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[No. 1:

**Aneurism of the Arteria Innominata and Arch of the Aorta:  
Ligature of the Common Carotid:**

*To the Editor of the British American Journal.*

Montreal, 7th April, 1845.

MY DEAR SIR,—You will oblige me much by giving insertion in the forthcoming number of your journal to the following case of Aneurism. Yours very truly,

GEO. W. CAMPBELL, M. D.

*Lecturer on Surgery M<sup>c</sup>Gill College.*

John Smith, aged forty-eight called upon me on the 22nd February last, with a pulsating tumour occupying the lower portion of the right side of the neck, of the origin of which he gave the following account: He stated that about a fortnight previously when in the act of splitting a piece of firewood; the axe being raised at the full stretch of his arms above his head, he felt something give way in the lower part of his neck, accompanied by a sudden sensation of gasping for breath, which lasted only a few seconds; upon putting his hand upon the right side of his neck, he discovered a small tumour about the size of a marble immediately above the sterno-clavicular articulation, pulsating strongly, and so moveable, that he could get his fingers round it and push it backwards and forwards under the skin. Not deeming it of any importance he paid little attention to it, and as it gave him no inconvenience, and was unattended with pain, he was only induced to ask medical advice on account of the great rapidity of its growth.

Smith was a tall powerfully built man of a sanguineous temperament, had served for twenty-four years in the King's Dragoon Guards, had left the service two years previously upon the return of the regiment to England, and for some years past had been greatly addicted to the intemperate use of ardent spirits. He had complained for several years of occasional severe pain in the right shoulder and side of the neck and head; which he thought was rheumatism, but with the exception of these occasional attacks, was strong and healthy, was never absent from parade, and had no difficulty in performing his military duties, while in the service; or in attending to his work as an ostler in a livery stable, since he left it. Had no palpitation, cough, nor shortness of breath. When I first

saw him, the tumour had attained the size of a large egg; was visible both upon the tracheal, and external margin of the sterno-cleido-mastoid muscle, measuring  $3\frac{1}{2}$  inches in its longest diameter, which was transverse to the axis of the neck, and extending vertically above the sternum and clavicle for  $2\frac{1}{2}$  inches; it could be followed into the chest, and was felt pulsating as low as the junction of the cartilage of the second rib with the sternum: The tumour was capable of being almost entirely dispersed by compression, the pulsation being equable all over its surface, apparently increasing in proportion to the pressure employed; at each impulse strongly elevating the fingers, and whenever the pressure was removed, instantly regaining its original dimensions. Upon firmly compressing the carotid artery of the right side, against the transverse processes of the cervical vertebrae, the pulsation in the tumour was arrested, and it became soft and flaccid. A similar effect was produced; but not in so marked a degree, by compressing the subclavian over the first rib. The pulse was equally good at the wrist and in the branches of the carotid on either side. Upon percussing the chest, the inner portion of the right sub-clavicular region was found to sound dull, and upon the application of the stethoscope, a distinct pulsation was discovered in that situation, gradually losing its intensity as the heart was approached. This pulsation gave a strong impulse; was double, was not attended by any thrill, and only a very slight bruit de soufflet; it might be compared to a heart beating strongly at the top and to the right side of the sternum. Neither bruit nor thrill was discoverable in the tumour above the clavicle.

The patient was examined by several of my professional friends: they expressed a pretty unanimous opinion that the case was one of Aneurism of the Innominata, and that it was one, the history and symptoms of which justified an operation, but advised in the first instance to try the effect of a restricted diet and the exhibition of digitalis with avoidance of all exercise; this plan was persevered in very strictly for a fortnight, at the end of which period, although the general force of the circulation was much diminished, and the man had become weak and pale, the tumour still continued to increase slowly in bulk, and its parietes, both external and internal to the sterno mas-

toid muscle, became very thin. As the Aneurism, if left to itself, would evidently very shortly prove fatal, and as by its extension both in an upward and outward direction, it was daily adding to the difficulty, and diminishing the prospect of success from an operation upon either of the great arterial trunks, it was resolved to give the patient the chance afforded by the operation upon the distal side of the tumour, so ably advocated by Mr. Wardrop. Upon frequent trials, it was found that compression of the carotid had a more marked effect upon the circulation within the aneurism, than compression of the subclavian, it was therefore selected as the vessel in this case from the ligature of which the greatest benefit might be expected.

*Operation.*—The operation was performed on the 8th March at eleven o'clock in the forenoon. I was assisted in it by Drs. Holmes & McCulloch, and from fifteen to twenty of my professional friends favored me with their presence. The patient was placed upon a table in the recumbent posture, with the head and shoulders slightly elevated, the neck extended by raising the chin, and inclining the face towards the opposite side. An incision about three inches long was made through the skin and superficial fascia, along the anterior border of the sterno-mastoid muscle, extending from a little below the angle of the jaw, to the superior boundary of the tumour, which was upon a level with the cricoid cartilage; the platysma and deep fascia were divided to the same extent upon the director, the sterno-mastoid and omo-hyoid, which were now distinctly brought into view, were respectively drawn outwards and inwards, by broad retractors, and a little further division of the cellular tissue by a silver fruit knife, and the finger nail, exposed the sheath of the vessels. Owing to the muscularity of the neck the artery lay at a considerable depth from the surface; the integuments being borne off the sheath of the vessels by the strong contraction of the mastoid muscle, a very large vein was seen crossing the artery, apparently coming from the thyroid body, and passing obliquely outwards and downwards to empty itself into the deep jugular; the vein being drawn upwards, and the sheath being opened, an aneurismal needle, armed with a well waxed single silk ligature, was passed round the artery; the vagus nerve was seen external to the artery, but the deep jugular vein did not come into view. The artery was raised a little from its sheath upon the ligature, to ascertain the condition of its coats, which were found very sound and healthy; the ligature was then gradually tightened and firmly secured by a common double knot, one end of it being afterwards cut off. Immediately upon tightening the ligature, the aneurismal swelling completely disappeared, and no trace of it could be discovered for several minutes; after a short time, however, it

began gradually to return, but it did not nearly regain its original size, measuring only 2 inches in the transverse diameter, and rising little more than an inch above the sternum; the pulsation was by no means so strong, and it was much softer, and more compressible than formerly. The pulse before the operation was 96, during the operation it sank to 88 and became very small, immediately afterwards it again rose to 96; little or no blood was lost. Immediately upon tightening the ligature, the patient complained of severe pain in the side of the head, the pupil of the opposite eye became slightly dilated, he felt for a few moments bewildered and confused, and could with difficulty be induced to remain quiet. The wound in the integuments was brought together by the interrupted suture, a compress and bandage were applied over the aneurism, and the patient was put to bed with his head and shoulders elevated. The liniment. Sapon. C. Opio. was ordered to be applied hot, to the side of his head, where he complained of the pain; the digitalis was to be continued, and the diet was restricted to toast and gruel in small quantities.

3 o'clock, P. M.—Upon visiting my patient three hours after the operation, I found that the pulse had risen to 120, was rather sharp and full, he was greatly troubled with a teasing cough, and still complained much of the pain in the right side of the head; venesection was employed to the extent of 14 ounces, and small doses of Nitræ Potassæ with Tartar. Antimoniacæ were ordered to be administered every hour.

10 o'clock, P. M.—Pain of head completely removed by bleeding. Pulse 116 soft, skin moist, cough not so troublesome. Tongue clean. Bowels not opened since last evening. Gave 5 grains calomel with 10 grains cathartic extract—also 50 drops of the solution of morphia to procure sleep.

March 9th, 10 o'clock, A. M.—Passed a quiet night from the morphia, but did not sleep much; no return of pain in the side of the head—bowels not yet opened, but feels as if the medicine will shortly act upon them. Pulse 112, soft and compressible—no pulsation to be felt in any of the branches of the carotid—skin cool—complains of a sense of tickling and irritation about the larynx which he says produces cough. Voice rather hoarse. To allay the cough, 2 drops of the solution of morphia was added to each dose of the Nitre and Antimony.

10 o'clock, P. M.—Feels very comfortable. Bowels not yet moved. Pulse 120, cough not so troublesome. Skin moist. To have a tea spoonful of tinct. of hyoscyamus immediately, and salts and senna in the morning if the bowels do not previously act.

March 10th, 1 o'clock, P. M.—Feels very comfortable. No pain in wound. Medicine has acted freely. Slept

well during the night. Pulse 108, soft. Same diet and medicines to be continued.

*March 11th, 1 o'clock, P. M.*—Wound dressed—stitches removed. Primary union had taken place in lower half of incision, upper half discharging slightly and looking healthy. Tumour diminished to the size of a walnut, very compressible, and pulsating by no means strongly. Pulsation still heard distinctly at upper part of sternum, without bruit, and double as formerly. Pulse 100—passed a good night—cough not so troublesome—tongue clean—says he feels very hungry. The compress was reapplied over the tumour, and the same diet and medicine continued.

*March 12th, 1 o'clock, P. M.*—Did not sleep well during the night. Pulse 120 full—skin hot—cough more troublesome—bowels freely moved during the morning—complains of slight return of pain to right side of head—venesection to 12 ounces, which immediately relieved all the symptoms—continue the diet and medicines.

*March 13th, 1 o'clock, P. M.*—Slept very well, all the symptoms favourable—cough gone—Pulse 90 soft. Continue the medicine as formerly—to have a little broth.

*March 14th, 1 o'clock, P. M.*—Wound again dressed, looking healthy, nearly all united excepting a small portion superiorly, which was discharging healthy pus. Tumour in appearance as at last dressing, still soft and compressible. Pulse 90—other symptoms favourable—compress reapplied and same treatment continued.

The satisfactory progress of the case from this period up to the 23rd March, more than realized my most sanguine expectations. I was aware that the slightest carelessness might be followed by fatal consequences; I therefore visited my patient, always once, and frequently twice daily, and did not in the least relax the strictness of the treatment, either in diet or medicine. I find the following report in my notes of the case for the 22nd March. Wound examined—nearly cicatrized—ligature still firm—tumour quite flat, and can only be discovered by a slight pulsation, which still exists at inferior and internal part of its former situation. Pulse returned to temporal artery on right side—pupil of left eye still slightly dilated—pulsation at upper part of sternum much diminished in impulse—functions all natural. The compress upon the tumour was discontinued, and the digitalis and restricted diet persevered in.

*March 23rd, 2 o'clock, P. M.*—Upon paying my usual visit to my patient, I found that upon the previous evening, he had imprudently sat by the stove for a considerable time, without any other covering than his night-shirt, it being the first time he had left his bed since the operation was performed; this exposure was followed by

a rigor, which ushered in a high fever and intense headache, from which he had suffered all the previous night. At the time of my visit, he was slightly delirious, complaining much of headache, with hurried respiration, and a sharp pulse of 140. The hearts' action was very tumultuous, and the impulse so strong, that it shook the whole body, and even the bed on which he was reclining. A professional friend, who visited, on this occasion, my patient along with me, agreed with me in advising venesection, which was accordingly performed, and blood taken to the amount of 12 ounces, with marked relief. A mixture was ordered to be administered every two hours containing in each dose Tinct. Hyoscyam. dr.  $\frac{1}{2}$ , Cyanuret. Potas. gr.  $\frac{3}{4}$ , with Nitrat. Potas. gr. 5.

*10 o'clock, P. M.*—Found him much relieved by bleeding and medicines. Pulse 130 soft—respirations 28 in the minute, is much harassed by a return of the cough which is of a laryngeal character, complains also of an occasional sense of suffocation—voice husky. Gave 3 cathartic pills, other medicines continued.

*March 24th.*—Found my patient much improved in appearance—pulse 120 soft and compressible—respirations 20—no wandering of intellect—bowels had been acted upon by the pills—cough not so troublesome, and has lost all feeling of suffocation. Upon examining the chest, the dull sound on percussion was found to extend over a much greater portion of the right sub-clavicular region than formerly, and a pulsating tumour could be felt with the fingers extending from the cartilage of the third rib to the clavicle. Upon applying the stethoscope, no bruit was discoverable, but impulse very strong and sound double—a loud bronchial rhonchus was heard upon the right side during inspiration, the point at which it was most distinctly heard, was posteriorly, internal to the scapula, it was at the time attributed, to compression of the right branch of the trachea by the aneurism—no return of tumour in the neck.

*On the 25th and 26th* he was apparently getting over the bad effects of his late imprudence. *On the 26th* the report was. Feels to-day much better—pulse 100 soft—skin and tongue moist—respiration natural—cough not troublesome—requested something to eat. The stethoscopic signs were in kind as at last report, though the impulse was not so strong, nor was the bronchial sound so loud.

*March 27th.*—I was sent for by my patient at two o'clock in the morning and found him sitting up in bed suffering from great dyspnoea—countenance of a livid colour—pulse 150 very small—hearts action exceedingly tumultuous—left pupil largely dilated—two pulsating tumours were felt rising up upon both sides of the sternum, the larger one upon the right side, in the situation of the

original aneurism, these tumours were not well defined, as the whole neck was swollen and of a livid colour from venous engorgement. The distressing sense of suffocation gradually increased, and he expired at five o'clock, P. M., of the same day. He was perfectly sensible to the last and knew that he was dying from the first seizure.

*Post mortem examination 15 hours after death.*—The surface of upper part of chest, neck, and face, presented a livid appearance from venous engorgement. Upon opening the thorax a large tumour was discovered, resembling very much, in size and appearance, the heart enclosed in the pericardium, occupying the superior portion of the right side of the chest, and extending towards the left side, half an inch beyond the centre of the first bone of the sternum. The tumour filled up the whole of the anterior and middle mediastinum, above and in front of the root of the right lung, extending from the cartilage of the third rib to the top of the sternum. The tumour was removed from the body along with the heart and great vessels within the thorax; the upper part of the sternum, with the inner half of the clavicle, and the 1st, 2nd, and 3rd ribs attached to it; the trachea, œsophagus, anterior muscles, great vessels, and nerves of the neck, were also removed, as far up as above the os hyoides, and the whole was subsequently carefully dissected. The left ventricle of the heart was found slightly hypertrophied, the aortic valves were free from disease, the ascending aorta was greatly dilated, and numerous scales of bone were found deposited in, and under its lining membrane. The aneurismal swelling commenced at the root of the arteria innominata, involving the whole of the anterior parietes of that vessel, to within a quarter of an inch of its bifurcation, and the transverse portion of the arch of the aorta, as far as the giving off of the left carotid, the origin of which was slightly dilated. The first bone of the sternum, the sternal ends of the clavicle and first rib, were denuded of periosteum, and formed part of the anterior wall of the aneurismal sac, the first bone of the sternum being deeply hollowed out by the pressure of the contained blood. From the superior part of the large tumour, the remains of two smaller aneurisms were found arising; the posterior one, the larger, extended into the neck, upwards, and towards the right side, for at least a couple of inches above the clavicle; its sac in front was composed of the deep cervical fascia, and external and internal to the mastoid muscle, was exceedingly thin and weak. The sac of the anterior aneurism was capable of containing a small walnut; it arose from the large sac about the centre of the sternum, by a distinct opening, immediately in front of that into the posterior aneurism; the sacs of both these aneurisms were found

empty and collapsed. The interior of the large aneurism was almost completely filled by a large coagulum, weighing eight ounces and a quarter avoirdupois, very dense in structure, not deep in colour, formed of distinct lamellae, and in many places slightly adherent to the parietes of the sac. A loose coagulum of blood, very different in appearance and structure from the fibrinous mass occupying the interior of the aneurism, was found in the ascending aorta. The descending aorta was dilated as far as the diaphragm, and contained ossific deposits in its interior. The right carotid was found nearly divided by ulcerative absorption, produced by the ligature, half an inch below its division; the vessel was plugged up by a firm coagulum, for upwards of two inches below the ligature, the superior part was also filled up in a similar manner as far as its bifurcation. The superior part of the right lung was found condensed in its substance, from the pressure of the tumour. The left lung was congested throughout, and posteriorly and inferiorly was found in the first stage of pneumonia. The liver was larger and harder than natural, the other abdominal viscera were healthy. The brain was found quite healthy, and the branches of the internal carotids seemed equally large on both sides.

The above case is instructive in several particulars. It proves first, what a great amount of aneurismal disease may exist for a long period, (as evidently must have been the case in this instance from the deep erosion of the sternum,) without any severe local or constitutional disturbance. It proves secondly, how much compression of the carotid can affect the circulation in an aneurism of the innominata even involving the arch of the aorta; upon the application of the ligature, the tumour for the time entirely disappeared, and never again regained anything like its original bulk. I have little doubt also that the production of the fibrinous coagulum, found in the interior of the larger aneurism, was subsequent to, and in a great measure produced by, the obstruction in its circulation caused by the ligature of the carotid. The mere bulk of this unyielding mass, from its pressure upon important organs, conjoined with the febrile paroxysm brought on by the man's own imprudence, may have had a considerable share in bringing about the fatal result. Finally, though the operation was unsuccessful in its termination (and had the amount of disease been previously known, it would not have been performed,) it adds, I humbly conceive, still another link to the chain of evidence adduced by Mr. Wardrop, in favour of the feasibility and propriety of tying one of the great branches, in the otherwise hopeless cases of Aneurism of the Innominata, which owes its origin and first successful application to his inventive genius and surgical skill.

*To the Editor of the British American Journal.*

DEAR SIR—I am induced to offer the following case for publication in the forthcoming number of your journal, under the impression that it presents several points of interest, and may assist in coming to a correct opinion in cases where persons die after receiving bodily injury.

Your's, &c.,

A. H. DAVID, M.D. Edin.

While playing on the 17th December, 1841, Peter Chailans, aged 21 years, received what was described as a very slight blow on the left side of his head, from the open hand of one of his companions, which staggered him for a moment, but he was soon able to walk home to his house, a distance of 150 yards. I first saw him in the evening, five hours after the accident, he was then seated in a chair, but appeared restless—could answer quite coherently, his pulse was full, but not quick, and I could trace no sign of external injury. His bowels not having been moved for some three or four days, I immediately gave him ten grains of calomel, with two drops of *Ol. Tiglii*, and desired cold applications to be kept to his head for the night. From the circumstance of his residing at a considerable distance from me, I only saw him towards noon the following day; on my entrance he was walking about, and seemed apparently quite well; he did not complain of any pain, and only remained within doors at my suggesting that he had better remain quiet for the day, as the medicines he had taken were exceedingly powerful. They had produced the desired effect. Being suddenly called to him in the night, I found him insensible and incoherent, with the pupils dilated and insensible to light, his hands extended, endeavouring to get hold of imaginary objects before him, and shivering as if with cold. This shivering lasted about an hour, when he became sensible, and only complained of intense pain over both eye-brows. I bled him to syncope, and ordered repeated doses of calomel, under which treatment, and one dose of castor oil to regulate his bowels, he became much better, till the morning of the 21st, when he suddenly became comatose, and died within eight hours.

Having succeeded in obtaining permission to examine the head, I did so most carefully fourteen hours after death, and could trace no fracture of the skull, nor engorgement of the cerebral vessels, and no effusion under the membranes, but on cutting into the substance of the brain, and laying open the ventricles, found them much distended, with at least six ounces of limpid fluid; and with the exception of the septum lucidum, which was soft and easily torn, there was not the slightest appearance of inflammation to be found in the ventricles, or indeed

any other part of the brain, which was firm and perfectly healthy.

This case is interesting from the fact, that had no post-mortem examination been allowed by the friends of the deceased, the unfortunate man who struck the blow, would in all probability have paid for his amusement with his life, had the case come before the coroner, from the aversion that both coroners and their juries have to post-mortem examinations, when they can find any probable cause to account for death, which in this case would have been attributed to concussion of the brain from the blow. I assured the friends that the morbid appearances were not the result of the blow the man had received the three or four days previous to his death, but the result of some latent disease which had been going on for months before he received the injury.

I based my opinion upon the authority of the late Dr. Abercrombie, who mentions in his work on "Diseases of the Brain," cases given by Morgagni and Heberden, and one by Professor Turner, where large quantities of serous fluid have been found in the ventricles after death, without incommoding the patient, or there having been any alarming symptom during life, to call the attention to the state of the brain. When effusion takes place suddenly into the ventricles, we find, besides the ordinary appearances of recent inflammation, generally some serious alteration in the structure of the brain.

#### Phagedænic Ulcer of the Genitals.

*To the Editor of the British American Journal.*

SIR,—The following case, which is fortunately somewhat rare, occurred to me lately; I therefore submit it to you, should you deem it worthy the perusal of the readers of your periodical.

Phagedæna of the genitals rarely now happens, unless when debauchery, or improper use of mercury, can be assigned as an exciting cause. In large cities we occasionally meet with cases of rapidly destructive venereal ulceration in young females of delicate frame, whose frail constitution has early become broken down by their irregular and intemperate habits of life; unfortunately we sometimes observe a similar destructive sore supervene upon an ordinary chancre, in consequence of a careless or reckless exhibition of mercury; or we may have this vexatious consequence follow, after having conducted our treatment judiciously, and in a satisfactory manner, till the original sore has healed, when the patient, throwing aside restraint, indulges in a bacchanalian debauch; we also on more rare occasions see this description of sore attacking persons more advanced in life, who have long been addicted to habits

of intemperance and debauchery. In all the cases that I have heretofore met with, the primary sore could be traced to a venereal origin. In the present instance, however, no suspicion of the kind could be entertained, nor could any cause be assigned for its origin, except the peculiarly excitable and irritable state of the constitution. The patient, a married man, about 38 years of age, of very intemperate or sottish habits, which his occupation of tavern-keeper afforded him great facilities of indulging in, possessed at the same time a naturally strong constitution, which permitted this irregularity with apparent impunity. He continued his almost uninterrupted course of stimulation, till a fit of delirium tremens put a temporary stop to it.

In October last he had an attack of this nature, for the third time, but he obstinately refused to be treated in any way, except *homœopathically*, namely, "by a hair of the dog that bit him," professing himself utterly careless of what might be the consequence in this world or the next. After having paid him a couple of fruitless visits, I discontinued my attendance. Shortly afterwards I was summoned to him in a hurry, in consequence of his family being alarmed by a serious hæmorrhage from his genitals, which was supposed to have arisen from his having inflicted a wound on himself by a cutting instrument. I found him sleepless, delirious, and restless, and obstinately desirous to go out into the street. With some difficulty I prevailed on him to show me from whence the hæmorrhage proceeded. I found a blue ecchymotic spot on the side of the prepuce, as if he had pinched the part, from which a good deal of blood appeared to have issued. Cold applications were ordered, but were not very efficaciously applied, as he could not be kept in bed, and he would scarcely even permit an occasional inspection. Becoming, however, more alarmed from being now debilitated, he submitted to be treated, when a considerable portion of the prepuce was found to have been destroyed by a phagedænic ulcer, having a bloody clot adhering loosely to it. The ulcer was touched with a strong solution of nitrate of silver, and a carrot poultice was applied; a cathartic was administered, followed by Graves' anodyne mixture, of tartarized antimony and tinct. of opium in camphor mixture, every two hours, in addition to which a stomachic was ordered, to allay the irritability of the stomach, composed of tincture of ginger, tincture of cinchona, tincture of gentian, and carbonate of ammonia. Under this plan of treatment he speedily got well. Before the progress of the ulceration was stopped, nearly the whole of the prepuce had been removed, and a superficial serpiginous ulcer, which also had appeared on the side of the glans

opposite to where the phagedæna commenced, healed, leaving a depressed cicatrix.

There are few points in syphilitic surgery more alarming or puzzling than cases of this description, and more especially when they supervene during the apparently sanatory operation of mercury, nor is there any which more require the exercise of sound judgment on the part of the surgeon; a variety of causes may influence the sore, and so materially alter its character, that the treatment most suitable in one case, proves injurious in another. It is not, however, my intention to enter more fully at present on these unsettled points; in this case there was no difficulty in deciding on the proper mode of treatment.

Before I close I shall briefly notice an application adopted by a late friend of mine, of considerable eminence in the profession. In a case of a somewhat similar description, the phagedæna was rapidly destroying the penis, and great apprehension was entertained that the whole member would be removed, before the ulcerative process could be arrested; powdered nitrate of silver was freely sprinkled over it, which immediately put a stop to the ulceration, and the case did well, without any further loss of parts. The remedy was a severe one, but not more so than nitrous acid, so frequently had recourse to in these cases. Wishing success to your journal,

I am, &c.,

JAMES CRAWFORD, M. D.

### Contributions to Cerebro-Spinal Pathology,

BY S. C. SEWELL, M. D.,

Lecturer on Materia Medica, McGill College.

Case 1.—On the 2nd July, 1836, Bonaventure Montpellier, aged 41, sat from 9 to 11 P. M. in a chair, with his coat and waistcoat off, leaning back with his head resting on a window bar, the pane of glass beneath which was broken. On retiring to bed experienced slight shivering. Previous to this was in good health, but used ardent spirits freely and often to excess. At five on the following morning, (Sunday,) he was aroused from his sleep by jerkings of the head and arm. I was immediately sent for, and on arrival, I found the following train of symptoms. Tongue coated with white fur, pulse 100 hard and full, countenance anxious, no pain. The head was jerked to the right side by the spasmodic action of the right trapezius and sterno-mastoid muscles; immediately after this was over, the right hand was supinated, and the fore arm slightly flexed on the arm simultaneously with a jerk, and immediately returned to their former position; after an interval of a second; the diaphragm spas-

METEOROLOGICAL REGISTER kept at KINGSTON, Canada, Lat. 44° 14' N., Long. 76° 34' W., about 300 feet above the Tide, from July, 1843, to February, 1845. [7.

MONTHS.	BAROMETER.			THERMOMETER			WINDS—DAYS									Rain on Days.	Snow on Days.	Frost on Days.	Thunder on Days.	OBSERVATIONS.
	Inches of 20ths.			Fahrenheit.			N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.						
1843, '44, '45.	Max.	Med.	Min.	Max	Med	Min.	N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.						
July, - - -	29.18	29.10	29.4	82	68	54	1		1	2	2		6 1/2	5 1/2	8		2	Variable, with thunder on the 17th and 26th.		
August, - -	29.18	29.11	29.5	82	71	62	1	3	2		2		6 1/2	5 1/2	8		2	Very warm—calm on the 4th—no thunder—winds generally light.		
September, -	29.18	29.12	29.4	82	68	52	3	7	2		2		3		5		2	Hazy until the 15th—fresh wind at times—temperate towards the end.		
October, - -	29.19	29.9	29.2	66	47	28	1	6 1/2	4 1/2	2 1/2	2		9		11		1	A very variable month—wind often fresh—thunder on the 21st.		
November, -	29.19	29.10	28.19	50	33	10	2	1 1/2	3	4	2		10	2	4	9	14	Stormy—muggy—snow and sleighing on the 13th—cold towards the end.		
December, -	30.1	29.10	29.2	45	30	0		1 1/2	5 1/2	2 1/2	1 1/2		8 1/2	3	2	14	25	Variable—three inches of snow on the ground on the 8th—4 on the 10th—10 on 18th—6 on 23d.		
January, - -	30.0	29.9	28.10	45	12	0		6 1/2	8 1/2	1 1/2	3		3 1/2	4	3	14	30	Winter—the bay frozen on 2d—strong gales about the middle—average cold of the last week, 8.7 2.7.		
February, -	29.17	29.10	29.6	52	26			6	2	4	5 1/2		4	1 1/2	1	7	24	Generally mild—the snow disappearing gradually—hazy on nine days.		
March, - - -	29.19	29.10	29.1	48	32	12		7 1/2	1	2	3		4	1	6	4	19	Fresh gales from the southward at times—the ice breaking up after the 18th.		
April, - - -	30.2	29.14	29.6	74	48	24	1 1/2	4 1/2	1		3		8 1/2	1 1/2	9	5	2	Moderate winds, and generally mild weather—a thunder storm on the 24th.		
May, - - -	29.18	29.9	29.0	76	56	38		2	1	2	4 1/2		6 1/2	1 1/2	13		2	More windy, but still a fine seasonable month—thunder on the 2d, and on the 11th.		
June, - - -	29.16	29.10	29.6	79	63	51		2	1	1 1/2	8		1 1/2		11		5	Warm and dry—thunder storms on the 1st, 19th, 20th, 24th, and 27th.		
July, - - -	29.13	29.9	29.4	80	69	58	1 1/2	3	5 1/2	2 1/2	10 1/2		6 1/2	2	9		5	Generally brisk winds through the day from S.W., and light—N.E. airs at night.		
August, - -	29.15	29.8	29.1	79	65	53	1 1/2	4	2 1/2	1 1/2	10 1/2		3 1/2	1 1/2	18		4	Fine, the heat tempered by clouds and brisk winds.		
September, -	29.17	29.10	29.4	79	57	36	3	4	5 1/2	1 1/2	4 1/2		3 1/2	2 1/2	2		3	Variable but dry until the 19th, when cold weather set in—a gale from westward on 30th.		
October, - -	29.19	29.8	28.18	65	45	26	4	4	5 1/2	7 1/2	5 1/2		2	2 1/2	8	3	7	Seasonable until the 19th, when we had a hurricane from westward, and snow storm on 26th.		
November, -	29.16	29.7	28.19	53	32	11		5	4 1/2	2	2 1/2		9 1/2	1 1/2	8	4	12	Moderate during the first half—latter part frost and snow.		
December, -	29.19	29.7	28.14	45	23	1	1	7	3	1	1		6	1	3	6	27	Seasonable, with moderate frost and little snow.		
January, - -	30.0	29.9	29.1	45	20	0	1	7	5	1	1		10	5	1	7	25	Temperate for the month, until the 31st, when the thermometer fell to 5 deg. below 0.		
February, -	29.18	29.6	28.14	45	15	0	2	1	7 1/2	1 1/2	1		7 1/2	5 1/2	2	5	18	Very severe cold for some days—lowest temperature 12 deg. below zero on the 2d.		

E.E.

ALEXANDER SMITH, M.D.

Staff Surgeon.



modically contracted with a hiccupping sound. The same series of spasmodic actions recurred after a pause of two seconds, and continued with undeviating regularity. It immediately occurred to me, that the seat of disease was in the central portion of the spinal cord, and on making pressure on the sides of the spinous processes of the 3rd, 4th and 5th cervical vertebræ he felt pain. The spine was no where else sensitive; and the pressure had to be firmly applied to produce pain, thus distinguishing it from *spinal irritation*; in which the slightest touch as of a feather causes pain.—I bled him to syncope; as this state approached, the spasms diminished in intensity, but recurred on his recovery. A large blister was applied to the neck and he took

Hydrag Protochlor gr. xv.

Jalap Pulv.

Scammon Pulv. } Ana gr. x.

At 5 P. M. purgative had acted freely, tongue cleaner, pulse 110 soft, intervals between spasms much lengthened.

4th, 8 A. M.—Spasms as at first, pulse 100 hard, bled again to syncope; from which time he improved steadily without further treatment except low diet, and on the 6th was recovered. I saw him two years after, during which time he had been well. In 1841 he died of apoplexy, but as I did not know it at the time, I had not the opportunity of making a sectio. This case is interesting in a physiological point of view as tending to prove an intimate relation at their origin between the spinal accessory, musculo spiral and phrenic nerves. The exact pathology must be a matter of doubt, but I have always looked upon it, as a case of inflammation of a limited portion of the cervico-spinal pia mater involving the subjacent anterior cervical and probably central ganglia.

Case 2.—Thomas Busby, aged 48, was admitted into the Montreal General Hospital on the 17th January last, complaining of severe headache and fits. Since early boyhood has been in the habit of using ardent spirits to excess, and has been in hospital under my care four times in the last six years, the first time for Peripneumonia, since that for Bronchitis and other complaints. In July last, the people with whom he lived, induced him to abandon the use of ardent spirit, and confine himself to the use of beer, of which he took twelve or fourteen tumblers in the day. Soon after making this change he began to complain of pain in the head; to this, giddiness was gradually added, and in the middle of December, he became tottering in his gait, and frequently fell, as he said from giddiness, and raised himself up in a few seconds. At Christmas he resumed the use of ardent spirits and continued it to excess till twelfth night. On the 17th January he was brought to the Hospital. It being impossible to extract

from him any lucid account, the following remarks were made. He understood what was said, but had great difficulty in combining the muscles of speech, his words were jerked out hurriedly; after some effort, and not more than one or two at a time; he complained of great headache and referred the pain, chiefly to the right parietal bone. The case being looked upon as chronic encephalic disease, he was ordered venesection, cupping to the nucha, saline purges with antimonials and low diet. Further observation led me to pronounce it a case of organic lesion of the cerebellum. He was ordered to have a section in the nucha, and to take an aloetic purge every day. He apparently improved under this treatment, spoke more easily and seemed less lethargic. On the 20th February he ate his dinner with avidity, and was conversing with his neighbour, when he turned round in his bed and in a few moments expired. On examining the head twenty-three hours after death, the cerebellum was found to be exceedingly soft; and in the right hemisphere was a tumour, of the size of an English walnut, which was of very firm consistence, and corresponded exactly to Dr. Abercrombie's description of the tumour resulting from chronic inflammation of the encephalic substance when it passes into a state of induration. (Vide Abercrombie on diseases of brain; 2nd Ed. Fol. 329.) The cerebrum presented no abnormal appearance. I was led to form my diagnosis from the want of combination among the muscles generally; when any movement was to be performed, his hands and arms were moved in jerks, his words were hurriedly ejaculated, and his equilibrium with difficulty maintained; and the fits of which he spoke, were found to be merely a sudden inability to preserve the erect posture; the organs of sense were unimpaired in function, and his intellect as good as usual. Since his death I acquired my knowledge of his previous history, and learned that before coming to hospital, he usually referred his pain to the back of his head.

Case 3.—Thomas Barnes, aged 15 months, died February, 1845, after six hours' convulsions. In August last, I prescribed for him for the summer complaint, which was soon relieved by the usual remedies. On the 10th January I was called to him, and found him suffering under the common symptoms presented by children, when teeth are distending the gum. I liberated three teeth, and he speedily re-acquired his usual health. A fortnight before death he had a convulsion of short duration, characterised by trifling agitation. Subsequent to this he was, in the apprehension of those around, in remarkably good health, and manifested *extraordinary intelligence*. Immediately before the fatal seizure, he went to the foot of the stairs, and called a person by name as requested. When I saw

him the convulsion was of the *ominously* tranquil kind, the colour of the cheek was *rather* livid, the left eye inverted, and the left arm slightly jerked at long intervals, the mouth little distorted, and the pulse slow and irregular. Enquiry could elicit no evidence as to the previous existence of symptoms of hydrocephalus, such as waking out of sleep with a screech, and carrying the hands to the head, &c., or laying the head on the nurse's shoulder, or other common signs. After death the arachnoid was found of a rose colour in several places, and on opening into the cavity of the arachnoid investing the cerebrum, about an ounce of fluid flowed out, or, perhaps, more, the lateral ventricles contained fluid, but not enough to fill them, and below the tentorium the quantity was normal.

*Case 4.*—Wm. C—r, aged  $3\frac{1}{2}$  years, about April 2d, 1845, for several weeks presented *unequivocal* symptoms of hydrocephalus, but not enough to alarm the parents, until the convulsions, which terminated his life, occurred. When they came on, he succumbed in five hours, and they were of an *agitated* kind. The post mortem examination of the head 34 hours after death, exhibited the following appearances:—The cerebral arachnoid cavity contained little fluid, the ventricles were full, the choroid plexus oedematous, and a very large quantity of fluid surrounded the cerebellum and pons varolii. I cannot say that the cerebral substance in this or the preceding case was more than usually vascular, as I have always found it of the same appearance in the brains of all children that I have examined, wherefore I incline to the opinion that hydrocephalus, acute as well as chronic, is a disease of the serous tissue. I have been induced to report these two cases, as tending to throw light upon the cause of the difference of the violence of the convulsions which we see in different cases. In the first case the pressure being upon the cerebrum, there was complete stupor and little convulsion. In the 2nd case, where the pressure was on the parts below the tentorium, including the spinal cord, there was much convulsion, and yet the child had sufficient consciousness occasionally to call on the mother.

*Case 5.*—A case of genuine hydrocephalus occurred in a girl of 7 years old. For two months she complained much of headache, and for the last month would lean her head on chairs, on people's knees, and even on the floor—would wake at night screaming and complaining of headache. She was seized with violent convulsions, during which hot-baths, synapisms, ten leeches, &c., were employed; the subsequent treatment was digitalis, calomel, purgatives, repeated leeching and blisters; she came out of the convulsions with her perfect consciousness, but with the left side

paralysed; she survived eleven days, during this time the left side was occasionally convulsed and paralysed in the interval; she retained her consciousness to within two hours of her death. I regret that in this case I was unable to procure a sectio, as I conceive it would have thrown light upon the subject, as the patient was endowed with an intellect, and a sense of religion far beyond her years, and important inferences might have been drawn from the examination.

#### Observations on the Hypothesis of the former existence of a great Fresh-water Inland Sea within the Continent of North America.

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

This hypothesis assumes the existence of an inland Sea, extended over a surface of at least 960,000 square miles, comprehending the greater part of the territory of the United States and of Canada. The mountain ranges that are supposed to have formed the boundaries of this immense mass of water, are those, which stretching in a north-easterly direction from the mouth of the Mississippi, divide the more easterly States till they approximate the St. Lawrence, and are assumed to have crossed the St. Lawrence about latitude N.  $47^{\circ}$ , and then to join the mountains on the north of the Canadian Lakes, at a point where they travel to the northern coast of Labrador; the mountains on the north of the Canadian Lakes stretching towards the west, between the sources of the waters of the Mississippi and those that run into Hudson's Bay, join the Rocky Mountains, which, in their course south east, approach the mouth of the Mississippi, thus forming an imperfect circuitous boundary—imperfect at those points where openings successively formed, and variously enlarged and deepened, are supposed to have caused at different periods numerous subsidences of the great inland Sea, till at length, during the long navigation of ages, it emptied itself into the ocean, leaving behind it the Lakes Superior, Erie, Ontario, &c., the dismembered fragments of a widely extended empire.

It is to be remarked, however, that during the subsidences that are assumed to have taken place in irregular succession, the great Sea would become divided first into greater, and then lesser parts, corresponding with the different elevations of the ridges that would appear above the waters.

It is upon these ridges that the evidences of the various supposed subsidences referred to are to be found—viz., lines in many cases very strongly marked, indicating by the action of the former waters upon the ridges, the different degrees of the elevation of the waters.

These marginal lines unquestionably indicate the ac

tion of water. This is inferred from the exactness of their level wherever they are apparent, their relative correspondence, their parallelism, and from the circumstance of this level, correspondence, and parallelism being maintained in very different and distant localities. There are, of course, minuter marks that give their evidence as to the cause of the formation of these marginal lines,—as the occasional distribution of shore stones and level stripes of mud. Shore stones are always round, river stones flat, as regards the mass of each class, the one class from their rolling, the other from the sliding motion they have been subjected to.

According to the hypothesis, then, an immense fresh water Sea occupied at a remote period the interior of the Continent of North America, the disruption from time to time of one or more parts of the external barrier, occasioned successive subsidences at distant intervals of time, during which intervals the marginal lines were impressed upon the islands and ridges elevated above the water, and which indeed still remain on the banks of the rivers surrounding the elevated land rising from the lower lakes, and encircling Lake Superior itself, the most elevated of the Canadian lakes.

As to the agency by which the disruptions of the external barrier were effected, one might assume with Mr. Humboldt an irruption of the ocean, as when he speaks of “the plains of the Mississippi, which were swallowed up by the waves at the time of their irruption into the Gulf of Mexico,” or one might assume the sudden or more gradual depression of any outlet from the action of the superfluous water in its passage to the Atlantic, or the instantaneous severing of the mountainous barrier by volcanic agency, repeated from time to time; in short, without accumulating other hypothesis, let it suffice to be said, that we have no evidence of such an *irruption* of the ocean, nor any evidence of the existence of a barrier of mountains at the mouth of the great rivers St. Lawrence and the Mississippi.

But the existence of a great fresh water Sea has likewise been inferred from the widely distributed blue clay stratum which it is said to have deposited. This blue clay stratum forms indeed one of the most interesting phenomena in the geological structure of Canada West, where it is almost universally observable. In some parts where the land presents the appearance of hill and dale, or where it is called rolling land, it forms the entire material of the elevated parts. Gravel and sandy soil is often found in the neighbourhood of it, however, and it is often found to overlie extended beds of gravel mixed with sand. It effervesces freely, and contains a large portion of the peroxide of iron. It varies in thickness from 5 or 6, to 25 and 30 feet. It may be thought

remarkable that no organic remains have as yet been discovered in it, except a few fragments of shells, too fragmentary to indicate their fresh water or salt water nature. This is asserted, however, with respect solely to the personal observation and knowledge of the one who asserts, and it is highly probable that there are many, certainly some, whose extensive acquaintance with the geology of Canada, may comprehend, by the actual examination of organic bodies, the determination of the important question concerning the origin of the blue clay stratum.

Independently of the very satisfactory evidence which the determination of this question would afford, there are grounds enough remaining to justify the conclusions that no such fresh water sea or lake, as the hypothesis assumes, has existed, and that the stratification of Canada and the adjacent States of America, is in harmony with the general theory (if yet there is a theory) of the most eminent geologists of the present day—the gradual elevation of the continents and all other large tracts of land from the bottom of the ocean to their present position. Without referring to the agency by which this is accomplished, there is a variety of phenomena demonstrating this to be a law according to which nature has wrought in the past ages of the globe. It is not that the sea dries up, or that it retires of its own accord into some recesses of its own. Its distribution, its shallowness, and its depth, are regulated by the depression or the elevation of solid strata. Where these sink below, the sea has leave to cover them, and to deposit upon them in undisturbed stillness, all the materials it can gather in the long term of its dominion; when they rise from the ocean, carried up upon the sides of the primitive rocks, that form the main material of the mountains, the sea retires and leaves behind its long gathered and carefully smoothed beds. The limestone formations have certainly been deposited in this manner, in profound repose, and consequently at great depth. The blue clay formation of Canada owes the perfect regularity of its accumulation to the same circumstances attending its deposition—a deposition proceeding with perfect uniformity and tranquillity, as one might turn over the leaves of a book with a leisure and placidity that made no calculation of time. It is easy to see that as the submerged strata are brought towards the surface, they become more exposed—exposed to the action of the water on the eastern coasts of America sweeping in currents, and consequently accumulating and depositing its materials in comparative disorder. Hence the heaps and beds of sand and gravel, that have been distributed, and the depredations that have here and there been visibly committed upon the blue clay stratum, and hence also the erratics, the

greater and lesser boulders floated with the ice-fields and icebergs on the bosom of the currents, and left to shift for themselves on the Canadian fields, when the vessels that carried them got stranded or sunk, or were broken up in the course of their navigation, in a manner somewhat similar to that still observable on the banks of Newfoundland, but subject to such exceptions as must necessarily have resulted from a material difference of circumstances; and this difference of circumstances is conceived to have existed in this, that whereas the banks of Newfoundland are swept by the Gulf Stream, and exposed to the storms of the Atlantic, the mountainous land that runs nearly the whole length, and on the eastern skirts of the Continent of North America, must have formed a chain of islands of greater and less dimensions, sufficient to preserve the arm of the sea spread over the interior of the present Continent, in a state of comparative tranquillity; and this serves to account for the distinctness and uniformity of those marginal lines which mark what were the relative positions of sea and land at the successive points of the elevation of the Continent.

The valley of the St. Lawrence is not the only instance of an ancient sea that has left behind it by a marginal line on the surrounding elevations or hills, a token of its existence and its action. In the large valley of Cassel, in Germany, such a marginal line, ascertained by repeated mensurations to preserve a uniform elevation, remains impressed upon the sides of the mountains by which the valley is encircled; and as it is certain in this case, the fossil shells being of marine productions, "known species and common on the shores of the northern seas," that it must have been an arm of the sea that filled the valley, we have a proof that whatever parts of the Continent of Europe lay at that period beneath this marginal line, must have been submerged in the waters of the German Ocean.

As to the present land of the globe having been heaved up by mechanical agency, denoting a subterranean force equal to the production of an effect so stupendous—that may be regarded as an ascertained fact; but in the marginal lines that encircle the flanks of the elevated portions of the valley of the St. Lawrence, we have not only an additional proof of this fact—we have, moreover, the history of the manner in which this agency has been exerted; we read in these lines the annals of nature's law—we are given to understand that at long intervals of time this mechanical agency has been repeatedly applied—we can count the number of feet one mighty effort of the subterranean force raised its ponderous load, and perceive that amidst all the les-

ser innumerable details of nature, there is a comprehensive law of God, according to which he rules in the sunless depths of the earth, as well as the heavens, and that he there keeps in store the same vast powers by which he has worked from the beginning, and probably will work for ever.

The circumstance of the risings of the existing lands in this country having taken place in succession, is not at all at variance with the phenomena presented in other parts of the globe. Mr. Lyall informs us, that several Italian geologists before the time of Brocchi, had justly inferred that the Apennines were elevated several thousand feet above the level of the Mediterranean, before the deposition of the modern sub-apennine beds which flank them on either side. He likewise states that the central calcareous chain of the Apennines must for a long time have been a narrow ridgy peninsula, branching off at its northern extremity from the Alps near Savona, and that this peninsula has since been raised from one to two thousand feet, by which movement the ancient shores, and for a certain extent the bed of the contiguous sea, have been laid dry, both on the side of the Mediterranean and the Adriatic. Mr. Scrope, in his geology of Central France, gives an account of an instance of a large portion of a fresh water formation having been forcibly elevated far above the level at which it was originally deposited in the bosom of a great lake, covering a large portion of the surface of France, by the general, and, *perhaps*, gradual upheaving of the mass of primitive rock. Even so late as 1822, a great line of coast in Chili was lifted permanently up to the height of several feet above its former level, and there the interior of the country, even to the foot of the Andes, was still more disturbed, affording us a modern instance of one of those successive risings or upheavings, to which the Continent of North America, and probably South America also, would appear to have been subject, and of which the marginal lines afford us the measurement.

Though the whole extent of the Continent, doubtless, owes its elevation to the same mechanical force, there is no reason to suppose that at each of the successive upheavings, this force would be directed equally upon every part of the interior of the extended mass, nor if it were, could there be opposed at every part an equal resistance. Under both or either of those conditions that would attend any general effort of the force directed from beneath, various inequalities and disruptions of the elevated surface would be produced, some parts, in consequence of this disruption from the general mass in process of elevation, sinking to a greater or less degree into the interior cavity below, and afterwards maintaining that inferior level, after several suc-

ceeding elevations, and sometimes maintaining its primitive seat, broken off from the uplifted body formerly in contiguity with it, but which now rises above it precipitously. The banks of the Lakes of Canada, exhibit in innumerable instances such disruptive of strata as correspond with this view of their formation. At those parts of their circumference where the elevation of the land is greater, we find the banks generally precipitous; at those parts where the elevation of the surrounding land is less, the banks have an easy inclination, and at other parts of their circumference where the land is at the least elevation above the level of the sea, the superficial stratum is submerged, and in Lake Ontario is of the same level with that of the bed of the St. Lawrence.

In Lake Superior, we find the lowest parts of the basin deeper than the surface of the Atlantic. Each successive elevation of the contiguous land has proceeded, therefore, either without any disturbance of the severed portion that forms the bed of that basin, or if at any time it has been partially lifted, it must afterwards have recovered very nearly its primary position. The surface of Lake Superior is 627 feet above the tide water of the Atlantic, while its greatest depth is 792 feet. A comparison between the surfaces of the Lakes Huron and Erie, with their respective depths, corroborates the general view here given of the mode of the formation of the Canadian Lakes.

Their more sloping shores, and the banks of the St. Lawrence, are overspread in many places with the fragments that have been thrown off from the edges of the fractured strata.

The formation of the basins of the great Canadian Lakes in this manner, might, in the absence of any sufficient cause, be regarded as a probable hypothesis, but considering the difficulty of otherwise accounting for the marginal lines that denote the former more elevated positions of their waters, and considering that the account here given of the mode of their formation, harmonizes with the general law which all existing lands have had respect to in their emergence and elevation, perhaps it may be esteemed an account tolerably satisfactory. Suppose a continuance of the same agency, whose operations have for a few steps been traced, and a series of phenomena very similar to those already observable would occur, an overfall as high at least as that of Niagara at the mouth of the Saguenay, a new Continent on the Newfoundland Banks, and other domains, with hill and dale, rescued from the deep; a few more blows of the subterranean cytoblasts and the same marvellous things as of old would be done.

## PRACTICE OF PHYSIC AND PATHOLOGY.

### The Treatment of Typhus Fever and its Complications.

This subject is discussed at considerable length in the last number of the *Edinburgh Monthly Journal*, by Dr. Davidson. Plain and practical, without pretensions to novelty; the communication is deserving of attention. The author thus expresses his opinions:—

“1. That typhus is a disease which cannot be checked in *limine*, is often tedious in its progress, causing great emaciation and exhaustion; we ought not, therefore without very strong and special reasons, to employ any measures which may vitally lessen the powers of life, such as bleeding, vomiting, and excessive sweating or purging.

“2. The ordinary measures may be the following:— Place the patient in a large, well-ventilated apartment, on a mattress with few bedclothes; let the head be shaved, and kept cool with an evaporating lotion; give a gentle purgative every second or third day; let the skin be bathed once or twice a day with tepid water and this may be accompanied with small doses of tartrate of antimony, antimonial powder, or ipecacuan. His drink should be light, cooling, and slightly diuretic, and his diet nutritive, but light, and little liable to acescency. When there is a tendency to congestion in any organ, a little calomel or hydrargyrus c. creta may be combined with the purgative; or calomel, with a small portion of opium, may be given every six or eight hours. The application of two or three leeches to the temples or nostrils is often useful in congestion of the brain, and also when there is intense headache, which is often the forerunner of delirium. Blisters are also often advantageous in such cases. Derangements of particular functions, or symptoms arising from idiosyncrasy of constitution, sometimes occur, and must be treated accordingly.

“3. Mercury, in small doses, is frequently useful in promoting several of the secretions, and in relieving the congestions of internal organs.

“4. Opium is injurious in a large proportion of cases, from its tendency to cause congestion in the head; but when diarrhœa is a symptom, it ought to be administered with a view to check the exhausting evacuations.

“5. Wines and other alcoholic liquors, as they contain both stimulant and alimentary elements, are the most to be relied on for supporting the strength, and are the least injurious. The pulse, taken along with the general symptoms of exhaustion, ought to be the rule for its [their] exhibition, both as to time and quantity.

“6. Ammonia, camphor, quinine, and other similar tonics, are not to be depended on in bad cases, and when exhibited along with wine frequently cause the patient to refuse both.

“7. When the disease is complicated with local affections in the head, chest, or abdomen, these must be treated on the same general principles as the idiopathic disease, which they represent; with this important modification, that evacuations of all kinds must be employed more sparingly, and with much caution; and that even in these cases, if there be much prostration of strength and a very weak pulse, wine must be administered,

although more moderately than in the simple disease.”  
—*London Lancet*, March 28, 1844.

### On the Diagnosis of Empyema.

By Robert M'Donnell, Esq., of Dublin.

[We hardly need remind our readers that when serum is effused into the cavity of the pleura the affection is named *hydrothorax*, when the effusion consists of blood it is called *hæmothorax*, when the effusion is of a gaseous nature, *pneumothorax*, and when constituted of pus, and other kinds of effusion, we have what is called *empyema*, especially when the liquid compresses the lung and impedes respiration. Mr. M'Donnell has written a most interesting paper on the last-named affection, in which he relates several cases wherein one or more tumours appeared on the surface of the chest, which, after pulsating for some time, became red, tense and shining, and eventually burst, giving exit to large quantities of pus. When the empyema is attended with these pulsating tumours, he calls it *Pulsating Empyema of Necessity*. The following is a good illustration.]

A woman, aged 28, of dissolute and abandoned habits, was admitted into the Meath Hospital, Sept. 6. It appeared from her statement that she had been labouring under symptoms of acute pleuritis for two months, for which she was actively treated. When admitted, she was greatly emaciated, suffered from pain in the left side a little below the mamma; she had cough, with bloody streaks through the expectoration, and inability of lying on either side, decubitus being for the most part on the back. Her pulse was 108, small and weak. The *physical signs* were dullness of the left side, commencing a few inches below the clavicle, and extending downwards both before and behind; the left lateral region was likewise dull; total absence of respiration all over this dull portion; the upper part of the left side, both before and behind, was clear on percussion, with bronchitic rales accompanying the respiratory murmur. The lower half of the sternal region was completely dull, and here the sounds and pulsations of the heart were more intense than in any other situation. The whole of the right side of the chest, both before and behind, sounded clear, and the respiratory murmur was loud, puerile, and free from rale. There was no dilatation of the side observed on her admission.

For the next fortnight there was very little change observed; on the 21st, however, the cough again became very troublesome, and was accompanied by a copious muco-purulent expectoration, and her breath became intolerably fetid; pulse 106, weak and feeble; respiration 25, and very laboured. She complained of slight tenderness a little below the nipple, but there was no discoloration or œdema of the part. On the 26th, a small tumour became perceptible, *every time she coughed*, in the situation of the pain; it was soft, and exquisitely tender to the touch, but not discoloured or œdematous. On the 28th, bronchitic rales were very intense in the right lung, and those in the top of the left lung were much increased; *expectoration had become quite purulent*. When she reclined to the left side, the tumour became greatly enlarged, but receded when she lay on

the right, and had a distinct fluctuation. On the 30th the tumour had extended considerably, and the expectoration was still *purulent and very copious*. Pulse 108, and weak.

From the 1st of October till the 15th, she suffered severely from uncontrollable diarrhœa, and was reduced to such a state that her stools were passed involuntarily. The tumour had greatly increased and was now about the size of an orange; it was red, shining and fluctuating, *and had a strong diastolic pulsation*, which did not convey the idea of being tilted forward by a pulsating body, as occurs in the case of tumours lying on arteries; but it was of an expanding character, and in every part the pulsation was equally strong. *Though frequently examined with the stethoscope, the least trace of bruit de soufflet was never discovered*; nor had it the peculiar thrill so frequently felt in aneurisms. On the 21st she expectorated about a pint of green pus, and the bowel complaint received a notable check. The tumour was still more red, tense, and pulsating, and on the following day it burst, and gave exit to about three quarts of extremely fetid pus, and she became exceedingly weak. After the evacuation of the pus the sound on percussion assumed a clear tone. On the 24th the respiration in the right lung was again healthy, and free from rale. The tumour had receded, the respiration in the affected side was just audible, but without rale. All the metallic phenomena, except *tinkling* and amphoric breathing, were present, and the sound on percussion was quite tympanitic. When the aperture was uncovered, a peculiar rustling or whistling noise was perceived at each inspiration. From this time she began to rally, her strength increased, the diarrhœa ceased, and the purulent expectoration diminished, and she was able to sit up all day, the pus constantly trickling from the fistula which remained open, and for the next six weeks she had periodical discharges to the amount of two or three quarts every ten days or so. At last her strength again failed, the cough increased, the pulse became quick, but she remained free from sweating. The clavicle and spine of the scapula of the affected side became gradually dull, accompanied with feeble respiration, mixed with crepitating rales. The day before her death, which occurred on the 15th of December, a discharge of nearly three quarts of green and fetid pus escaped from the fistula.

*Post mortem examination*.—The right lung was in every respect healthy, not the least evidence of bronchial inflammation in any part of it. On the left side of the chest being opened, the lung was found bound by adhesions to the ribs, for about two-thirds of the pleural cavity, and the remaining third, *i. e.*, between the compressed and shriveled lung and diaphragm, was an empty cavity. The lung was also bound down to the spinal column by two strong bands of adhesion, and its inferior lobe was found red and carnified. The sac of the abscess passed behind the lung also, to a considerable distance; it was coated with a thin layer of organized lymph. The upper lobe of the left lung was the seat of numerous tubercles, beginning to soften, the anterior part of the lower lobe was healthy, but the posterior, as before stated, was solid. The fourth rib was quite carious near its cartilage, and the sixth was in a similar condition, and the pericostæum covering both was in a sloughy state. Exter-

nally the integuments around the fistula were separated for a couple of inches from the subjacent muscles. The liver was enlarged to nearly half its normal size, engorged, and full of blood. The intestines were examined with the greatest care, but no trace of disease could be discovered.

[In the next case related by Mr. McDonnell, two tumours appeared in the lower part of the left side, presenting fluctuation and *pulsation*, which, on being opened, gave exit to large quantities of pus; one tumour was situated in the spot usually occupied by the apex of the heart; the other posteriorly between the tenth and eleventh ribs, about two inches from the spine. They were each about the size of a Seville orange, were soft, fluctuating, not discoloured at first, and possessed a *strong diastolic pulsation*, quite visible, and as strong as that of an aneurism of equal size, but without *bruit de soufflet* or thrill. It was also evident that a communication existed between them, for, by placing the hand on one, fluctuation could be felt when the other was tapped. The heart had left its natural position, (now occupied by one of the tumours,) and was pulsating strongly and visibly to the right of the sternum, under the corresponding mamma. Both tumours were opened at different times to the great relief of the patient, who, however, eventually died of phthisis after a residence of 4 months in a prison. In the third case related, "two tumours, each about the size of a hen-egg, were observed one occupying a situation a few inches below the nipple, the other presented itself between the tenth and eleventh ribs, about two inches from the spinal column. They were rather tender to the touch, a few turgid veins surrounded their bases, the integument covering them was discoloured and reddish, and they both possessed a well marked fluctuation, and a distinct, perceptible, and diastolic pulsation. This latter peculiarity was not only evident to the touch, but quite perceptible to the eye; and as was noted in the two former cases, these tumours were completely devoid of thrill or *bruit de soufflet*, and the pulsation had all the characters that were observed in the two others." An opening was made into the posterior tumour, and a large quantity of odourless pus was discharged; the entire amount was not, however, drawn off, and the wound was closed with adhesive plaster, and soon united. When next examined, the tumour was found as large as before, and again presented the *pulsation* as well marked as ever. From the operation he experienced great relief for a few days, but again the urgent symptoms obliged Mr. Morrison, his regular attendant, to make a second opening, and as soon as the matter began to flow, he got ease from the sense of suffocation. For a little while the patient appeared to improve, but he soon fell a victim to distressing hectic.]

*Remarks.*—The three preceding cases are no less interesting than important, and, as far as I have been able to ascertain, are perfectly new in the history of empyema, there being no mention made of such cases in any of the recent writings on the disease. It is worthy of notice that in all three large tumours presented themselves in the situation usually occupied by the heart's apex, and, in all, the heart itself was dislocated to the right of the sternum; there cannot then be the least doubt as to the source from which the pul-

sation was derived, and the manner in which it was communicated to these abscesses. The heart, pushed out of its normal position, pulsated strongly and equally against their walls, and their contents being fluid and of equal density, a uniform and diastolic impulse was communicated to all parts of their surface, more intense, of course, in those situations nearest the source of pulsation. This accounts for what was noticed in the three cases, that the pulsation did not resemble that so often observed in tumours lying over large arteries, in which the motion consists in a mere tilting forward, nor was it like that which is seen in ordinary abscesses lying on an artery, in which the pulsation occurs, generally speaking, along the line of the vessel, and is scarcely perceptible in any other part of the tumour; but it was uniform, expanding, and strong. In the two last cases, the tumours behind either derived their pulsation from the heart or from the thoracic aorta, and were from their size, situation, and feeble pulsation, more likely to lead us into error than those in front. What are the affections with which these cases might have been confounded by a person ignorant of the actual state of our knowledge respecting thoracic disease, or who unacquainted with their history, had only seen them for the first time? Thoracic aneurism, and pulsating cancer of the lungs immediately present themselves to our view, and on examination we shall find that they possess some features in common. When compared with aneurisms we have, in both cases, tumours occurring in patients, who, for a length of time, complained of pain in the side, difficulty of breathing, cough, inability to lie but on one side; whose constitutions were exhausted by the protracted and distressing nature of their complaints, and in whom the outward progress of the disease was marked by severe pain at a particular point, in which, after a time, a small tumour, of a soft and yielding nature, is observed, which gradually increases in size, is totally devoid of pain, and presents well-marked *diastolic pulsation*. But, on the other hand, the history of the two last cases was that of pleurisy with effusion; their duration, also, (three years,) was greater than the average length of time that patients with thoracic aneurisms lived, and at no period did they experience those dreadful, tearing, and lancinating pains peculiar to the latter disease; and in addition, many of the usual symptoms of the affection were absent, such as dysphagia, the *peculiar aneurismal cough*, a *bruit de soufflet* on placing the stethoscope over the tumour, and a thrill sensible to the hand: and, as far as I have been able to ascertain aneurism of the thoracic aorta has never presented itself externally in two situations so widely separated. They were also distinguished from aneurism in the following particulars; the greater portion of the affected side was dull, and without respiratory murmur, yet the pulsation was *only* felt in the external tumours, in this respect differing essentially from aneurisms, in which the pulsation, thrill, and *bruit de soufflet*, (when present,) are most intense at the point of maximum dullness; and though by pressure on a bronchial tube aneurisms may prevent the entrance of air into the part of the lung to which the tube leads, and thus produce absence of murmur, yet this portion of lung will yield a clear sound on percussion, thus presenting phe-

nomena altogether different from those observed in my cases.

These cases, however, established the fact, that "empyema of necessity" is liable to be mistaken for aneurism, particularly, (as in the first case,) when it occurs in the form of *one large pulsating tumour*, and an accurate knowledge of the characteristic features of the two affections is necessary in order to avoid committing the greivous error of pronouncing an empyema to be an aneurism, or *vice versa*. But we do not anticipate so much difficulty in distinguishing between these two diseases as between such cases as I have detailed, and "cancer of the lung and mediastinum." At the very outset of our investigation a great difficulty presents itself, for we cannot avail ourselves of the aid derived from the history of the disease, for in many of the most accurately recorded instances of cancer of the lung, the patients evidently suffered at the commencement of their illness *from pleurisy excited by ordinary causes, and followed by empyema*, and, in other instances, where the existence of empyema was not actually discovered, the history of the cases resembled, in many particulars, that of ordinary pleurisy.

[Mr. McDonnell next relates two interesting cases of empyema in which the pus made its way, not externally, but into one or more of the bronchial tubes, and was removed by expectoration. The first case commenced with acute pleuritis, followed by copious purulent expectoration, two large sputa-cups full of thick, yellow, "well concocted" pus being expectorated daily. The entire of the empyema was thus removed by expectoration, and in six weeks the patient quite recovered. Professor Green, in the 17th vol. of the Dublin Journal, has drawn the attention of the profession to some cases of this kind.] "He details the particulars of four cases of the disease, in all of which copious *purulent* expectoration was a prominent symptom; and in all there were external tumours, which it was deemed prudent to puncture. In these instances, it was observed, that as soon as the matter got exit by the external opening, the quantity of *purulent* expectoration diminished, and the same circumstance occurred in the case now mentioned. Dr. Green adds—The first explanation I heard offered as to the nature and cause of this expectoration was suggested by Dr. Hutton, in a consultation held on one of the cases detailed. He observed, that he had frequently seen the expectoration to subside and lose its character when an opening had been made for the collection, and had consequently come to the conclusion, that in many cases of empyema the expectoration was the result of an effort of nature to free the system of purulent deposit through an external outlet, which in these instances, was effected through the bronchial tubes.

"The paper of Dr. Greene must be regarded by every physician as one of the most useful that has appeared for many years. We learn from it, that though a patient present all the symptoms of extensive empyema of one side, with bronchitic rales or gurgling in the opposite lung, and copious *purulent* expectoration, the case is not to be despaired of, nor are we justified in giving a positive diagnosis of the existence of pulmonary abscess.

"Before the appearance of Dr. Greene's paper, these cases would have been considered as hopeless examples of pulmonary abscesses, or at least of empyema bursting into a bronchial tube. This leads me to make a few remarks, suggested by the close observation of some cases of empyema, which have terminated by purulent discharges from the bronchial tubes. There are two modes by which this process is effected; in one, the membrane, takes on a vicarious action, by which large quantities of pus are discharged without any distinct evidence of inflammation being set up in the membrane, or communication being established between the bronchial tubes and the sac of the abscess. In the other form, a direct communication exists between the bronchial tube and the sac of the empyema. They are both efforts of nature to get rid of the purulent collection and effect a spontaneous cure, but as the means adopted are so widely different, an equally opposite train of symptoms may naturally be expected to attend these processes, and such we find to be the case.

"In the examples detailed by Dr. Greene, and in those which I have given, the expectoration was thrown up in small quantities at each paroxysm of coughing, and though it amounted to a considerable quantity during the twenty-four hours, yet what followed each paroxysm of coughing never occasioned any distress to the patient or alarm to his attendants, and was excreted gradually and regularly, without producing any violent or distressing symptom to the patient; and the removal of the empyema, as shown by diminution in the extent of the dulness and return of respiratory murmur in the affected side, was equally gradual and progressive. But, in the second class of cases, where a direct communication has been established, we have, in addition to the rapid development of the physical signs denoting the accident, (such as the sudden removal of the dulness, with metallic phenomena of the voice and cough, and a tympanic sound over the portion of the chest previously dull,) a violent and sudden paroxysm of coughing, usually accompanied with expectoration of a large quantity of pus, so great as in almost every instance to produce the most alarming symptoms of suffocation, and not unfrequently even death from this cause. This is followed by relief for a time, but a second and third accumulation of the matter takes place, which is again got rid of in the same way; and on each occasion the patient's life is in imminent danger from asphyxia."

[It might seem difficult to distinguish these cases from true pulmonary abscesses, but these latter affections "are not accompanied with very copious expectoration, but, on the contrary, are found to contain an exceedingly small quantity of pus." Pneumonic abscess is, moreover, one of the rarest lesions met with in the lungs, and almost always occupies the base of the organ, while tubercular abscess is situated in the apex. The points discussed in this admirable paper of Mr. McDonnell are summed up by him as follows:—]

1. That in cases I., II. and III., we are presented with a new form of empyema, which may be termed "Pulsating Empyema of Necessity," exhibiting some features common to that form of empyema and to tho-



racic aneurism, and encephaloid disease of the lung.

2. That it may be diagnosed from thoracic aneurisms, by

- a. The history of the case.
- b. The dulness extending over the whole side, the pulsation being only felt in the external tumour.
- c. The absence of thrill.
- d. The absence of *bruit de soufflet*.
- e. The extent and nature of the fluctuation.

3. That it may be distinguished from encephaloid disease of the lung and mediastinum, by

- a. The absence of the expectoration resembling black currant jelly.
- b. The absence of a persistent bronchitis.
- c. The absence of a varicose condition of the veins and œdema of the side affected.
- d. In cancer of the lung the situation in which the external tumours form, is not invariably confined to the thorax.

4. That copious purulent expectoration in empyema is not always indicative of cavities in the lung; but on the contrary, is of frequent occurrence in this disease, and seems to be the result of an effort of nature to get rid of the purulent collection by the nearest and readiest outlet.

5. That this symptom, when it results from the above cause, is not attended with the usual symptoms either of abscess of the lungs, or inflammation of the bronchial mucous membrane.

6. That a true bronchitis of the sound lung frequently complicates empyema.

7. That still more frequently the sound lung becomes congested, and presents some of the ordinary signs of bronchitis and pneumonia, from both of which it may be distinguished by attention to the rules laid down in the previous part of this communication.

8. That in addition to depression of the liver, from mechanical causes, that organ is likewise enlarged from engorgement with blood in empyema.

9. This enlargement is not confined to empyema of the right side, but occurs also when the disease is seated in the left cavity of the chest.

10. That this enlargement is identical with that which takes place in other affections of the lungs and heart, where, in consequence of their functions being impaired, an additional duty is imposed on the liver, viz., that of eliminating carbon from the blood, as proved by the researches of Tiedemann and Gmelin, Elliotson, and Liebig; and as occurs in the former cases, so likewise we observe in this, that the increased size of the organ is due to an additional afflux of blood, whereby its structure becomes engorged, softer in consistence, and darker in colour.

11. This condition of the liver has been observed by myself as proved by dissection, (see Case 1,) and its presence detected in other cases that have recovered. It has also been mentioned by many writers in their accounts of the appearances noticed at the autopsies of cases of empyema, who have recorded the fact, though unaware of its connection with the subject under discussion, and it must now be considered as constituting an additional feature in the diagnosis and pathology of empyema.

12. This condition of the liver, when it occurs in the ordinary diseases of the heart and lungs, has been observed to disappear as soon as the obstruction to the circulation of the blood and want of proper aeration, which gave rise to it, had ceased. So likewise in empyema, its disappearance is one of the first signs which indicate the removal of the effusion, and the return of the compressed lung to the performance of its functions.—Braithwait's Retrospect, Vol. IX., from *Dublin Jour. Med. Sci.*, March, 1844.

#### Valerianate of Zinc in Nervous Affections.

Dr. Devay, from numerous trials of the valerianate of zinc in neuralgic affections, has satisfied himself that it is a remedy of considerable powers, and deserves to be more generally employed. It appears, however, from the cases he has recorded, that its curative powers are confined to purely nervous affections. Its therapeutic virtues have been powerfully manifested in the nervous affections which accompany chlorosis, in the *douloureux*, not depending upon an organic cause, in hemiplegia, and even in some cases of satyriasis and epilepsy. It seems to act as a powerful antispasmodic, combining the powers of valerian and zinc. The dose is half a grain, two, three, or four times a day.—*Gaz. Méd. de Paris*, 29 June, 1844.)

#### Symptoms of Acute Pleurisy caused by Intestinal Worms.

The *Journ. de Méd. et de Chirurgie Prat.*, (Ap. 1844.) quotes from the *Gazette Médicale de Dijon*, the case of a young man, nineteen years of age, who was attacked with all the symptoms of acute pleurisy—chill followed by fever, severe pain in the left side, difficult jerking respiration, paroxysms of dry coughing, which drew screams from the patient, &c.,—and all of which promptly disappeared after the evacuation of a large number (75) of lumbrici.

### SURGERY.

#### Excision of the Eyeball in cases of Melanosis.—Medullary Carcinoma, and Carcinoma.

Dr. Robertson has had occasion, in the course of his practice, to remove the eyeball, in sixteen instances, for one or other of the above diseases. The results of the operations were in four out of five cases of melanosis, perfectly successful, and no return of the disease, after considerable periods. The fifth patient died from a different disease, within twelve months. Five cases of medullary carcinoma were operated on; in four, the disease returned; the fifth was cured; but there was some doubt as to the real nature of the tumour. Of six cases of carcinoma, three were cured; in two, the disease returned; and one died. Some inferences as to the chances of success in operations on the eye, for malignant disease, may be derived from these results.

The diagnosis of a simple from a malignant affection of the eye is thus described by the author:—

“An appearance in the eye dependent on a totally different cause, but resembling medullary carcinoma in its early stage, is occasionally met with. It is when either pure blood or fibrine is effused from the arteria centralis retinae into the cells of the hyaloid membrane. When blood is effused, it presents, at first, when viewed in a clear light, a bright scarlet hue; but in proportion as the colouring matter of the blood is absorbed, it exhibits the peculiar metallic, glistening appearance, which is seen in the malignant disease. This effusion of blood into the vitreous humour may occur spontaneously, or be the result of external injury. The red colour presented in the early stage,

and the sudden occurrence of the affection, will point out the difference between it and the malignant tumour.

“It is more difficult to form a diagnosis between cases of *effusion of fibrine* into the hyaloid membrane, and the malignant tumour. In the instances of effusion of fibrine which I have witnessed, the metallic lustre, which must arise from the presence of an opaque reflecting substance deeply seated in the eye, was not so clearly marked as in the malignant disease, probably owing to the effusion being in the substance of, and not posterior to, the vitreous humour; for it is found that, in proportion as the opaque reflecting body advances towards the cornea, it loses its metallic lustre. I have observed also, that, in the non-malignant affection, although the pupil was dilated, it was regular in form, and the texture and colour of the iris were not altered. In some instances, also, vision was not entirely lost, whereas, in malignant diseases, total blindness, I believe, always exists.”

*The points of analogy and difference between encephaloid, scirrhus, and melanotic disease,* are clearly and accurately stated in the following table:—

ENCEPHALOID.	SCIRRHUS (as in common cancer of mamma.)	MELANOSIS.
Of consistence of brain in thin cellular septa.	Of firm consistence in cellulo-fibrous septa.	Of soft consistence in thin cellular septa.
Of an opaque white colour.	Semi-transparent bluish-yellow colour.	Black or sepia colour.
Numerous minute vessels.	Sparingly supplied with bloodvessels.	No bloodvessels have been traced.
Consists of globules and caudate corpuscles.	Nuclear cells. No caudate corpuscles.	Pigment cells—round, oval, or irregular, and sometimes caudate.
May become of enormous bulk.	Seldom of large size.	They attain a large size.
Often of rapid growth.	Progress generally slow.	Growth of variable rapidity.
Often interstitial effusion of blood.	Rarely interstitial hemorrhage.	Never interstitial hemorrhage.
Not disposed to form adhesions to surrounding parts.	Becomes firmly connected with surrounding parts.	Not disposed to form adhesions to surrounding parts.
When subcutaneous, the skin is distended and stretched, and gives way usually by simple ulceration.	The skin becomes puckered and assumes the cancerous ulceration.	The skin becomes stretched and distended, and yields by simple ulceration.
After ulceration, rapid progress, and often large fungous growths, and frequently hemorrhage.	After ulceration progress not so rapid, and seldom profuse hemorrhage, provided it does not assume the encephaloid structure.	After ulceration progress of tumour rapid—no hemorrhage.
This species of carcinoma most frequently met with in infancy and youth.	Most common in advanced life.	Usually about or after middle age.
Liable to be propagated through the absorbent organs.	Even more liable to be propagated through the absorbent organs.	No tendency to be propagated through the absorbent organs.

—*London Lancet*, December 21st, from, *Northern Journal of Medicine*.

**On the Use of Nitric Acid as an Escharotic in certain Hæmorrhoidal Affections.**

In a previous number of the same (*Dublin*) journal, Dr. Houston makes the following remarks on this subject:—

“The failures which have occurred in other hands may, perhaps, be often traceable to want of discrimination as to the fitness of the case for the remedy, or to some imperfection in the application of the latter. As I have known errors of this kind to happen, I must repeat, that the only case which the nitric acid will serve, is the internal bleeding pile—that soft, red, strawberry-like elevation of the mucous membrane, for which I have used the term vascular tumour, and which the acid removes by the production of a slough of its surface. The surface to be acted upon must be soft, and free from any coating of cuticle, such as is apt to form on it by persistent prolapse; for if the acid be used in a case so circumstanced, nothing more than a removal of the cuticle may be expected from the application; and further, to ensure to the caustic its full effect, the part to be touched should, beforehand, be dried and cleared of all mucous or other adherent fluids. There is no danger, that I know of, to be apprehended from the application of the acid. The acid must be laid on in quantity, and rubbed in with force enough to be pressed into the pores of the surface, [and the tumour must, if possible, be returned within the sphincter.] At the best, the caustic produces only a very superficial slough; and, on this account, it will be necessary, in some cases—as where the tumours are old and firm in texture—to make a second, and even a third, application.”

These remarks are followed by a series of cases illustrating the author's views. He then further observes, that the remedy is not so painful in its application as it may at first sight appear to be. In its action, the acid, by destroying the vascular surface, arrests the hæmorrhage, and if the relaxation be not immoderate, cures the prolapse by bracing up the textures underneath.

The treatment further consists of attention to diet, to cleanliness, and the use of remedies, local or general, calculated to remove the primary exciting cause of the disease. —*London Lancet*, Dec. 14, 1844.

**Luxation Backwards of the Axis on the Atlas,**

BY M. HIRIGOYEN.

In connexion with a recent medico-legal investigation, of some remains of a human skeleton discovered lately in this city, the report of which was published in the *Montréale Gazette*, and subsequently copied into the *Medical Gazette*, and in which there was the strongest presumptive evidence that a luxation backwards of the axis was produced by a violent blow on the occipital bone, close to the right additamentum, the following case of a similar luxation may not prove uninteresting:—

Two cases only have as yet been recorded of this affection; the one by J. L. Petit, the other by Sir Charles Bell. The present case presents therefore some interest.—John Dumé, *etat.* 60, was brought at eight p.m. to the Hospital Saint André, Bourdeaux. This man, by trade a mason, while on a scaffolding about fifteen feet from the ground, lost his equilibrium, and fell on his head on some sand. When examined immediately after by M. Chaumet, chief surgeon of the hospital, and M. Hirigoyen, his state was as follows:—deep coma; eyes shut; no deviation of the features; respiration quiet, though somewhat weak and slower; pulse very weak, 58; muscles flabby, and not contracted; no blood had flowed from the ears and nose; no wound or contusion; vertebral column straight; slight excoriation of the skin on the inside of the right carpo-radial articulation; head thrown backwards, though not more so than that of a corpse when placed in a horizontal

position; as mobile as when uninjured. These symptoms seemed to indicate cerebral concussion; consequently, sinapisms were ordered to be put on the lower extremities; purgative enemata to be employed, and blood to be drawn if the pulse became stronger; but all was useless; the intensity of the symptoms did not decrease in the least, and the patient breathed his last the night following the accident.—*Post mortem* examination: impressed with the idea that the man had died from cerebral concussion, the skull was carefully removed, but no effusion of blood, nor any other lesion of the brain, could be discovered, and it was only on taking this viscus out of the cranium, that the cause of death was perceived. The medulla oblongata was pushed backwards, and somewhat flattened against the posterior portion of the atlas, on a level with the lower third of the corp. pyramidal; the inferior portion of the brain, the cerebellum, and the pons varolii, presented no lesion; through the spinal dura mater, a bluish tint was perceptible anteriorly, produced by an effusion of blood between that membrane and the vertebræ; and a considerable eminence, the cause of the flattening of the medulla oblongata, was discovered, and, when the dura mater was divided, it was found to be formed of the odontoid process, placed behind the transverse ligament, somewhat more to the left than the right; right odontoidian ligament entire, whilst the left was torn near the processus dentatus: the former crossing the transverse ligament, and preventing the apophysis from rising above it, or pressing the medulla to a greater extent; the articular surfaces were separated from each other; no fracture; nothing abnormal in any other of the viscera.—*Medical Times*, Jan. 21, 1845, from *Bulletin Med. de Bordeaux*.

### MIDWIFERY.

**Cæsarian operation performed with success both for the mother and child; rupture of the uterus and of the abdominal parietes thirteen months subsequently, during a second pregnancy; delivery of the fœtus through this spontaneous opening; complete recovery of the mother.**

This very extraordinary, and, we believe, unique case, is related by Dr. PRAEL, director of the Obstetrical Institute of Hildesheim, in *Numeister's Algem. Repertorium der gesam. Deutsch. Med. Chirurg. Journalistik*, for June, 1844. We abridge the details from the *Archives Générales*, for Sept. 1844.

The subject of the case was a woman, twenty-eight years of age, who had a deformed pelvis, resulting from rickets, which prevented delivery per viam naturalem. The Cæsarian operation was performed on the 11th January, 1842, and a live infant extracted, which, however, died when nine days old with trismus. The mother slowly recovered without any alarming symptoms. The wound did not, however, completely cicatrize for two months. The menses reappeared about the middle of August, and the patient left the hospital in good health on the 17th of September. The cicatrix was five inches long, and from a half to three quarters of an inch broad.

Notwithstanding all the dangers of her first labour, she became again pregnant on the 1st of January, 1843. For the first four months which followed, she was so well that she was only rendered sensible of her pregnancy by the motions of the fœtus in the twenty-first week of utero-gestation; these movements were accompanied with very severe pain in the back; but continuing only a few minutes, and which distressed her the less, as she had experienced the same when sixteen years of age. Nor was she any more concerned about a tumefaction of the skin with a small ulcerated spot which had appeared some time before upon the right side of the abdomen, about a hand's breadth from the cicatrix left by the Cæsarian section. This ulceration seemed to enlarge daily, discharging pus and sometimes blood; it gave little or no pain. On the 14th July, having taken cold, she had fever, with pain in the sides, back and abdomen. Dr. Schröder, who was called to see her, felt so distinctly the infant through the abdominal parietes,

that he at first thought it an extra-uterine pregnancy. That night she had pains resembling those of labour, but they soon ceased. She soon recovered from this attack, but the motions of the fœtus were no longer perceptible. On the evening of the 18th July, she experienced an urgent desire to go to stool and to urinate. She got out of bed, walked a few steps, and called her sister to bring her the chamber. Suddenly the abdominal parietes burst with a slight cracking sound, and through the rupture the fœtus presented, enveloped in its membranes. Being alone, she endeavored with her two hands to prevent the escape of the mass. A midwife called at the instant, removed the fœtus which had escaped by the rupture and was dead, and put the patient to bed. Dr. Schröder arrived an hour afterwards. He found a large transverse rupture of the abdominal parietes, five inches long, a hand's breadth below the umbilicus. The membranes and a part of the omentum protruded on the right side, and on the left was the cord and the placenta still adherent to the internal surface of the uterus. Dr. Prael saw the patient soon afterwards. She was at this time in a satisfactory condition; she was, it is true, pale, and pulse small, but there was nothing in her words or actions which indicated any great danger. The hemorrhage had not been abundant; the wound was not painful, it merely smarted slightly. It gaped so much that, at first view, doubts might have been felt whether it was transverse or perpendicular. The right side of the wound was occupied by a violet tumour, the size of the head of a new-born child, formed by the membranes filled with coagulated blood, and a portion of omentum. The placenta in part visible, and a portion of the cord occupied the other part of the wound. None of the intestines had prolapsed.

As the umbilical cord was so slender as to give rise to fears that it would break by the least pulling, Dr. Prael introduced three fingers into the uterus through the abnormal opening. That organ was already contracted, so that the direction of the wound in it could not then be determined with certainty. Dr. Prael detached, not, however, without difficulty, the placenta which was attached to the posterior parietes of the uterus. The blood was removed, the lips of the wound in the uterus brought together, and the omentum replaced. Not being able to use sutures to the abdominal wound, its lips being swollen, unequal and œdematous, he kept it closed with adhesive straps placed perpendicularly, and completed the dressings with soft compresses and a bandage.

The reaction which followed this severe lesion was moderate. The wound assumed, however, an unhealthy appearance, discharged copiously a bloody sanies, and its margins became gangrenous. Nevertheless, except the stools, all the functions were performed normally; even the lochia flowed by their natural route. Gradually the appearance of the wound became better, it discharged healthy pus, and under a tonic and invigorating treatment, the cicatrization went on, and by the 5th October, it was complete. Six weeks after this accident menstruation reappeared, and about the end of October, she menstruated a second time without pain, the discharge less abundant, however, than at the first time.

**Case of Gravid Uterus passing into the Sac of an old Inguinal Hernia.—Cæsarian Section.** By THEOPHILUS FISCHER, M.D. On the 12th October, 1832, Magdalene Munger, forty-four years of age, from Wohlen, living in the parish of Kœnitz, was taken as an urgent case to the surgical department of the hospital (Insel) at Berne, under the superintendance of Dr. Isenschmid, (professor of surgery), in whose absence, at that time, the duties of the institution were conducted by the author of this paper.

Upon examining the patient, it was found that she had had seven children, six girls and one boy. Ten years previous to her marriage she had an inguinal hernia on the right side, which was neglected, she never having worn a truss. In every pregnancy the woman suffered much inconvenience from the hernial tumour, which frequently became very large.

She was now pregnant of her eighth child, and at the sixth month of her pregnancy. The hernia had been incarcerated for several days previous to coming into the hospital, but her sufferings had been subdued by cataplasms of linseed meal and cold applications, by which means the hernia was reduced. After the hernia was reduced, the most severe pains came on suddenly in the whole abdominal region, in the loins and lower extremities; and, during these pains, the impregnated uterus got out of its natural position, and protruded through the inguinal ring, covered by the hernial sac. The gravid uterus was easily distinguished,

and of an egg-like form, resting upon the thighs to the length of eight inches downwards, and six inches in circumference. The woman, lying upon her back, was free from pain. No menstrual discharge had taken place for six months. On examination per vaginam, the os uteri was found, as is generally the case in pregnancies of six months, only a little retracted, higher and more inclined to the right side. The functions of the bladder and rectum were natural. The abdomen was small, relaxed and wrinkled. By applying the stethoscope to the lower and anterior part of the tumour, and placing the ear on the orifice of the instrument, regular pulsations were discoverable. From this time the patient never abandoned her bed, always maintaining her position on the back; and in this position she was tranquil, and had no return of pain up to the full period of her pregnancy, although the dimensions of the uterus gradually increased to such a degree, that, on the 19th January, 1833, it measured twenty-five inches and two lines in circumference, and in length twenty-two inches and ten lines, the circumference at the base being considerably smaller. On the above-mentioned day, at six o'clock in the evening, the woman felt herself unwell; she had pains in her loins and abdomen, and contractions in the uterus; the orifice of the uterus became dilated, and, between six and seven o'clock, the waters per vaginam escaped, upon which the pains increased prodigiously. In consultation, Dr. Leuch decided upon performing the Caesarian section, which he performed about nine the same evening, in the presence of Professors Isen-schmid, Hermann, Emmert, the medical men Nilians, Fischer, and some students.

The woman, placed on her back, Dr. Leuch standing on the right side of the patient, formed on the lower half of the tumour a fold of the integuments on the right side, making an incision longitudinally, seven inches in extent. By a second incision he opened the hernial sac, and the fundus of the uterus; the placenta, which adhered at this part, was divided by the same incision, and bled profusely, after the opening into the uterus was enlarged. The membranes were also divided, out of which the remaining part of the waters ran. The operator then introduced his hand, and found a living, healthy, well-formed child, with its head at the fundus of the uterus, and with its feet towards the hernial ring. The funiculus umbilicalis was divided and tied, the placenta detached, and the child given to the care of a nurse. The wounded uterus bled very much, and retracted itself to at least three-fourths of its former extent. The wound of the integuments was now made clean, and brought together by ligatures. At the lower part an opening was left, to admit of the escape of blood. Upon the incision were placed some straps of adhesive plaster, and compresses of lint, and the whole secured by a spiral bandage lightly. The patient being now made clean, was left to rest. Her countenance was pale and shrunk; on a sudden she had hiccups, and severe pain in her back and loins; her pulse was weak, and she had given to her a draught of liq. anod. miner. Hoffm. tinct. cinnamon et tinct. opii.

Before midnight the bandage was made looser on account of severe pain; and at two hours after, the bandage was removed entirely. A small artery bleeding showed itself in the hernial sac, and some coagulated blood was found in the cavity of the uterus and its vicinity. Towards the morning of the 20th of January, the patient was more quiet; but very weak, and ether was given to her. On that day a constant vomiting followed after every thing she took, without distension and sensibility of the abdomen; and with these symptoms the patient died at between three and four o'clock on the morning of the 21st. The *sectio cadaveris* was made thirty hours after death.

The circumference of the tumour, taken horizontally, measured seventeen inches, and longitudinally, twenty-one inches nine lines, and the base eighteen inches eight lines. In the cavity of the abdomen it was discovered, that hemorrhage had taken place from the wounded uterus, the ligature, applied to the incision of the hernial sac being found in its proper place. The inguinal ring was so much extended as to admit an open hand to pass through with ease. The hernial sac was above, and to the right, and the uterus below, and to the left part of the ring. The incision in the uterus was found to the right, and in front. The colon was found detached, but lying in the hernial sac, and measuring twelve inches in its outer circle. A small fold of this intestine was found adhering to the inguinal sac posteriorly. The pelvis was large and well formed.

The infant is still living and healthy.—*Lond. and Edin. Month. Journ. Med. Sci.*, January, 1844.—*American Journ. Med. Sci.*,

## On the Nature and Causes of Puerperal Convulsions.

BY W. TYLER SMITH, M. B., LONDON.

In attempting to apply the physiology of the spinal marrow to the explanation of the mystery which has hitherto surrounded the pathology of puerperal convulsions, it may not be improper or unconstructive to give, in the first instance, the current opinions of the most eminent authorities respecting the nature and causes of this terrible disease. The following extracts will, I believe, be found to contain in as short a space as possible, the most recent views which have been advanced on these important topics:—

“The most usual proximate cause of puerperal convulsion is, probably, pressure on the brain, this pressure being sometimes produced by the rupture of a vessel, causing a sudden effusion of blood; sometimes by serous exudation into the ventricles or between the membranes; sometimes, and by far the most frequently, by simple congestion of the cerebral vessels themselves. But the disease has often proved fatal, without any organic lesion being evident on dissection, and without even the vessels being observed to be preternaturally full. Into the remote causes it is not my wish to enter at any length, because the subject is at best but unsatisfactory, and little understood. They have been ascribed to articles of food remaining undigested on the stomach, or irritation existing in some other part of the alimentary tube; to general irritability of constitution; to a delicate and luxurious mode of living; to the depressing passions; to an overloaded state of the system; to over-distension of the uterus; to distention of the bladder; and to the death of the child. But the affection, in my opinion, originates most frequently in some deranged state of the uterus itself, probably in its nervous system, and consists in some irritation propagated from that organ to the brain.”—Dr. F. H. Ramsbotham’s “Principles of Obstetric Medicine and Surgery.”

“The exciting cause of eclampsia parturientium is the irritation arising from the presence of the child in the uterus or passages, or from a state of irritation thus produced continuing to exist after labour. The predisposing causes are, general plethora; the pressure of the gravid uterus upon the abdominal aorta; the contractions of that organ during labour, by which a large quantity of the blood circulating in its spongy parietes is driven to the rest of the system; constipation; deranged bowels; retention of urine; previous injuries of the head, or cerebral disease; and much mental excitement. Also ‘in persons of hereditary predisposition, spare habit, irritable temperament, high mental refinement, and in whom the excitability of the nervous, and subsequently the sanguiferous, system, is called forth by causes apparently trivial.’”—Dr. Rigby, “Library of Practical Medicine.”

“Convulsions of the kind I am considering, evidently are connected with gestation or parturition; they occur at no other time, and are more frequent in a first labour. \* \* \* They arise particularly from uterine irritation, but also seem frequently to be connected with a neglected state of the bowels. \* \* \* The sympathetic irritation is almost invariably accompanied by an affection of the vascular system, productive of great determination to the head, either directly or indirectly, through the medium of the spinal nerves, which aggravates the evil, and becomes indeed the chief source of danger. I am inclined to think that, in a majority of instances, the spinal cord is first affected by the state of the uterine nerves, and immediately afterwards the head suffers. \* \* \* A strong predisposition is given to this condition of the nervous system by a bad state of the bowels, and labour seems to bring the matter to a serious crisis. \* \* \* On inspection after death, we sometimes find turgescence of the vessels of the brain, or slight effusion of serum, but very often no mark of disease is to be discovered anywhere.”—Dr. Burns’ “Midwifery.”

“Those women are most predisposed to the disease who have had hysteria or epilepsy in early life, who have suffered from injuries of the head, or who have had violent attacks of fever, with severe affections of the brain. Depressing passions of the mind appear to produce a predisposition to the disease. Unmarried women, who are excluded from society, and often addicted to the improper use of stimulants, are peculiarly liable to puerperal convulsions and mania. Terror, and other violent mental impressions, and sometimes the pains of labour alone, are sufficient to excite convulsions. The disease occurs, not only in strong plethoric young women with their first children—in such as are of a coarse thick make, with short thick necks—but in weak, irritable nervous females. There are some cases where irregularities of diet, especially the use of very indigestible food and stimulants, appear, without any other cause that can be discovered, to give rise to the disease. There are many cases in which the peculiar condition of the nervous system of the uterus appears to be the sole cause, and in all cases it is the principal predisposing cause, for the fits of convulsions occur in most women in the first pregnancy and labour, and at no other time but during pregnancy and labour; and they often suddenly cease when the labour is completed, after every remedy has been employed without avail, except artificial delivery. The condition of the brain, on which the loss of consciousness and convulsions depends, is obviously produced by sympathy with the nervous system of the uterus; and the fits return and increase in violence, till the uterus is emptied of its contents, and it is on them the irritation of the nerves of the uterus alone depends.”—Dr. Lee’s “Lectures on Midwifery.”

“It is exceedingly difficult to state anything very definite as to the cause of epileptic (puerperal) convulsions. Doubtless they arise from the sympathy of the brain with the irritation of some different, and often distant, organ—it may be the stomach, the uterus, or the bowels. Intemperance in eating or drinking may give rise to it. Persons previously afflicted with convulsive affections are certainly predisposed to them at this time. Mental emotions and frights occasionally cause convulsions. In some cases, doubtless, they are owing to the efforts made during the labour pains, by which an accumulation of blood takes place in the head. Atmospheric influence appears to have some effect in determining the frequency of the disease.”—Dr. Fleetwood Churchill’s “Midwifery.”

“The immediate causes of puerperal convulsion are often very obscure. They appear sometimes to depend on a loaded state of the vessels of the brain; at other times the brain appears to be influenced by distant irritation, either in the uterus or in the digestive organs, and again, in some cases, puerperal convulsions are induced by a peculiar irritability of the nervous system. The immediate attack may be brought on by a loaded or disordered stomach, or by food, however small in quantity of an indigestible kind. Some substances—shell-fish, for instance—have been found very frequently to induce convulsions in the puerperal condition, when at other times they may have been taken by the same individual with perfect impunity. A sudden fright, afflicting intelligence, or any unexpected or depressing mental emotion, may excite the paroxysm. The violent straining caused by labour pains, and even the disturbance of the frame by the earlier uterine contractions, causing a temporary rush of blood to the head, will sometimes bring on convulsions.”—Dr. Locock, “Cyclop. Pract. Med.”

Speaking of the relative frequency of convulsions in head presentations, Dr. Collins observes, “This fact might be brought forward to support the opinion that puerperal convulsions were caused by the irritation produced in the dilatation of the mouth of the womb. This, however, is not the case, as we not unfrequently find patients attacked

when the os uteri is completely dilated, and all the soft parts relaxed. I conceive we are quite ignorant as yet of what the cause may be, nor could I ever find on dissection any appearance to enable me to even hazard an opinion on the subject.”—Dr. Collins’s “Midwifery.”

These quotations are sufficient to shew the great discrepancy and uncertainty of opinion which prevails among the most eminent obstetric writers respecting the causes of puerperal convulsions.

As a contrast to this confusion, the views of the discoverer of the functions of the spinal marrow may be brought forward. With a few graphic and masterly touches, he stamps the malady as one of the diseases of this division of the nervous system.

“The principal causes of puerperal convulsion, besides the peculiar condition of the uterus itself, are, indigestible food, a loaded and morbid state of the bowels, a distended condition of the bladder, &c., mental shock or anxiety, muscular effort, hæmorrhage, &c. Dr. Marshall Hall further believes, that all these and similar causes act upon the spinal marrow and its system of excitor and motor nerves. This view of the subject I propose to develop at greater length than Dr. Hall has hitherto done, but in accordance with his physiological and pathological doctrines. One of the chief sources of error respecting the true pathology of puerperal convulsions is, the vague and incorrect idea which is commonly held among practical men respecting the part played by the vascular condition of the brain in their production. As a preliminary step, therefore, it must be of great importance to place this matter on a correct physio-pathological basis.

It may be gathered very plainly, from the quotations given above, that the general opinion is in favour of considering direct or secondary cerebral congestion as the grand cause of convulsions in the puerperal state. By this, obstetric writers mean congestion of the whole organ, or at all events, they have never, so far as I am aware, made any attempt to define the part of the brain which must be affected before convulsions can occur, a matter of great moment, both in practice, and as affording a plain rationale of one of the first difficulties which meets us in the inquiry.

It is a well established fact in physiology, that in animals, mechanical irritation of the spinal marrow within the theca vertebralis, of the medulla oblongata, and the corpora quadrigemina, will cause convulsions. It is also well proved that irritation of every other part of the brain and cerebellum may be carried to any extent without producing convulsive action. Loss of voluntary motion may be thus caused, but the involuntary and spinal motions, those which in morbid excess constitute spasm and convulsion, remain unaffected. When the whole of the lobes of the cerebrum and cerebellum have been carefully removed, convulsions may be occasioned to any extent by irritation of the cranial termination of the spinal marrow. All these data have been abundantly proved by the vivisections of Magendie, Schoepf, Flourens, Hertwig, and Dr. M. Hall. In one interesting experiment performed on the dog, Dr. M. Hall found, that while irritation of the brain produced no effect, pinching the dura mater lining the cranium, to which branches of the fifth are distributed, excited convulsions, so that the brain is actually an excitor of spinal action, while the meninges are strongly excitor. The brain, although the sensorium commune, has neither nerves of common sensation nor of excito-motion. This is supported by pathological observation. A tumour gradually developed in the brain itself may excite no cerebral or spinal symptoms, while a spicula of bone on the inner surface of the skull may occasion epilepsy.

It would appear to be a necessary deduction from these facts, that whether we use the term spinal marrow, or any other name, we are bound to consider the medulla spinalis

and oblongata with the corpora quadrigemina, as forming together one distinct organ—as being a division of the nervous system, which pathologically, as well as physiologically, must be looked on as separate from the brain, cerebellum, and the simple sensory and voluntary nerves of the spinal cord.

Thus, then, we should have,—1. The cerebral system, composed of the brain and cerebellum, in connection with that part of the spinal cord which conveys sensation and voluntary motor power to and from the brain, which might be termed the intra-vertebral cord; and 2. The spinal system, consisting of the spinal marrow, (exclusive of that part of it devoted to the transmission of volition and sensation,) together with the medulla oblongata, and the corpora quadrigemina. This division into the cerebral and spinal systems, though they are each of them both cranial and vertebral, as regards anatomical position, the spinal extending into the brain, and the cerebral situated partly within the vertebral canal, is in nowise theoretical, but a matter of fact, admitting of the most severe physiological proof. Indeed, as Professor Grant and Dr. Marshall Hall long ago predicted, it has been found, by Dr. Carpenter and Mr. Newport, that in the invertebrata the excito-motory cord is anatomically distinct from the cord of nerves devoted to sensation and voluntary motion. Such a division is of great moment for the present pathological purposes. It is necessary, as we proceed, to keep the mind close to the subject, and draw a clear line of demarcation between those parts which belong to each respectively.

Let us now examine some of the presumed causes of puerperal convulsion, and first of all, the subject of cerebral congestion.

During the pregnant and puerperal states, there is a greater tendency to fullness of the circulation than at other times, and in labour, especially in some of its stages, this vascular plethora particularly affects the head. In the second stage of labour, when the presence of the head of the foetus in the vagina has excited the reflex action of the expiratory muscles, there is, during every pain, partial or entire closure of the glottis. This interferes with the circulation; and, moreover, during the severe pains, a state of partial asphyxia takes place, as may be seen by the distended state of the veins of the head and neck. The same venous congestion must occur to the spinal marrow, particularly its upper portion, though this has escaped the notice of writers on the subject.

It would follow from the above, that if simple pressure on the cerebral vascular system caused convulsions to as great an extent as obstetric authors generally suppose, they ought certainly to occur far more frequently during the second stage of labour than at any other time. But this is not the fact, as patients frequently fall into convulsions before labour has commenced, or during the first stage, when the respiratory system is undisturbed, or the patient may pass through the second stage of labour, when the disturbance of the circulation is at its maximum, without any sign of convulsion; and they often appear for the first time after delivery has been completed.

These facts alone are, I submit, sufficient to overturn the most generally received opinion as to the cause of puerperal convulsions. The error has arisen partly from observing the immense distention of the vessels of the upper part of the body during the paroxysm, and partly from the congestion and serous or sanguineous effusion sometimes found after death. But it can be made clearly evident that these signs are in the great majority of cases not the causes, but the results, of the disease. Rarely, excepting in convulsions occurring during a pain in the second stage of labour, can the congestion of the brain be fairly considered the exciting cause of the convulsions; and even here we have two causes in operation—the irritation of the excitor

nerves of the uterus, as well as the vascular fullness.—*London Lancet*, Nov. 30, 1844.

(To be Continued.)

## MATERIA MEDICA AND PHARMACY.

### Mode of Preparing the Valerianate of Zinc.

By M. DEWAY. (*Gaz. Med. de Paris*, June 29, 1844.)

The fresh roots of valerian are distilled, when the valerianic acid comes over along with the essential oil. This oil is separated, and the distilled water has its acid saturated by carbonate of potash. Solution of caustic potash is also agitated with the essential oil, and both fluids are mixed together. The valerianate of potash not being volatile, allows the most of the water to be driven off, as well as that portion of the volatile oil which has not united with the alkali. When the valerianate of potash is sufficiently concentrated, it is introduced into a small retort, and a sufficient quantity of dilute sulphuric added to unite with the potash. Heat is then carefully applied, and the volatile valerianic acid distils over in a pure state, partly dissolved in a small quantity of water, partly as an oily hydrate. It is then mixed with carbonate of zinc, and the union aided by heat. It is then filtered, and as the fluid cools the crystals of the valerianate of zinc are deposited. The mother liquor is to be evaporated till all the salt is obtained.—*Amer. Jour. Med. Sci.*

### Croton Oil Plaster.

M. Bouchardat recommends the following method of preparing croton oil plaster. Melt eighty parts of gum dachylon plaster at a very gentle fire, and, when it is semi-liquid, mix with it twenty parts of croton oil. The plaster which results is to be spread thickly on muslin. It will produce considerable irritation of the skin, and may be applied in all cases where revulsives are required. It does not cause such severe pain as many other counter-irritants; and it may be applied over an extensive surface, so that a derivative action may be established proportional to the irritation which is to be combated,—an indispensable condition in the employment of these heroic remedies. M. Bouchardat is fully of opinion that the croton oil plaster will be found available in the treatment of many chronic diseases, both of the respiratory apparatus, and of the abdominal viscera.—*Amer. Jour. Med. Sci.*, from *Annuaire de Therapeutique*, 1844.

### Preparation of perfectly pure Proto-Ioduret of Iron.

It is well known that the proto-ioduret of iron cannot be obtained pure, in a solid state, by the usual mode of procedure. For the clear and colourless solution absorbs oxygen from the atmospheric air, so that the iron is partly oxidized, whilst, at the same time, some deuto-ioduret of iron is formed; the preparation, thus, consists of proto-ioduret, deuto-ioduret and tritoxide of iron. On dissolving it in water, a yellow or reddish solution will be obtained, according to the greater or smaller quantity of deuto-ioduret, or of free iodine contained in the liquid, which has been rendered turbid by tritoxide of iron. The author succeeded in obtaining perfectly pure proto-ioduret, in the following manner: take 4 parts of iodine, dissolve it in a large vessel, with 2 parts of distilled water, and then admix quickly 1 part of fine iron filings. After a few moments the temperature rises considerably, and vapours of iodine are given off. Sometimes (particularly at a low atmospheric temperature) the heat generated, during the mixture, is insufficient for the development of iodine vapours; in such cases, the mixture is to be subjected to a gentle heat after the ad-

dition of the iron filings. The composition is at first liquid, but soon becomes solid. In the proto-ioduret of iron, prepared according to the above method, a very small quantity of pure iron is contained, which, however, can easily be separated by filtration. A clear, colorless, solution is then obtained, without any admixture of deuto-ioduret, and without free iodine. This preparation may be also employed with the necessary additions in the form of pills.—(M. A. Kop of Rotterdam, in *Schmidt's Jahrbucher der Medicin*.) From *Medical Times*, of Jany. 11th, 1845.

## FORENSIC MEDICINE.

We extract the following from a very able report on the 'Progress of Toxicology,' in relation to Medical Jurisprudence, &c., for the years 1843-4, by ALFRED S. TAYLOR, Esq., Lecturer on Medical Jurisprudence and Chemistry, Guy's Hospital, London, published in the October number of the *British and Foreign Medical Review*. The extract which we have made, will be found well worthy of a perusal, as containing a careful digest of the latest information on the subject:—

**Arsenic.**—The subject of arsenical poisoning continues to receive much attention from toxicologists, and suggestions are continually being made for improving the numerous processes which are now employed for the detection of this poison. Among the late announcements on this subject, is a new method of employing Marsh's test, suggested by Mr. Ellis of University College. Instead of burning the arsenuretted hydrogen gas, and receiving the deposit of metallic arsenic on cold plates of glass, porcelain, or metal, Mr. Ellis proposes to decompose the gas and deprive it of arsenic by passing it over metallic copper, or one of the oxides of that metal. In passing arsenuretted hydrogen gas, generated in the usual way, over slips of metallic copper gently heated, he found that this metal acquired a gray coating of arsenic similar to that produced in the application of Reinsch's test. (See Report, No. XIX of this Journal, p. 275.) If the surface of the copper were oxidated, then no heat was required for the decomposition. Metallic arsenic was immediately deposited when a current of the gas was passed over the oxidized surface, owing to a decomposition of the gas and the oxide. This discovery led Mr. Ellis to employ at once oxide of copper instead of the pure metal, and he found that during this decomposition, the black oxide became gray, and the red oxide black. The well-marked change of colour, rendered the use of the latter preferable, as it at once served to indicate the progress of the decomposition. The arsenuretted hydrogen gas is first dried by passing it over fused chloride of calcium, contained in a bulb attached to Marsh's apparatus; and it is then allowed to pass over the oxide of copper in a tube, the current of gas being controlled by a stop-cock; for if it should pass too rapidly, it escapes decomposition. No heat is required for the change;—the oxide of copper absorbs the gas as it slowly passes and becomes heated;—water is produced, and the arsenic is retained by the oxide, either as arsenuret or arsenic of copper. By occasionally igniting the jet at the end of the tube, it may be seen whether the arsenic has been entirely removed from it or not, and the process arrested or continued accordingly. When the oxide is saturated with arsenic, it may be removed and gently heated in a small reduction tube; a brilliant ring of octohedral crystals of arsenious acid will be thereby obtained. These crystals are equally produced in an atmosphere of carbonic acid or hydrogen, showing that the arsenic must either have existed as arsenious acid in the compound, or have derived its oxygen from the oxide of copper. When a sublimate of arsenious acid has been thus procured, it may be dissolved in water and tested in the usual way.

While it must be admitted that this is a very ingenious process, it cannot be denied that it is open to all the objections to which Marsh's test, as it is commonly employed, is liable. This, however, is apparent, that it is far less liable to lead to a loss of arsenic;

and thus, where the quantity of poison is extremely small, we may be more certain of obtaining evidence of its presence by using the oxide of copper, than by merely burning the gas, and exposing a cold plate to the flame. Small sublimate are in this way often dissipated, and a quantity of arsenic is invariably lost at each time the gas is ignited. The objections to the plan are that additional apparatus with very careful manipulation is required. It does not appear to be in any respect preferable to Reinsch's test, and in delicacy is far inferior to the plan proposed by Dr. Clark, of passing the arsenuretted hydrogen gas into a solution of nitrate of silver.

Dr. R. Fresenius of Giessen, has lately caused to be read before the Chemical Society, a series of elaborate papers, since published in the *Lancet*, (June and July, 1844,) on the detection of poisons generally in medico-legal cases, and on a new method for the detection of arsenic. He considers that a method laying claim to general applicability should fulfil the following conditions:—“1. It must admit of detecting arsenic in every form in which this mineral can possibly exist. 2. It must not merely lead to the detection of arsenic, but also to that of the other metallic poisons. 3. It ought to preclude the possibility of confounding arsenic with other substances. 4. It must admit of detecting even very minute quantities of arsenic. 5. The method sought must enable us to obtain at least an approximate quantitative determination of the arsenic detected. 6. It must fulfil all the above conditions by the most simple means.” However desirable it may be to possess such a method as is here sketched out, the absolute necessity for it is not apparent. Arsenic may be most satisfactorily detected by processes which are not fitted for the detection of other metallic poisons. If each poison has its own particular process, and this is satisfactory so long as it is confined to its proper object, it is impossible to allow that the admissibility of chemical evidence in cases of arsenical poisoning, should be made to rest on the universal application of the same process, and with a like degree of certainty, to other poisons. Dr. Fresenius complains that those who have written innumerable essays upon this subject, have not always had “a very complete or distinct notion of the nature of their task; and they have therefore altered and improved methods *ad infinitum*, which in their very principle could never answer the design that they were intended to subserve.”

Out of the many processes suggested for the detection of arsenic in mixtures containing organic matter, there are, according to Dr. Fresenius, only four which require to be mentioned: Arsenic may be separated, 1, as arseniate of lime; 2, as sulphuret; 3, from arsenuretted hydrogen; 4, by metallic copper. Of these methods, the second alone is recommended as fulfilling the conditions required, although it is obvious that the poison may be administered in the state of sulphuret, (yellow arsenic); and therefore this, without some preliminary preparation, cannot fulfil the first condition required, i. e. of detecting arsenic in every form in which it can possibly exist. On the separation by lime nothing need be said, as it is now abandoned by toxicologists. Dr. Fresenius considers that the separation from arsenuretted hydrogen (Marsh's test) is absolutely inapplicable to the intended purpose, “because it does not admit of the separation of arsenic in every form in which this substance may exist.” Further, it does not contribute to the detection of other metallic poisons; it contaminates the substance under investigation with zinc, which might itself have acted as the poisonous agent; it leads more easily than any other method to mistakes; and does not admit of any correct quantitative determination of the arsenic found. Marsh's test, it is allowed, permits the detection of minute quantities of arsenic in many cases in a very simple manner. Reinsch's process, i. e., the separation by copper, is just as little adapted to the purpose, although, like the preceding test, it may serve to detect very minute quantities of arsenic. “The defects of this method are that it does not admit of the detection of arsenic in every form in which the metal may exist; that it does not at all lead to the detection of other metallic poisons; and that moreover the substance under investigation becomes contaminated by copper. Its success is impeded or prevented by many substances, such as nitrates (?), mercurial and other metallic compounds; so that the advantage of detecting even minute quantities of the poison, can only be conditionally conceded to it. Finally, it does not allow of the quantitative determination of the arsenic present.”

It appears to me impossible to assent to the validity of these objections, or to admit that we should be at all justified in entirely

discarding the ingenious processes of Marsh and Reinsch, upon such grounds as are here adduced. These tests are fully equal to the separation of arsenic in all the forms in which it is most commonly found in practice; that they do not detect all other metallic poisons, or that their operation on arsenic is occasionally rendered obscure by the presence of other substances, are objections which amount to nothing in the hands of those who limit the application of these tests to the purposes for which they were originally designed; and it is doubtful whether they are more liable to lead to fallacy in skilful hands, than the process by conversion to sulphuret. Neither Marsh's test nor Reinsch's test will answer all the artificial conditions laid down as necessary for a universal method by Dr. Fresenius; but it is questionable how far it is just to measure the practical utility of these tests by such a standard as is here assumed.

Before converting the poison to the state of sulphuret, Dr. Fresenius considers the different plans which have been recommended for obtaining a clear solution, without loss of arsenic, from the organic mixture containing the poison. He gives the preference to the action of chlorine, as a decolorizing agent, and to the process of charring by sulphuric acid. As his method of employing chlorine for removing and destroying organic matter, and at the same time rendering the arsenic soluble, is novel, it is here briefly described with the analytical process.

The substances intended for examination are, if formed of solid and coherent lumps, reduced into small pieces, and under all circumstances carefully intermixed. They are then put into a porcelain basin, and drenched with an amount of pure concentrated hydrochloric acid, either equal or superior to the weight of the dry substances, and with as much water as will give the consistence of thin pap to the whole mass. The basin is then heated in the water-bath, and chlorate of potash, in portions of about half a drachm, is added to the mixture at intervals of about five minutes, and until the contents of the basin have assumed a bright yellow colour, perfectly homogeneous, and a thin liquid consistency. When this point is attained, about two drachms more of chlorate are added, and the basin removed from the water-bath. When cool, the contents are placed on a filter of linen or paper, and are allowed to run off: the residue is washed with hot water until the liquid which passes (which is also collected) is no longer acid.—The whole is then concentrated in the water-bath, during which process it changes from a bright yellow to a brownish tint, and a saturated solution of sulphurous acid is added to this residue until the smell of sulphurous acid is clearly perceptible. The whole mixture is then heated for about an hour, until the excess of sulphurous acid is completely expelled. A current of washed sulphuretted hydrogen is now slowly transmitted through this liquid for about twelve hours. The glass containing the precipitated sulphuret is lightly covered, and kept at a temperature of about 86° until the smell of sulphuretted hydrogen has disappeared.—The precipitate which, besides sulphuret of arsenic, may contain organic matter and other metallic sulphurets, is collected and washed on a filter, and afterwards dried with it in a porcelain basin heated by a water-bath. Fuming nitric acid is then added drop by drop, until the whole is moistened; it is then evaporated to dryness. Pure hydrated sulphuric acid previously heated is then added to the residue, so as to moisten it uniformly: the mass is again heated in a water-bath for the space of from two to three hours, and finally in a sand-bath, at a temperature of about 300°, until the charred mass begins to crumble. The residue is digested in water, filtered, mixed with hydrochloric acid, and the filtered liquid precipitated by sulphuretted hydrogen. The precipitate thus obtained is drenched with a solution of ammonia, and the ammoniacal fluid is evaporated in a balanced porcelain basin dried and weighed. The arsenic thus obtained as sulphuret may be quantitatively determined in the usual way. The residue, insoluble in ammonia, may be tested for lead, bismuth, copper, and mercury. The metallic arsenic is obtained from the sulphuret by heating it in a current of well-dried carbonic acid, with a mixture of carbonate of soda and cyanide of potassium as the reducing agent.

With the exception of the plan for removing the colour of the organic liquid containing arsenic, there does not appear to be any originality about this process. It is undoubtedly much more complex than some of the others for which it is recommended as a substitute; and unless it were conducted by one well versed in chemical manipulation, it might equally lead to error. The value of the sulphuretted hydrogen as a precipitant has been long

known, and is fully appreciated by toxicologists; but this does not preclude the employment of other more ready and equally certain means for detecting arsenic. The process appears to be rather adapted for separating arsenic from its ores, than for detecting it as a poison in medico-legal cases. In practice we do not find the compounds of lead, bismuth, copper, and mercury, mixed with arsenic; and therefore it is useless always to have recourse to a process which invariably presupposes the admixture of these metals with the poison criminally administered. Even in cases of suspected compound poisoning, rare as they are, there is no difficulty in discovering the foreign metal mixed with arsenic by appropriate tests; and a court of law requires to know whether arsenic was present and was the cause of death, rather than whether it was mixed with traces of bismuth or lead, a fact, however interesting in a chemical, is wholly unimportant in a medico-legal view. It is doubtful whether by this process the absorbed arsenic could be detected in the soft parts of the body, with the same readiness as by the test of Marsh or Reinsch, and it is apparent that this is likely to become an important branch of medico-legal research. In short, if this process were to be admitted as the only certain and satisfactory method of detecting arsenic, it would restrict all medico-legal analyses of the poison to a few, who are in the daily habit of exercising themselves in chemical manipulation. But the evidence given on numerous criminal trials shows that there are many practitioners who are able to demonstrate satisfactorily the presence of arsenic in mixed liquids, without having recourse to such an odious method as is here pointed out. Dr. Fresenius recommends cyanide of potassium and carbonate of soda as the reducing agent for the sulphuret; I have lately found that one of the best methods for reducing this compound of arsenic, is finely powdered metallic silver. This was recommended about a year since by Dr. A. Frampton for the reduction of corrosive sublimate,—it will be found equally serviceable in the reduction of the sesquisulphuret of arsenic.

In a paper read before the Sheffield Medical Society, and published in the *Medical Gazette* (May, 1844), Dr. E. Shearman states that the metallic ring, as shown in the reduction-test can be produced by other metals besides arsenic. He also states, that the metallic arsenic may be known by its being deposited in rhomboidal crystals,—that a witness is justified in swearing positively to the presence of arsenic only, "1, by producing the metal and showing its crystals; 2, by reducing it to the oxide and showing its crystals (octohedral); 3, from these crystals going through all the fluid tests; 4, reducing the sulphuret again to its metallic state, then to the oxide, and again going through the fluid tests." This is like demanding proof *ad infinitum*; for where, it may be asked, is the medical jurist to stop in his analysis? If he obtains the metal, it is said, "Antimony, bismuth, tin, zinc, lead, tellurium, cadmium, selenium, and potassium, sublime in a somewhat similar manner to arsenic, and may be mistaken for it." Medical jurists have hitherto agreed on one point, namely, that the first five metals mentioned never yield, in a small reduction tube and at the ordinary heat of a spirit-lamp any metallic sublimate whatever. With regard to the other four substances, cadmium is the only body that presents any objection to the reduction-test; and this is rather theoretical than practical. The cadmium-sublimate can never be mistaken for an arsenical sublimate by one who has been accustomed to experiment on the poison. It has a tin-like lustre, and generally a brown fringe of oxide, which, if not developed during the reduction, is readily brought out on reheating the sublimed metallic crust. It is difficult to conceive under what circumstances tellurium, selenium, or potassium, can ever be sublimed in a reduction tube from any solid or liquid substance, handed to a medical jurist for analysis. There is no salt of potash that will yield potassium by heating it with flux in a spirit-flame; and if the metal were used in its pure state, no chemist could proceed to examine it as an arsenical compound without being made immediately aware of its nature. Admitting that the metallic arsenic is deposited in rhomboidal crystals, to be seen only "by a powerful microscope," there can be no better or more satisfactory evidence of its nature, than the production of white octohedral crystals, by reheating it, as suggested long since by Dr. Christison. Dr. Shearman states that metallic antimony sublimes into octohedral crystals like arsenious acid, only differing from this substance in being insoluble in water. In frequently repeating these experiments with a spirit-lamp and tube, such as are used in the analysis of arsenic, nothing of the kind was observed. A powerful microscope was not employed, because this



is not needed in these investigations. If such a statement were borne out by observations, Reinsch's test, and the reduction-process for arsenic, would be completely set aside, and chemists would be thrown back upon the liquid tests for the poison. Many toxicologists have submitted Reinsch's test to numerous trials, but in no instance, so far as I am aware, have they ever procured a sublimate in white octohedral crystals from a deposit of antimony on copper. Dr. Shearman is entirely opposed to the opinion of Dr. Fresenius as to the value of the sulphuretted hydrogen test. Dr. Shearman says, "It should be carefully remembered, that the sulphurets of antimony, tin, selenium, cadmium, and tellurium have nearly the same yellow colour, and are deposited in the same manner as arsenic, and when reduced to the metallic state with black flux, they not only give an appearance so much like arsenic, that it requires a very practised eye (?) to distinguish each, if even that be possible; and tellurium and cadmium also exhale a garlic odour like arsenic. (?)". Dr. Fresenius actually stops at the production of the metal from a precipitate obtained by sulphuretted hydrogen;—he observes that "mirrors of wonderful purity are obtained without the possibility of confounding them with those produced by any other substance." Thus Dr. Fresenius regards the medico-legal evidence complete, at the very point at which, according to Dr. Shearman, it becomes doubtful and unworthy of confidence. Toxicologists, it appears to me, will agree that in this respect Dr. Fresenius is correct; and that no practised eye can ever confound the metallic sublimate derived from sulphuret of arsenic or the white octohedral crystals obtained by reheating it,—with the metallic sublimate procured from any other substance precipitated by sulphuretted hydrogen.

Dr. Shearman also remarks, in respect to the alleged antidote for arsenic, "the moist hydrated peroxide of iron," that he has given it to dogs and rabbits after having made them swallow large doses of arsenious acid in powder and solution. On killing them within a short time and examining the bodies, he found in the stomachs, "minute patches of inflammation, but no arsenious acid could be detected by Reinsch's method," nor in any other way. This he considers is, "a strong presumption, that the whole of the arsenic was reduced to its metallic state." If a large dose of poison had been given, and none found in the contents of the stomach, either free or mixed with the oxide of iron, it is clear that it must either have been rejected by vomiting, absorbed into the system, or that it must have passed off by the intestines. The fact of the animals having been speedily killed rendered the latter supposition improbable, therefore it is difficult to explain why arsenic was not discovered, if not in the viscera, at least in the soft organs. In experiments on this subject, one point has always been omitted, although it would throw considerable light on the action of the supposed antidote, namely, an analysis of the blood and soft parts of animals to which the oxide of iron has been given after they have been made to swallow large doses of arsenic. There is another way of testing the efficacy of this antidote, which has not been adopted, but which is worthy of a trial, by those who suppose that the oxide of iron is efficacious in cases of arsenical poisoning, namely, to mix powdered arsenious acid with the oxide of iron into a thin paste, and spread it upon a raw ulcerated or wounded surface. The antidote is said to act by preventing the absorption of the poison; if this were so, no evil should follow from the performance of such an experiment, however large the quantity of arsenic. On the contrary, Professor Barzellotti of Pisa found that a compound of this kind acted energetically as a poison on dogs, and the arsenite of copper, which is just as insoluble as arsenite of iron, would very speedily destroy life when thus locally applied. It is, however, impossible to understand how, in any case, the oxide of iron should act as Dr. Shearman suggests, by reducing arsenious acid to the metallic state!

In the year 1843, a great improvement was made in the chemical processes for arsenic by the discovery of *Hugo Reinsch*, that the metal was readily precipitated on *metallic copper*, even from the most complex organic liquids, by boiling them with muriatic acid and then introducing the copper. An account of this test was first published in the '*Journal für Praktische Chemie*,' a translation of which will be found in the '*Annales d'Hygiène*,' t. xxix, pp. 439-447, with additional observations thereon by M. Gaultier de Claubry, t. xxx, p. 159. A full description of the mode of applying this new and useful test will be found in the '*British and Foreign Medical Review*' for July, 1843, (No. xxxi, p. 275.) Dr. Christison has also published his observations on the test in the '*Edinburgh Journal of Medical Science*,' for Sep-

tember, 1843. The only additional remark which may be made with respect to this test, is, that it will perhaps be found better to employ fine gauze, made of woven copper wire, than plates of copper as originally proposed by Reinsch. The surface of metal is much greater, and the gauze may, after the deposit, be easily rolled up into a small bulk, so as to yield a large quantity of arsenious acid. The copper-gauze which I have used for this experiment, contained 16,400 apertures to the square inch.

Many cases have come to trial during the last year in which parties have been charged with the criminal administration of arsenic. Among these some have presented circumstances interesting to the medical jurist. The case of the *Queen v. Hunter* has already been commented on (ante p. 534.) Another case was tried at the Liverpool Winter Assizes, 1843, (the *Queen v. M. Cormick*), in which the medical evidence was of some importance. A woman was charged with the murder of her child, aged five weeks, by administering to it arsenic. The quantity given was unknown, but the child did not die until twelve days afterwards. The symptoms do not appear to have been very severe or well-marked, indeed, so little so as to have led to some doubt of their cause in the mind of the medical witness. The chemical evidence was, however, very clear: arsenic was not only detected in some of the food given to the child, but also in a portion which had been vomited on its night-dress. It is stated that no arsenic was found in the stomach or duodenum; and the poison was detected in the contents of the intestines as well as in the substance of the brain, liver, lungs, and heart. In cross-examination, the witness was asked respecting the presence of arsenic as a normal constituent of the body. He is reported to have admitted that arsenic might be found in the body, although it had not been administered; but if found in the alimentary canal (free), then it must have been administered. He said that he himself had never found arsenic in the flesh of persons to whom it had not been administered; but he made the statement on the authority of others. He considered that it was not "normal" arsenic which had been found in this case; and that the ten thousandth part of a grain would give perceptible indications of the presence of the poison. The prisoner was convicted.

The mode of examination adopted at this trial clearly shows that barristers are well aware of Orfila's researches; but we have here an instance of the revival of an opinion which has now been for some time abandoned, even by Orfila himself—of the existence of arsenic as a natural constituent of the body. It had no influence on the result of this case; but it might have improperly led to the acting aside of the chemical evidence altogether, had not some free arsenic been found in the intestines.

One of the most important trials which has occurred for some years, was that of *Mrs. Cochran or Gilmour*, before the High Court of Justiciary at Edinburgh, January, 1844. She was charged with the murder of her husband by arsenic, but acquitted on a verdict of "*not proven*," apparently for want of clear evidence of administration. This trial is interesting from the fact, that the new methods of detecting arsenic were here, for the first time, brought prominently forward. The chemical evidence was complete, and such as left no doubt that the deceased must have died from the effects of the poison. A very full report of this trial has been published, to which I would refer the reader. Drs. Wylie, M'Kinlay, and Christison gave evidence on the occasion. Dr. Christison employed Reinsch's test, and by this means readily detected arsenic in the substance of the stomach and its contents, as well as in the substance of the liver. The same question, relative to the existence of normal arsenic, was put here as in the case of *M. Cormick*. In answer to it, Dr. Christison says, Arsenic "is not a constituent part of the human body, and is not formed in it." It was once alleged that it was, but that was disproved. The individual (Orfila) who first promulgated this theory only argues now, that small quantities are found in the bones; but in three several experiments before the Academy of Paris he was unable to show it, Arsenic could only have come into the liver by absorption." There can be no doubt that this expresses the truth. The elaborate researches of *M. M. Danger and Flaudan* show that there must have been some fallacy attending the original experiments of Orfila, since, in no instance, in operating on the largest quantities of animal matter; and employing the most delicate tests, could they detect the smallest trace of arsenic as a natural constituent of the human body.

In concluding this account of arsenic, it is right to state, for the information of those engaged in medico-legal analyses, that there

is still much sulphuric acid in general use which contains arsenic in large proportion. This is well known to be the acid obtained from pyrites. An impregnation of this kind seriously affects the use of the acid, both as an agent for carbonization and as a means of procuring hydrogen by Marsh's test; and no specimen should be employed for either purpose, until the absence of arsenic has been clearly established by analysis. The best means of detecting this body in sulphuric acid will be by the use of Reinsch's test, or by the action of a current of sulphuretted hydrogen gas on a portion of the acid, diluted and neutralized by potash. The presence of arsenic in sulphuric acid is the cause of the commercial muriatic acid being sometimes contaminated by it. Hence the necessity, in employing Reinsch's test, of being well assured that the muriatic acid used is free from arsenic. M. Scanlan states that the quantity of arsenic in one specimen of English sulphuric acid was so great that it could not be used to obtain hydrogen for the process of antogenous soldering. (*Pharm. Journal*, August, 1844.) This gentleman found that 2000 grain measures of the acid yielded 1.5 grain of sesquisulphuret of arsenic.

THE

## British American Journal.

MONTREAL, APRIL 15, 1845.

With the commencement of a new Journal, the practice usually adopted is to bespeak the countenance, and good will of those whose support is solicited, by an enunciation of the principles upon which it is intended to conduct it. In most periodicals not devoted to the pursuits of Science, there are numerous valid reasons why this profession of principles should not be discontinued,—which render it in fact compulsory;—but in Journals whose interests are to be exclusively devoted to matters of Science, the oneness of sentiment and feeling which pervades the minds of its votaries, who cannot be regarded, however much they may differ on other matters, in any other light than as striving together for the attainment of one grand object—the perfection of science,—the resorting to, or adopting a like procedure, would seem to be superfluous. Science owns no political master, nor does she worship under any particular religious creed. In her domain the angry passions which convulse and agitate society, hold no dominion.

There are few, who are in the slightest degree acquainted with these Provinces, who do not know, that valuable stores of information have been from time to time collected by the assiduous perseverance of scientific men, which have been permitted to moulder, as it were, on their shelves, for want of a proper local medium, for their publication. The few volumes of the transactions of the Literary and Historical Society of Quebec, published at lengthy intervals, a periodical devoted to Medical Science, and published in the same city under the editorship of the late Dr. Tessier, and the *Montreal Medical Gazette*, are almost the only evidences of scientific taste, of which this Colony has hitherto been enabled to boast. To sup-

ply a very obvious desideratum, is one of the objects for which this Journal has been undertaken; and in affording in its columns a prominent place to communications bearing immediately on the Physical Sciences, there will be found, no discordant jarring of principles, in as much as they are all more or less intimately connected with medical science, while it is hoped that the Journal will thereby also command a more extended support, and meet with more general approbation.

But it is on that Profession, of which the Editor is himself a member, that his chief reliance for support depends. It is for them that the Journal is more especially intended, and it is from them that medico-literary contributions are especially requested. To render the Journal worthy of their patronage, by presenting to them a monthly digest of the progress of that Science of which the practice is their profession, culled carefully from the best Periodicals, will be one of his chief duties, and it is intended that this department shall constitute its chief feature. This Periscope will contain the selected articles under the heads or branches of medical science of which they respectively treat, and an easy method of reference to them will be accordingly presented.

It is easy to see that to render the Journal worthy of the Profession, it must be sustained by that Profession. To impart to it that stamp and character, which will elevate it above a mere mediocrity, is dependant far less on mere editorial management, than on the individual exertion of every member of the profession. The best interests of the one are inseparably identified with those of the other. It is the mirror in which their qualities are reflected; it becomes the touchstone of their zeal in the cause of Science.

In the absence of a regular and general subscription list, this, the first number of the Journal, will be as extensively as possible distributed among the members of the Medical Profession, and others known to be attached to scientific investigations and pursuits in these Provinces. It is respectfully and earnestly requested, that those who may receive it, if unwilling to extend their patronage to the periodical, will return, at as early a period as possible, the number, in a loose wrapper, with their name and address in some conspicuous part of it, addressed to the Publisher in this city. Under the firm conviction that a Journal, advocating the interests which are specified in the Prospectus, will be very generally sustained, those to whom it may be sent, and who do not return the number, will be considered as subscribers; and their attention is particularly directed to the trifling terms on which their support is solicited. It will not escape observation, that the Journal does

not appear in the form which it was originally intended that it should possess. This alteration of appearance, in itself of little moment, has been effected in consequence of two important advantages which have been found to flow from it. The one, increased space, by which a much larger amount of reading matter will be furnished, than would have been the case had the contemporary form been followed up; the second, a very considerable saving in postage, (fully two-thirds,) to country subscribers. These advantages have been deemed of sufficient importance to justify the change.

### The Medical Bill.

The fourth Session of the Legislature of United Canada has drawn to a close, and the Medical Bill, or more properly speaking, "the Bill for regulating the Study and Practice of Medicine" in this Province, introduced by the Hon. Mr. Attorney-General Smith, has been postponed to the next Session, having been referred to a Committee after its first reading. For many reasons this is, perhaps, little to be regretted, as it will enable the Profession generally to become in the meanwhile more minutely acquainted with its details, and afford them time to express their sentiments upon it.

To the Profession generally, it must have been a source of no little gratification, to have witnessed the fact of its having been made a ministerial measure; in this respect imitative of the practice of the British and Norwegian Governments at the present moment, both of which have submitted their measures, preparatory to the final decision of their Parliaments, to the consideration of the Profession in the respective countries. This is as it should be. Those whose interests are directly affected by legislative enactments, of what nature soever these may be, have an undoubted right to be consulted, and to express their sentiments on the matter; and the deference which has been manifested in the two cases to which we have alluded, and in our own, is but a simple act of justice to a very large, influential, and intelligent body of practitioners.

The propriety of making an Act of this kind a Government measure, cannot be doubted. Governments are bound, by every principle of justice, to place within the reach of their subjects, without any restriction, or with as little as possible, those articles which may be deemed to be among the actual necessities of life; and among such a list, without the slightest fear of contradiction, may be indubitably placed proper remedial assistance, as affecting in the most immediate and direct manner their happiness, their health, nay, their very lives. Proper remedial assistance cannot be viewed as, nor is it in reality, one of

the luxuries of life, (although we doubt not it would be esteemed so in many sections of this Province,) of which those who have the longest and best filled purses can have the best quality. The poor man should be equally as well provided for in this respect as the rich. His life is equally as valuable, and its sacrifice awakens equally as keen an expression of anguish and sorrow among surviving relatives and friends, while it is not unfrequently attended with much more distressing consequences. To secure, then, an object of such paramount importance, should be the anxious solicitude of every government, and there are no means of effecting it, but by the entailment of a thorough education on the part of all who aspire to such duties, thus fitting them for their due and faithful discharge, with their subsequent protection in their avocation, from the inroad and incursions of unlicensed and unlettered pretenders.

Whatever may be the opinion entertained of the merits of Sir James Graham's Bill, as regards its effects upon the Medical Profession in Great Britain, those who have studied it carefully can come but to one conclusion, that although some considerable benefits would certainly have accrued from it, its operation would also have been attended with the introduction of a vast amount of evil. We propose not to enter upon an analysis of it, for it is a matter with which we, in this Colony, have little, if any thing, to do. But we cannot avoid expressing our pleasure at the circumstance of some material modifications being effected in it during the present Session of the Imperial Parliament—modifications to such an extent, as will render it more acceptable to the great bulk of the British Medical Practitioners, whose rights will be more effectually protected.

It may be a matter of some interest to many of our readers, to give a rapid sketch of the Norwegian Bill, drawn up by two medical gentlemen in that kingdom, "at the command of the Government Education Commission." A more detailed review of it will be met with in the January number of the *British and Foreign Medical Review*, to which we are indebted for our information on the subject. In accordance with a prevalent Continental system, the country is divided into districts, to each of which are to be appointed "District Practitioners," a number of such districts being placed under the command and supervision of a "District Inspector." To the towns "Inspector Physicians" are also appointed; the three classes of medical officers being salaried officials by the Government. A very large portion of the Bill is taken up by details of their duties, which refer chiefly to the enforcement of a strict system of medical police, having reference principally to quarantine regulations, vaccination, epidemic and infectious diseases, the interment of corpses, &c. &c. The intended enactment with reference to vaccination, is very stringent, and the subject is not unwor-

thy of occupying a small portion of our own Bill. It is provided, that *no one shall be permitted to become a scholar in any public educational institution, nor is he permitted to be confirmed or married, unless he has been previously vaccinated, or had the small pox!* In the event of small pox breaking out in a house or locality, every individual in that house and locality must be immediately vaccinated, unless he previously had suffered under the disease, or "have been successfully vaccinated within the previous five years." "Inoculation for small-pox is declared penal, and punishable by fine and imprisonment."

The close system of medical surveillance which is thus provided for in the Bill, is somewhat remarkable. It cannot, however, but be productive of the most beneficial consequences, and exhibits the anxious solicitude of the Government on the matter.

Of the peculiar nature of the preliminary and professional education of the practitioners, we are not informed, beyond the fact, "that no one is permitted to practice medicine in Norway, who has not passed his examination at the UNIVERSITY OF CHRISTIANA." By way of a parenthesis, we may here observe, that the population of Norway does not exceed that of Canada, being estimated at about a million and a half of souls.

Fines and imprisonment are the summary punishment of all who practice without due license. And lastly, the whole medical affairs of the kingdom are placed under the exclusive superintendance of a Council, composed of three members, appointed by the Crown, to which a fourth may be added from among the Apothecaries, if his assistance be required, to whom all the Inspecting Physicians are responsible, and to whom they are bound to report as to the sanatory condition of the respective districts over which they are appointed to preside.

We have thrown these observations together by way of an introduction to our future remarks on our own Bill. This Bill we intend to publish in our next number, with, if possible, the amendments which have been effected upon it, by the Medical Committee to which it was referred. We see no reason why, in obtaining an enactment at all, bearing on such important interests as are involved in the study and practice of medicine, it should not be a good one at once—one which will place such matters here on a level, at least, with those of other enlightened countries. We are satisfied that in this respect we but enunciate the sentiments of the profession generally, and we shall be happy to record the opinions of any individual members of it on our pages.

#### The British Medical Bill.

The following proceedings took place in the British House of Commons, on Tuesday, Feb. 25. It will fur-

nish us some clue to the nature of the amendments to be effected in the Medical Bill of Great Britain:—

Sir James Graham then rose to bring in his bill for the better regulation of Medical Practice throughout the United Kingdom. If discussion necessarily led to amendment, his bill of last session had been amply discussed. To three leading features of that bill he still adhered. First, the Council of Health, affording a board in this metropolis of easy access to the Government on all questions affecting the sanatory state of the people. Second, to secure to the medical profession equal facility of practice, and to the public, security that there shall be equality of attainments. And third, a registry, which will confer local notoriety, and give the only legal title to the medical man. He intends to repeal that part of the act of Henry VIII., conferring the exclusive privilege of practising in and about seven miles round the metropolis; but he proposes to exclude the Universities of Oxford and Cambridge from the operation of the bill, in the hope that before it reaches the stage of consideration in committee, some arrangement will be made between the College of Physicians and the Universities, which will arrange the differences between them. He does not now think it expedient to propose the entire repeal of the Apothecaries' Act, as contemplated in the bill of last session. That proposal is modified in the present bill into a partial repeal, which will leave the penalties untouched, and give to the Company of Apothecaries all the right to prosecute, and that security which they now have. Feeling the difficulty of adding a new crime to our criminal jurisprudence, he would not affix a specific penalty, but proposes to class false personation of the medical character as a misdemeanor, to be punished with such penalty as the court before which it is tried, may think fit to inflict. A University education will be required as essential to the qualification of a Physician, though not of a surgeon. Anxious to sustain the character, honour, and station of the general practitioner, he will not propose a distinct incorporation, but is desirous of seeing them continued associated with that noble institution the College of Surgeons, in the Council of which he thinks that general and country practitioners ought to be represented, and on which he will confer a power it does not now possess—that of removing from the registry any member convicted of a criminal offence, or of false personation. He had also given by his last bill power of licensing in medicine and in surgery to the Faculty of Physicians and Surgeons in Glasgow. He had given that power under a misapprehension, and he therefore withdrew it from his present bill. These were the principal alterations he had made in the bill of last session, and he now committed his present bill to the candid consideration and examination of the profession.

Mr. Wakley considered the amendments introduced into the bill as a proof that Sir James Graham was anxious to conciliate, and hoped that all difficulties would be amicably arranged.

Leave was then given to bring in the bill, as also another bill to enable her Majesty to grant new Charters to certain Colleges of Physicians and Surgeons. At a late hour Sir Jas. Graham brought in both these bills, and had them read a first time. He fixed the second reading for the 7th of April.

At the close of the last Session of the Legislature, the Governor-General assented to two acts of incorporation, the one for the "School of Medicine" at Quebec, the other for the "School of Medicine and Surgery" in this city. We regret exceedingly that the Act for the former has been so altered, as to render it entirely inapplicable to their circumstances, in as much as by compelling the lecturers to deliver their courses between the months of October and May, the advantages derivable from their connexion with the Marine Hospital, which affords during the summer months, such splendid opportunities to students for witnessing surgical practice, are completely negated.

**Alleged discovery of a Petrified Body.**—The newspapers have lately contained a somewhat marvellous story of the discovery of a human body in a state of petrification, at Berthier. It appears that the place of interment, from which the body was raised, to permit of some necessary operations, was very damp, indeed traversed by a running stream of water; the effect of this, combined with exclusion from atmospheric air, was the conversion of all the soft solids into *Adipocere*. We have seen a fragment of it, and have no hesitation in expressing our opinion on the nature of the transformation.

Fossilized human remains are very rarely met with, and with the exception of those observed in caverns, have only as yet been discovered in two, or, we believe, at most three, localities in the world. The most remarkable of these is at Guadaloupe, in which the skeletons were found imbedded in sand, agglutinated and consolidated by lime, derived from shells and coral washed up from the sea, the shore of which appears to have been selected as a burial-place.

MONTHLY REPORT OF THE MONTREAL GENERAL HOSPITAL.

DISEASES AND ACCIDENTS.

Anasarca, .....	1	Icterus, .....	2
Amenorrhœa, .....	3	Leucorrhœa, .....	1
Bronchitis, .....	2	Lepra, .....	1
Contusio, .....	2	Neuralgia, .....	2
Cynanche Tonsil, .....	2	Orchitis, .....	2
Delirium Tremens, .....	2	Ophthalmia, .....	4
Diarrhœa, .....	4	Psoriasis, .....	2
Dyspepsia, .....	4	Periostitis, .....	1
Erysipelas, .....	2	Pneumonia, .....	3
Enteritis, .....	1	Pleuritis, .....	2
Ectropion, .....	1	Rheumatismus, .....	5
Febris Com. Con. ....	6	Sciatica, .....	2
Fracture, .....	3	Syphilis, .....	6
Gonorrhœa, .....	4	Ulcus, .....	5
Hæmorrhoids, .....	1	Variola, .....	2
Hydro-thorax, .....	1	Vulnus, .....	4
Hernia, Strangulated, .....	1		
Iritis, .....	1	Total, .....	85

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

NUMBER OF PATIENTS TREATED IN THE MONTH OF MARCH, 1845.

Remained, .....	94	Discharged, Cured, .....	91
Admitted, .....	85	Died, .....	3
		Remaining, .....	85
Total treated, ..	179	Total, .....	179

IN-DOOR PATIENTS TREATED.

Belonging to Montreal, ..	79
Emigrants, .....	6
Total, .....	85
Males, .....	54
Females, .....	31
Total, .....	85

OUT-DOOR PATIENTS TREATED.

Belonging to Montreal, ..	197
Emigrants, .....	9
Total, .....	206
Males, .....	117
Females, .....	89
Total, .....	206

The few cases of fever treated during the month were of a mild description. In one or two there appeared a disposition to pneumonia, which was easily subdued, the whole of the cases terminating favourably in the course of a few days. A surgical case of considerable importance occurred; it was one of strangulated oblique inguinal hernia of the left side. A strong healthy man, about 36 years of age, was admitted into Dr. Macnider's wards, on the 25th of March, at half-past six o'clock, p.m., suffering from symptoms of strangulation of the above disease. He had been ruptured for the period of eight months, and had constantly employed a truss until within a few days previous to his admission. The present symptoms had existed about six hours. The tumour was the size of a hen's egg, hard and painful, abdomen tense, obstinate constipation, small contracted pulse, no vomiting; reduction was attempted by means of the taxis, bleeding, warm baths, tobacco enemas, æther to the tumour, &c. &c., without effect: and, consequently, the operation was decided upon, and performed by Dr. Macnider the following morning. The superficial epigastric artery was divided, but did not require a ligature; the intercolumnar fascia, and the spermatic fascia, with a portion of the aponeurosis of the external oblique muscle, were divided seriatim upon the director; the sac was then exposed and opened, and its contents were found to consist of a portion of the ileum, of a livid colour from venous congestion, and a serous fluid, which, after it had escaped, enabled the operator to replace the intestine with facility, without the necessity of dividing the stricture. The edges of the incision were approximated by means of three stitches, a compress of lint dipped in cold water was applied, and the patient put into bed, kept perfectly quiet, and on a spare diet. He had an evacuation the same afternoon, without having recourse to a laxative, and obtained a short but refreshing sleep. He has had a dose or two of castor oil, and an injection since the operation, rests well, no pain, appetite improving. The wound is now almost entirely united by the first intention, and in all probability he will be discharged from the hospital, completely recovered, in the course of a few days.

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

April 7th, 1845.

To Correspondents.

We have to acknowledge the receipt of letters from the Rev. Dr. Wilkie, and Dr. Racey, Quebec; Dr. Hallowell, of Kingston; Dr. Spier, and Dr. Workman, of Toronto; Dr. Foster, M. P. P., of Shefford; and Dr.

Robertson, of Lachute; our acknowledgments are due to those gentlemen for their attention and good wishes.

Dr. Robertson will perceive by the present number, that his suggestions have been anticipated. The other matters contained in his letter, must form the subject of a private communication, in the course of a few days.

We are anxious to obtain monthly Meteorological reports for Quebec, Kingston, Toronto, and Hamilton or

Ancaster. A very important object, too palpable to require to be specified, will be secured by such a measure. Are there no gentlemen in these cities who keep registers, and would furnish this Journal with a monthly abstract? We are indebted to Dr. Smith, at Kingston for a paper which appears on this subject in this issue. He will probably continue his valuable aid.

MONTHLY METEOROLOGICAL REGISTER AT MONTREAL.

DATE.	THERMOMETER.				BAROMETER.				WEATHER.		
	1845.	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.
March 1, ...	21	28	24	24.5	29.78	29.86	30.00	29.88	Snow,	Snow,	Fair.
" 2, ...	23	34	29	28.5	30.03	29.87	29.63	29.84	Fair,	Snow,	Fair.
" 3, ...	33	36	22	34.5	29.48	29.71	30.10	29.76	Snow,	Snow,	Fair.
" 4, ...	18	39	34	28.5	30.20	30.14	30.05	30.13	Fair,	Fair,	Fair.
" 5, ...	31	35	33	33.5	29.45	29.63	29.65	29.57	Snow,	Snow,	Fair.
" 6, ...	25	34	27	29.5	30.15	30.19	30.25	30.19	Fair,	Fair,	Fair.
" 7, ...	31	30	22	30.5	30.27	30.18	30.05	30.17	Fair,	Fair,	Fair.
" 8, ...	32	42	37	37.0	29.86	29.82	29.84	29.84	Fair,	Rain,	Fair.
" 9, ...	34	42	28	38.0	29.93	29.93	30.07	29.97	Fair,	Fair,	Fair.
" 10, ...	14	31	18	22.5	30.20	30.09	30.04	30.11	Fair,	Fair,	Fair.
" 11, ...	18	27	18	21.5	30.09	30.15	30.23	30.15	Fair,	Fair,	Fair.
" 12, ...	14	37	32	27.5	30.27	30.21	30.11	30.20	Fair,	Fair,	Snow.
" 13, ...	32	44	29	38.5	30.13	30.14	30.16	30.14	Fair,	Fair,	Fair.
" 14, ...	23	36	31	29.5	30.08	29.96	29.72	29.92	Fair,	Snow,	Snow.
" 15, ...	24	27	10	25.5	29.73	29.75	29.75	29.74	Snow,	Fair,	Fair.
" 16, ...	9	23	16	16.0	29.59	29.55	29.48	29.54	Fair,	Fair,	Snow.
" 17, ...	18	38	28	28.0	29.36	29.36	29.37	29.36	Fair,	Fair,	Snow.
" 18, ...	24	36	18	30.0	29.50	29.54	29.63	29.56	Snow,	Fair,	Fair.
" 19, ...	13	25	21	19.0	29.68	29.63	29.57	29.62	Fair,	Fair,	Fair.
" 20, ...	20	30	19	25.0	29.55	29.67	29.88	29.70	Snow,	Fair,	Fair.
" 21, ...	12	26	22	19.0	30.08	30.07	30.04	30.06	Fair,	Fair,	Fair.
" 22, ...	25	44	30	34.5	30.07	30.05	30.00	30.04	Fair,	Fair,	Fair.
" 23, ...	24	46	35	34.5	30.00	29.85	29.65	29.83	Fair,	Fair,	Fair.
" 24, ...	34	43	33	38.5	29.66	29.78	29.95	29.79	Fair,	Snow,	Fair.
" 25, ...	23	47	28	35.0	30.18	30.22	30.28	30.23	Fair,	Fair,	Fair.
" 26, ...	21	45	36	33.0	30.83	30.16	29.16	30.21	Fair,	Fair,	Fair.
" 27, ...	40	49	32	45.5	30.07	30.13	30.14	30.11	Fair,	Fair,	Snow.
" 28, ...	27	39	35	33.0	30.17	30.21	30.26	30.21	Fair,	Fair,	Fair.
" 29, ...	34	53	41	43.5	30.15	30.10	30.03	30.09	Fair,	Fair,	Fair.
" 30, ...	43	46	35	44.5	30.26	30.26	30.21	30.24	Fair,	Fair,	Fair.
" 31, ...	34	66	49	50.0	30.17	30.09	29.92	30.06	Fair,	Fair,	Fair.

THERMOMETER, { Maximum Temp. 66° on the 31st.  
 { Minimum Temp. 9° on the 16th.  
 Mean Temperature for the Month, 31.6.

BAROMETER, { Maximum, 30.33 inches.  
 { Minimum, 29.36 inches.  
 Mean of Month, 29.94 inches.