	0.83	11.6	27.2	10.6	15.5	—	—	—	—	Drizzle, snowing slightly from 2 to 9 p.m.
19,	29.880	29.682	29.446	—	0.67	1.10	—	11.6	11.6	26.8	83	74	—	—	—	—	Light clouds a.m., clear and fine p.m.
20,	29.086	28.993	28.964	—	1.31	1.61	—	13.7	24.6	30.1	97	96	—	—	—	—	Clear to 6 a.m., day cloudy, sn. fr. 8 p.m.
21,	28.988	29.066	29.210	—	1.28	1.39	—	26.0	29.4	21.0	88	85	—	—	—	—	Snow drift to 11 a.m., slight sn., rem't
22,	29.299	29.394	29.394	—	1.10	1.27	—	21.1	24.7	—	94	93	—	—	—	—	Mostly cloudy, slight sn., clear fr. 7 p.m.
23,	29.448	29.405	29.531	—	0.82	1.10	—	15.6	24.9	17.4	88	80	—	—	—	—	Overcast to 4 p.m., clear from 7 p.m.
24,	29.607	29.732	29.891	—	0.60	0.89	—	12.0	20.0	5.0	75	80	—	—	—	—	Gently clear, slight snow occasionally.
25,	29.930	29.876	29.981	—	0.45	0.86	—	1.8	16.6	6.2	87	89	—	—	—	—	Mostly cloudy. Slight snow p.m.
26,	30.143	30.198	30.255	—	0.54	—	—	10.8	7.2	10.0	83	83	—	—	—	—	Mostly clear.
27,	30.218	30.046	29.883	—	0.77	0.88	—	12.4	15.0	10.8	87	87	—	—	—	—	Clear to 6 p.m., day overcast, slight sn. pm
28,	29.727	29.694	29.781	—	0.68	0.84	—	11.6	19.2	15.9	86	78	—	—	—	—	Densely overcast. Occasionally slight snow.
Mean	29.678	29.634	29.652	—	29.662	—	—	15.7	26.7	20.3	—	—	—	—	—	—	Inches 46.1

Highest Barometer, .. .. . 30.285 at 10 p.m. of 29th.  
 Lowest do. .. .. . 29.660 at 6 p.m. of 20th.  
 Highest Temperature, .. .. . 41° 9 on 3rd, p.m.  
 Lowest do. .. .. . 16° 7 on 27th, a.m.  
 Mean Daily Range, .. .. . 18° 98  
 Extreme Daily Range, .. .. . 24° 2.6 on 27th, a.m. to p.m.

Proportion of Wind from each Quarter—  
 N.W. .. .. . 110  
 S.W. .. .. . 105  
 S.E. .. .. . 47  
 N.E. .. .. . 92  
 .. .. . 222  
 Proportion of Calm, .. .. . 222

Mean Temp. for Feb.  
 1840 .. .. . 29.0  
 1841 .. .. . 27.9  
 1842 .. .. . 27.9  
 1843 .. .. . 15.9  
 1844 .. .. . 27.7  
 1845 .. .. . 28.4  
 1846 .. .. . 29.8

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