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CANADA LANCET.

WILLIAM EDWARD BOWMAN, M.D., EDITOR.

No. 6. MONTREAL, AUGUST 15, 1863. VOL. 1

FARADIZATION.

BY THE EDITOR.

It is now over thirty years since the discovery by Faraday, that wire insulated by a covering of silk or cotton, and encircling a piece of iron, becomes electric at the moment of bringing a magnet into contact with, or separating it from it; the wire being unconnected with either, and remaining unaffected, but on the movement of the magnet to or away from the iron within it. The currents thus induced, run in opposite directions, that is, the end of the wire which gives positive electricity on the application, shows negative on the removal of the magnet, and *vice versa* with the other extremity of the wire, hence the name "to and fro" currents. They become much more perceptible when the iron is bent, and a horse-shoe magnet employed to touch both ends at the same time, as shown in the margin.

Like currents are produced in the wire when placed around the magnet, and its poles touched with soft iron.

Temporary or electro-magnets evolve similar phenomena.

And voltaic electricity from a pile, or a simple pair of zinc and copper plates, when passed through an insulated coil of wire, also generates at the moments of making and breaking contact, the same to and fro currents in another coil placed over it, or with it on the same spool, although not otherwise connected.

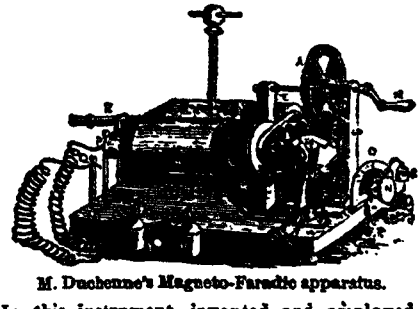
Rheotomes.—It therefore follows that to have continuous induced currents, the contacts and withdrawals of the magnet, or the interruptions in the stream from the voltaic plates, must be numerous and speedy; contrivances for this purpose are called rheotomes (i. e. cut-currents) and have called the ingenuity of scientific men in all parts of the world.

It will hence be observed, that although these sympathetic currents are always produced from spools of insulated wire, yet that there are three modes of inducing them, viz;—the permanent magnet—the electro magnet—and the electric coil, the two latter requiring voltaic electricity.

Dr. Duchenne of Boulogne, who has devoted a great deal of attention to this subject and whose large work, is without doubt the most complete extant, extensively employs these induced currents, and in honour of their discoverer has denominated their application Faradization, which happy application has been at once adopted by the profession at large. When from a permanent magnet, he calls it Magneto-Faradic; and if induced from a battery, Volta-Faradic.

Faradization.—After this explanation it will be seen why by Faradization, is only to be understood the employment of induced or discontinuous electric currents.

Magneto-Electric Machines.—In these the insulated wire is put upon wooden spools, and slipped over the ends of a piece of bent iron, which are turned around in front of a horse-shoe magnet. They are decidedly the cleanest and prettiest instruments for medicinal purposes, and the ones most frequently employed in this country. They come to us from the United States, where they are manufactured cheaply in great numbers, and extensively employed both by medical men and the community at large; and all those, that I have seen, are made to transmit the undivided to and fro currents as generated. The electrodes (or handles), being alternately positive and negative, pass the electricity backwards and forwards through any portion of the body placed between them. In more perfect instruments, however, of which those of the English makers are not excelled in the world, control may be exercised over one of these sets of currents, and a positive and negative electrode be produced at pleasure, thus enabling the operator to pass the stream in any direction desired. This is of great advantage, for a current running with a nerve is much less excitable than an inverse or mixed one.



M. Duchenne's Magneto-Faradic apparatus.

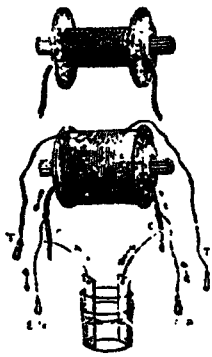
In this instrument, invented and employed by Dr. Duchenne, the spools are placed over the magnets, and contain first, eighty feet of insulated copper wire $\frac{1}{50}$ inch in diameter, over which is wound nearly two thousand feet of another of $\frac{1}{75}$ in. In both of these wires are generated the same to and fro currents, which however vary greatly in character, those from the larger being much more powerful, and from the longer and smaller, more penetrating.

Volta-Electric Apparatus.—Soft iron becomes magnetic when surrounded by an insulated coil of wire through which is passing a stream of voltaic electricity; and an instrument could be made precisely like the one with the horse-shoe magnet, but with a power much greater, depending as it would on the strength of the battery employed. But the turning of a handle is unnecessary with a battery, as, to produce Faradic currents, we have merely to place another coil over the temporary

magnet, the intervening wire being no hindrance to their development. The top coil must also be insulated, and be unconnected with either the wire beneath, the iron, or the battery.

The current produced on breaking contact runs in the same direction as the battery current, and that on its junction in the opposite way. Faradic currents, as already stated, may be produced by a coil of wire, and pair of plates, alone, but the inducing power of an electric magnet so far exceeds it, that the soft iron helix is never omitted in these instruments, but is withdrawn when a diminution of strength is required. If a bundle of annealed wires, each insulated, be substituted for the bar of iron, forming, as they would, so many distinct magnets, *the currents would be still farther intensified*; they must not however be encircled by any metal which partially does away with this increase of power.

The wood cut is intended to illustrate the formation of the coil machines. The top spool has its inducing wire arranged to receive the finer, which is placed over it in the second. The rheotome is not inserted. *The electrodes r. would give* the to and fro currents on separating or connecting the wires at c.

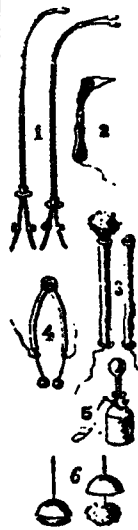


Extra currents.—The Volta-electric apparatus possesses an advantage over the magneto-electric instruments, in generating an extra current of induction in the larger wire at the instant that the battery is cut off, and unlike that induced in the finer wire, it runs but one way, which is the same as that of the battery; it lasts but for an instant and may be felt strongly at the disks E E. and E P. It is an induced current in the inducing wire, after each stoppage of the electricity from the Voltaic plates, and is very convenient as a therapeutic agent. And if the to and fro currents, formed in the finer wire, can be divided at pleasure, it gives a very perfect instrument with three sets of currents, the to and fro, and single currents, from the long fine wire, and the extra current from the coarser. Those from the first, according to Duchenne, being more penetrating and having an especial action upon cutaneous sensibility, and likewise upon the retina; and those of the larger wire upon muscular contractibility.

Induced currents differ, as a therapeutic agent, from Voltaic electricity, in moving alternately in opposite directions, and in being a quick succession of minute shocks; it is to the latter alone however that its superiority is due, for effects, similar in every respect, may be obtained from a small galvanic battery, if its current be made discontinuous by means of a rheotome.

Induced electricity is decidedly medical electricity, and, apart from its other advantages, is superior to all other forms in producing powerful muscular contractions, without exciting cutaneous sensibility, causing shocks, or tearing the capillary vessels. And its employment is unaccompanied by risk of altering the tissues by chemical action, an effect which is liable to occur with continuous Voltaic currents.

Electrodes.—By this term is understood the poles or handles attached to the ends of the wires, by which the application of the electricity is made to the different parts of the body. The pair most universally applicable are brass cylinders with wooden handles, *as shown at 5; they are intended to hold* sponges saturated with salt water. Duchenne's cup and sponges as may be seen, are much larger than those ordinarily employed. Disks, balls, cones of metal, and wood, similar to those used with frictional electricity may all prove useful in Faradization. The exciters fig. 1. are intended for the bladder, and when made a little less curved, answer admirably for Faradizing the os uteri in amenorrhœa. The wires are run through *an elastic catheter with a division* to keep them isolated. Fig. 2. is for the ear; the cone should be made of wood or ivory. Fig. 3. is a wire brush for stimulating the skin, and producing counter irritation. It should be attached to the negative conductor, when the apparatus allows of divided currents.



A pair of very convenient sponge electrodes may be made by cutting a *hollow India-rubber ball in two* and inserting a sponge into each half as shown in fig. 6.

In applying electricity, it must be recollected, that the stream passes into the body at the positive electrode, and out at the negative one, on its way to complete its circuit.

By a direct current is understood one that follows the course of a nerve and consequently of nerve force; it is produced by placing the positive conductor on a nerve nearer to its origin in the brain or spinal cord, than the negative one. Or in other words, to cause a direct current, the negative electrode must be placed upon a nerve nearer to its point of distribution than the positive one. Inverse currents, as their name implies, run in a contrary way to nerve force, and the electrodes are reversed to produce them.

Direct currents, although occasioning contractions in the muscles to which a nerve is distributed has the effect of decreasing for a time the excitability of the nerve itself. It is owing to this important power, that it is so desirable to be able to employ them alone; for the reverse currents of the to and fro instruments stimulate and counteract this effect. But when these double currents are very intense, the inverse become overpowered by the direct.

From these facts it will be deduced that feeble and long continued to and fro currents are best *adapted to rouse vitality and exercise a tonic* influence upon weak or atrophied tissues.

The human body is not a good conductor of electricity when compared to metals; its most impregnable part, however, is the epidermis, the resistance of which when dry has been placed by Lenz, after many experiments, as high as 36 times that of the conducting wire alone. The skin once passed, however, he found the structures beneath not to exceed five times. Persons accustomed to working with Voltaic batteries, are perfectly aware *of this great difference, from the increased facility* and power with which the current enters the hands

through the least scratch or abrasion of the cuticle, and the severe pain it occasions at these points.

Electro-puncture.—Faradization through steel or platina needles passed into the deeper tissues is one of the most efficient modes we possess of localizing the current and stimulating them to healthy action, or restoring them to lost contractibility. Triangular shaped needles, similar to those employed by glovers, are best adapted for the purpose; when of steel they should be plated with gold, for their oxidation in the wound during the passage of the electric currents, not only increases the pain, but leaves an indelible stain behind them. Bloodvessels should not be transfixed, nor is it absolutely requisite to pierce a nerve; it is quite sufficient if the needles come in contact with it.

Baths.—Electricity penetrates the skin without difficulty through water, and the application of to and fro currents in a bath, is a powerful means of arousing the action of the system in cases of debility. The hip bath, foot bath, or merely inserting the hands into a basin of water, also gives a ready entrance and exit to the currents if one conductor be put into the vessel, and the other, a moist sponge, be placed above the part to be Faradized. Salt increases the conducting power of the water, and it may be conveniently added to it when operating through the hands or feet.

Sponge Electrodes.—Next in point of penetrability are sponges moistened with salt water, which, when pressed firmly upon the wet skin, act as good conductors to the deeper tissues without electrization of the cutaneous surface, which however becomes momentarily affected on bringing the electrodes into contact with it, or on removing them, whilst connected with the working instrument; this may be readily obviated by crossing the wires of the two poles until the sponges are placed.

Electro-cutaneous Excitation.—When the skin is dry beneath one or both electrodes, the currents flow chiefly along or within its surface, and when intense, act painfully upon the superficial muscles beneath. Before Faradizing the skin, all humidity should first be absorbed by means of a little rice powder or corn starch, then having placed a moist conductor on some other portion of the body, apply a dry one to the part to be excited, or, holding it in the hand, pass the back of the fingers lightly over the surface. The application of the metallic brush, however gentle, is a much more severe mode of arousing sensibility, and is very painful when the cutaneous surface is struck slightly with the extremities of the wires. Duchenne calls this latter *electric fustigation*, and *electric moxa* when the ends are left in contact with it.

Of the Nerves.—The muscles are much better conductors of electricity than the nerves, therefore, when it is desired to apply them to the latter, it should be done where they are most superficial, and in contact with tendons or aponeuroses, or surrounded by cellular tissue; and even in these situations but a portion can be made to traverse the nerves.

Weber has proved, after many interesting researches, that although Faradization of the spinal marrow alone, produces violent contractions in the muscles of the trunk, these contractions arise, not from electricity, but from nerve force brought into action by the stimulus to the cord. And that neither contractions nor heat can be observed in nerve matter on electrical excitation.

Induced currents passed through the sympathetic, or through the organs to which it is distributed, produce contractions in the muscular tissue of the latter, which, however, differ from those of the voluntary muscles in being less energetic and more permanent, and in succeeding each other in an order corresponding to their functions, which they increase.

Of the Muscles.—Faradization of the muscular tissue, is said to be *general* when produced through the nerves, and *local* when applied to the fibres themselves; the latter is more superficial except when a powerful current is employed. Next to electro-puncture, local electrization is best accomplished by means of the sponge electrodes wet with brine, and pressed firmly upon the skin within a few inches of each other, moving them frequently until every part has been brought under its influence.

Excitation of the periosteum is peculiarly painful, and should be avoided when possible.

Paralysis.—Ever since its discovery, Faradization has been recommended as a remedial agent of great efficacy in paralysis, both local and general, stimulating the nerves and muscles in the former, into renewed life and activity, and supplying them in the latter with electrical, in lieu of deficient nerve force; thus keeping up their action and development, and preventing atrophy, whilst nature is restoring the power of the nervous centres. It cannot however be made immediately available as in all forms of local paralysis. In both local and general, the to and fro currents are particularly adapted, and should be applied directly to the parts affected, without passing them through the seat of any recent cerebral or spinal injury. They should be employed for short periods, and be frequently repeated.

Where there has been a separation of a nerve by injury, or even a loss of its substance, with years of permanent paralysis, the patient application of electricity will occasionally be found to restore the action of the muscles supplied by it, showing that there has been regeneration of the nerve filaments in the cicatrix, and that want of stimulus alone has prevented the return of power. After accidents of this kind, the rule is, that when muscular contraction has not been destroyed, the parts should be submitted, as soon as possible, to local electrization; but when lost and insensible, from four to ten months must be allowed for the perfection of the nerve fibres.

Paralysis of the nerves of smell, taste, sight, and hearing, have each occasionally been restored by electrical excitation.

I have had some encouraging, although but partial successes, with it, in loss of smell from chronic catarrh in which I employed the double currents, placing one sponge over the nostrils, and the other at the nape of the neck.

Dr. S. Wells recommends it in cases of strabismus dependant upon paralysis of muscles of the orbit without cerebral lesion; he directs one moist sponge to be placed on the lid over the weakened rectus, and the other to the temple, and begins with applications of five minutes duration daily, increasing them gradually to 20 minutes.

In deafness without evident cause, but deficient cerumen, Faradization is well worthy of a trial. The ear should be filled with water, and weak and slow currents be passed through it from the back of the neck, being careful not to allow the conductor to touch any portion of the meatus or tympanum.

Local paralysis of the bladder with incontinence

of urine, either in adults or children, may often be successfully treated by means of the to and fro currents passed daily, for fifteen minutes, between the interior of the bladder and the pubes, employing the exciter fig. 1, and a sponge electrode. It seldom requires more than a single application to effect a change, or over five or six, to give permanent relief.

In tic douloureux, the nerve may be deadened by strong direct currents, (extra currents being the best) applied by means of moist conductors.

Faradization in lead palsy, is in general very tedious, and requires 30 to 100 sittings, at each of which pain should be excited in the paralyzed muscles. The currents employed should be rapid and intense, and not be continued longer than ten minutes, otherwise the nerves themselves will be liable to be injured by them.

In chorea, M. Briquet remarks that induced currents, passed through the muscles, act but temporarily, but if applied merely to the integument, they occasion rapid and marked diminution of the movements, and frequently effect a prompt removal of the malady. He Faradizes the skin every day or every other day, for five or six minutes, along the entire length of the affected limbs, persevering with the treatment for several months when necessary.

In amenorrhœa, Faradisation proves successful only after the health has otherwise been re-established. To and fro currents should be passed between the sacrum and pubes, beginning several days before the period. In cases permitting it, an insulated conductor may be carried up to the womb, and the electricity be passed through it from the lower part of the abdomen.

To produce contractions of the womb and expulsion of its clots in post partem hemorrhage and in dysmenorrhœa, or to cause more rapid labour in placenta prævia, after due dilatation of the os, Faradization may be employed as an auxiliary to other means, in deference to the success attributed to its use by some few authors of merit. The mode of its application is the same as for amenorrhœa.

It is in hysteria particularly, more than in any other disease, that the to and fro currents prove most successful. In its convulsions, paralysis, tetanus, aphonia, and all its thousand and one anomalous sensations, their employment frequently acts in a surprising manner; the dread alone of the more powerful shocks, having sufficient influence upon the mind to control, and prevent their recurrence.

The secretion of milk, when suspended or delayed, has occasionally been reproduced in a few hours by the application of the sponge electrodes, and the passage of moderate to and fro currents through the glands for ten or fifteen minutes. It should be repeated daily until the return is fully established.

In neuralgia, powerful direct currents (extra currents) should be passed along the affected nerve, through moist conductors, for a few minutes only, and be repeated each time of the return of the pain. The intervals will be found to become longer and longer, and the sensibility to decrease at each renewal of the attack, until it entirely ceases. If electro-puncture be preferred, as strongly advocated by many, weak currents must be employed, and but for a few seconds only.

In bronchocele, electrical excitation renders the thyroid gland more susceptible to the power of iodine or other absorbents.

In chronic rheumatism, direct currents give much relief and promote the absorption of effusions. In cases of rigidity, as that of crick in the neck, the to and fro currents, applied to the healthy antagonistic muscles, by causing their contraction, act powerfully on the diseased ones, subduing their excitement and irritability in the same manner as the exercise of the opponent muscles in ordinary cramps. Dr. Christophers passes the current down the spine, and through the affected part daily for half an hour or longer, and speaks of a case of three years standing that was thus greatly benefited by it.

In hydrocele, electro-puncture by exciting the serous membrane to absorption, frequently proves successful, even in obstinate cases, in removing the effusion. The needles should be inserted deeply into the fluid from opposite sides, and to and fro currents be gently passed through them for fifteen minutes, increasing their intensity until the pain is complained of; the application may be repeated several times if necessary.

In deficiency of semen, with loss of desire or imperfect erection, I have found the to and fro currents of much benefit, in one case a single application producing a return of power. They should be passed through the testicles, and along the erector muscles from the ischium to the dorsum of the penis, employing the sponge electrodes daily, for fifteen minutes.

In irritable states of the bowels accompanied by slimy stools and alternate constipation and diarrhœa, to and fro currents applied to the colon from the spine, with moist electrodes, has been found of much service.

In poisoning by opium, Faradization is the most efficient means we possess of sustaining life during the continuance of the narcotic effects of the drug upon the brain; in which time the stomach pump and stimuli will not of course be neglected. Dr. Herepath's experience on this subject is worthy of attention; he found, after numerous trials, that when the direct currents only were employed, the positive electrode being placed upon the mucous membrane of the mouth, and the negative just below the ensiform cartilage, that the respiratory movements were carried on with considerable more regularity and ease than by any other method; but that when the conductor was shifted from the cheek to the tongue, spasm of the glottis was produced and asphyxia threatened. In arrest of the heart's action from chloroform, direct current should be passed through sponge electrodes from the nape of the neck to the ensiform cartilage, placing the positive to the former. But if to and fro currents only are available, the shocks should be passed from side to side placing one conductor over the cardiac region. In both cases the finger should be kept pressed between the ribs, and when the heart or diaphragm is noticed to contract, the currents should be momentarily suspended.

By the terms "sponge electrodes," "moist electrodes," "moist conductors" and "moist sponges," are invended Duchenne's cylinder conductors, containing sponges wet with salt and water, and pressed firmly to the skin during electrization.

In conclusion I would remark, that for the successful employment of Faradization, great patience and perseverance is required, and the conjunction of other remedial agents should in nowise be neglected.

Over 3,000 medical men in Great Britain will receive this number of the *Lancet*.

Canada Lancet.

MONTREAL, AUGUST 15, 1863.

Doctor JOHN MOORE NELIGAN.—Dublin has, within the last ten days, lost another of her celebrities. It is really appalling to reflect on the number of the more prominent members of the profession in the Irish metropolis who have been removed by death within the last few years. The veteran Peile, of

> "Ingratiating manners, feeling mind,
> His hand as steady as his heart was kind,"

whose decease we recorded in our first volume for 1858, was followed to the grave in rapid succession by Harrison, Crampton, Montgomery, Marsh, Porter and Cusack. Of their contemporaries, Wilmot, Carmichael, Colles, Cheyne, had gone not very many years before.

Most of all these had, however, attained the threescore years and ten, stated on high authority to be the natural limits of human life, and some had been so strong that they had come to fourscore years and more; but it is now our melancholy task to announce the removal, in the prime of life, of one whose name has, almost from the period of his entrance into the profession, been conspicuous in the pages of medical literature.

John Moore Neligan was born in the town of Clonmel, in Ireland, where his father practised as a physician, in the month of June, 1815, one week after the eventful battle of Waterloo.

At the time of his decease, on July 24, 1863, he had, therefore, little more than completed his 48th year.

Having passed through the necessary courses of preliminary and medical education, he graduated as M.D. in Edinburgh in 1836. As a writer, his earliest essays appeared in the Dublin Journal of Medical Science, and in the Edinburgh Medical Journal.

His work on "Medicines; their uses and mode of administration," has passed through five editions, and a sixth is in preparation. In 1848, he was selected by the late Dr. Graves, to bring out the second edition of his far-famed "Clinical Medicine." Among his other works were his "Atlas of Cutaneous Diseases," and his "Practical Treatise on Diseases of the Skin." More particularly in this specialty he enjoyed an extensive practice. From 1849 to 1861, he was the able, diligent, and impartial editor of the Dublin Quarterly Journal of Medical Science. At home and abroad his professional reputation was deservedly high. In 1853 the University of Dublin conferred on him the honorary degree of Doctor in Medicine. He was a fellow of the King and Queen's College of Physicians in Ireland, and an honorary member of the Medical Societies of Sweden, Athens, Cork, Belfast, &c., and of the Pharmaceutical Society of Great Britain. He was for some time Physician to Jervis-street Hospital.—*Medical Times, 1st Aug.*

New Books.

ON DISEASES OF THE SKIN, by Erasmus Wilson, F.R.S., 5th American, from the 5th revised London edition; beautifully illustrated with coloured engravings. Blanchard and Lea, Philadelphia, 1863, $7.50; without plates, $3.25.

No one attempting to treat skin diseases should be without a copy of this standard work. This edition too, is doubly valuable from the many additions, and the insertion of the author's illustrations of syphilitic eruptions. It does much credit to its publishers, and we wish it every success.

A PRACTICAL TREATISE ON FRACTURES AND DISLOCATIONS, by F. H. Hamilton, M.D., Lt. Col.: Medical Inspector, U.S.A., Prof. of Military Surgery, Bellevue Hospital, Medical College, &c., 2nd edit. 8vo., 750 pages. Blanchard and Lea, 1863.

Like the one just noticed, this too seems sole occupant of the field of medical literature in its particular branch; and well does it deserve the place it so creditably holds, for it is all that it professes to be, a practical book by a practical man. It is the only work indeed that we have at present in which we can find illustrations, and descriptions of all the new apparatus and modes of treatment of fractures and dislocations; and reflects much credit both on its author, and the nation to which he belongs. And in wishing him all the success he deserves, we must not forget that it is to the publishers we owe the beautiful form in which his ideas are clothed, and the hundreds of excellent wood cuts that render them so clear, to even the dullest intellect—they too should receive their reward.

Interesting Cases.

SINGULAR CASE OF TWINS.—*By J. N. Fraser, M.D., L.R.C.S., St. Johns, Newfoundland.*

On the 15th of April last, Mrs. ——, aged 25 years, of leucophlegmatic and somewhat nervous temperament, was delivered (under chloroform) of a full grown male fœtus, which was strong, and in every respect natural. Soon afterwards I proceeded to remove the placenta, but could not do so by using moderate traction. On examination per vaginam, the finger impinged upon a hard substance quite unlike the placenta, which could also be felt. The uterus was well contracted. By the exercise of slightly increased force, the placenta was removed, and together with the secundines a second male fœtus was born—about four months old—perfect in every respect; and wholly free from decomposition, somewhat soft, but possessed of no offensive odour whatever. There was only one placenta and one membranous receptacle. The umbilical cords were inserted in the placenta about three inches apart. The undeveloped fœtus measured in length six inches; and weighed six ounces and two drachms. The umbilical cord measured twelve inches in length; the head was completely flattened, but every feature was naturally formed. The question arises, was this a case of superfœtation (granting the possibility of such an occurrence prior to a certain date) or one of twin conception occurring at or about the same period?

Dr. Churchill states "that the theory of superfœtation is opposed by physical difficulties, which are insurmountable in the present state of our knowledge." Dr. Ramsbotham says, "It is impossible to suppose that a subsequent impregnation can occur while one fœtus of four, five, or six months growth occupies the uterus." Dr. J. M. Duncan affirms "that the decidua reflexa is not in contact with the decidua vera till after the third month, and that up to that time there may be free communication between the ovary and vagina, and consequently, liability to a second impregnation." The possibility of such an occurence is also, I think, implied in the statement of Dr. Ramsbotham. Dr. Churchill remarks that "additional evidence, however, would be necessary to establish this opinion."

In the present instance there are no fixed data upon which to base a decided opinion; but from all the attendant circumstances of the case, I believe it to have been one of twin conception occuring at or about the same time. From an early period to the termination of utero-gestation, the patient complained of feelings and sensations quite different to any experienced during her former two pregnancies—she suffered from considerable pain and weight about the vagina and hips, and could not take the same amount of exercise as on previous occasions. She also complained of a hardness on one side of the abdomen, distinct from the general uterine enlargement. During the whole period of utero-gestation there was no discharge of liq. amnii—no flooding. There was but one placenta and one membranous receptacle. Had this been a case of superfœtation would there not have been two placenta? Then how account for the condition of the undeveloped fœtus which *must* have been four or five months dead in utero, and still was perfectly free from decomposition, and gave rise to no uterine action? According to Dr. Ramsbotham "this may be explained by the fœtus never having been in contact with the external air," then how account for some having been born putrid, under conditions similar to those related above, if the non-admission of air is of itself sufficient to prevent decomposition? Dr. Ramsbotham adds, "or perhaps it may be accounted for by the powerful vital principle which is resident in the gravid uterus, and which is in fervid operation for the purpose of bringing to perfection the living being it contains, protecting the dead mass from the ordinary changes of decay; and acting as an antiseptic power." This, if not quite satisfactory as an explanation, is at all events a beautiful hypothesis. There is nothing in the after history of the case necessary to be mentioned; convalescence having been rapid and uninterrupted.

THE INTERNAL USE OF CHLOROFORM IN CONVULSIONS.—Dr. Case of Tremont, Ill., recommends the internal use of chloroform in puerperal and hysterical convulsions, finding it to act better than when inhaled. He gives twenty drops and repeats it in half an hour. This however is a very small dose; probably he intends minims (there are four drops to a minim). A fluid drachm of chloroform is equal in soporific effect to 35 drops or 21 minims of laudanum. Dr. Hartshorne has given it in doses of from 50 to 75 drops every half hour for several hours together. And we are constantly in the habit of prescribing from 80 to 100 drops in colic and delirium tremens, and have never noticed any ill effects from its use in these quantities.—*Ed.*

The Montreal General Hospital was erected in 1821.

ON PLEURISY.

BY HYDE SALTER, M.D., F.R.S.

Being part of a Clinical Lecture delivered at Ch Cross Hospital. From the British Medical Journal.

The cases to which I wish to draw your a tion are cases of pleurisy; by which we mean you know, inflammation of the membrane lines the cavity and covers the viscera of thorax.

After giving the history of three acute cases, one s severe one, which he had successfully treated, with pletion or mercury, by means of ten minim doses of l num and chloric ether, with a grain of quinine, and employment of turpentine fomentations to the side, tinuing the mixture every four hours for two days, withstanding the frequent pains and semi-delirium and every six hours afterwards, iodine ointment applied externally towards the last. For turpentine the milder cases, he substituted a sedative liniment. He continues:—

You will observe that in all three cases the circumstance that brought the patient to the h tal was pain in his side; and pain of a pa character—severe, circumscribed, stabbing, greatly aggravated by inspiration. In Fran case, as we have seen, this pain was of the violent kind, resembling the plunges of some more than anything else. Now, such a pain almost always accompanies pleurisy; it is ra find pleurisy without it; and hence when pain is present, pleurisy is the thing one thinks of and looks out for. But pain in the may arise from fifty causes besides pleurisy; since some of these are very trifling, while pl is often a very grave affection, the diagnos lateral pain frequently becomes a very mome as well as interesting question. How then, in given case, can we ascertain if pain in the s due to pleurisy or not? I will endeavor to show as clearly as I possibly can. But I must s that the diagnosis is sometimes difficult.

If physical signs show the anatomical cond pleurisy to be present, then pleurisy clearly or has existed, and the pain in the side is pro due to it.

But supposing there are no physical sig pleurisy, is the pain on that account non-pleu Certainly not. I believe it perfectly possib pleurisy to be present, and yet not reveal its any physical signs whatever; either, becaus inflammation is not intense enough to give anatomical changes sufficiently marked to r themselves by physical signs, or because the of the inflammation is too early, and the ti not yet arrived for the development of changes: in such a case as this how are we t termine whether the pain points to pleurisy o

If there are other signs of lung mischief, w is often associated with pleurisy—as, for ex pneumonia, or tubercle, or cavity—then the probably pleuritic.

If pressure *between* the ribs produces the while pressure on the ribs does *not*, if inspir the great aggravator of the pain, if *there* is if there is fever and much constitutional di ance, and if the pain is circumscribed, and o without or below the nipple, then it is pro pleuritic, although there may be an entire a of all physical signs of lung disease.

If the pain is very severe and the pulse hi fected, the pain is *certainly (I think I may* s pleuritic.

If moderate pressure *over* a rib, as well as the ribs, produces the pain, the pain is ne ritic.

If the movement of certain muscles which could not affect the pleura, produces the pain, especially if there are other evidences of rheumatism, the pain is not pleuritic. Only yesterday we had two cases in which the diagnosis turned upon this point; contraction of the *latissimus dorsi*, that could not possibly have been appreciated by the pleura, gave rise to the pain in both cases. The verdict was rheumatism.

With regard to the influence that the evidence of rheumatism has upon the diagnosis, it must be admitted that it cuts both ways. For while rheumatism is one of the commonest causes of lateral pain simulating pleurisy, it is also, in its acute and febrile form, a very common cause of pleurisy itself; so that while the evidence of its presence might suggest the non-pleuritic nature of the pain, on the other hand it would afford an explanation of, and in some cases almost constitute a presumptive proof of, its true pleuritic character.

Doubtless, the case the most difficult of solution, is the alternative between pleurisy and rheumatism of the intercostals. I have more than once been puzzled with it myself, and I have seen other and able men puzzled with it. There is in both cases the same superficial breathing, the same "stab" on attempting to take a full inspiration, the same lateral *decubitus* on the unaffected side, the same tenderness in the intercostal spaces. The rules of diagnosis that I have just mentioned to you will generally solve the mystery, but the most careful scrutiny may leave the question undecided.

The nature of this pain is no doubt the same as that of all other inflammatory hyperæsthesias, and, like them, the principal thing that aggravates it, is mechanical disturbance; hence the intolerance of pressure and of stretching, hence the superficial breathing and the *decubitus* on the sound side. I do not believe that the friction of the roughened surfaces has anything to do with the pain, for two reasons; first, because you may have, as shown in the case of Wingall, pleuritic rubbing continuing after the pain has ceased, and when nothing is felt by the patient beyond a sense of the friction; and secondly, because the pain may be severe where the existence of effusion, in considerable quantity, prevents the contact of the two pleural surfaces. It has been said that as soon as effusion takes place the pain ceases. This is not true. In the case of Franklin, the pain was of the most severe kind that I think I have ever witnessed in any case of pleurisy, while the pleural cavity was full of fluid—so full, as to preclude all possibility of friction.

Does the seat of the pain coincide with the seat of the inflammation? As far as always occurring on the same side goes, I think it does. But I doubt if it does further. Certainly the seat of pain does not coincide with the seat of the greatest friction-sound. Thus, in the case of the lad Wingall, the maximum friction was about the cartilage of the third rib, where there was no pain; while the chief pain was at the inferior angle of the scapula, where there was no rubbing. Moreover, there is a suspicious constancy about the seat of pleuritic pain, which cannot be explained by a similar constancy in the seat of the inflammation. We know, from post mortem evidence, that all parts of the pleura are liable to inflammation, while the seat of pleuritic pain is not liable to equal variety. For the seat of pleurisy there is no rule; for the seat of pleuritic pain, there is a tolerably well marked rule:—beneath the nipple, at the inferior angle of the scapula, on the acromion, and beneath the false ribs, are its characteristic situations. Moreover, some of these situations are beyond the limits of the pleura, as on the acromion, and in the interval between the last rib and the crest of the ilium, where the chief pain in Franklin's case was felt. Moreover, the seat of pain may be covered with the finger when *post mortem* appearances show that the implication of the pleura has been almost universal. From all these considerations, I am inclined to think that pleuritic pain, as far as its distribution is concerned, is chiefly reflex; and that the constancy of its situation represents some law of reflex distribution, analogous to that which makes bronchial pain sternal, and colic pain umbilical, whatever may be the exact seat of the source of irritation.

I have often asked myself the question, in cases of pleurisy, whether both costal and pulmonary pleuræ were affected, or only one, and which; and if there were any means of diagnosing this point. Is it possible to answer this question? I think, to a certain extent, it is. I think one surface may be affected without the other; and certainly both may be affected at once. I think, if there is pleuritic effusion, and pressure between the ribs at the seat of pain increases the pain, that the costal pleura is affected. I think, on the other hand, that if, under such circumstances, there is no pain on pressure, the costal pleura is not affected. I think that if pneumonia coexists with the signs of pleurisy, the implication of the pulmonary pleura is certain. I think that in all cases of pleuritic rubbing, both surfaces are certainly affected; perhaps one primarily, but *both* ultimately. In cases of pleuro-pneumonia in which there is friction-sound, the pulmonary pleura is probably affected first; and when that has been roughened, a similar state on the opposite surface of the costal pleura is set up by the chafing produced by the already roughened lung surface. In pleuritic rubbing, produced by traumatic injury of the thoracic parietes, the same events probably take place in a reversed order.

Observe the important part which the nature of the anatomical result of the inflammation plays, in these cases. In the cases of Russell and Wingall, when the febrile stage of the cold passed off, nothing remained but the inconvenience and annoyance of the stitch in the side. But Franklin's catarrhal attack left him not only with the pain, but with one lung instead of two, with the incubus of a pleura full of [illegible], upon his mediastinum and heart, and with all the circulatory and respiratory derangement and distress, that must result from such a state of things. We see from this, how, when hydrothorax is developed, it comes to constitute the substantive disease;—the pathology is lost, the morbid anatomy is everything.

What is the nature of the pleurisy in these cases? Some, no doubt would say, they are idiopathic: But I think, without adopting Sergeant Shee's definition of the word *idiopathic*,* I may show you that it would not be fair to so call them. It is quite clear that in all the cases the pleurisy was due to cold. Is this fact inconsistent with the general proposition with which I commenced my lecture,—*that serous inflammations preeminently point to states of blood-poisoning*? I think not. I think,

* In the trial of Palmer, for the murder of Cook, Sergeant Shee, in reply to a question from the bench, as to what was the meaning of the constantly recurring word "idiopathic," said that it was a word employed by doctors, to signify "that which was not understood."

on the contrary, that everything, both in the etiology and clinical history of catarrh, shows it to be a veritable toxhæmia—a state of blood-contamination by a special *materies morbi*; and therefore pleurisy from catarrh, is but an example of a serous inflammation from a blood-poisoning. I do not see how it is possible to give any other reading to the phenomena of catarrh:—rigors, lassitude, headache, subjective pain in back and limbs, accelerated and enfeebled heart's action, loss of appetite, thirst,—all the symptoms, in fact, of fevers of blood-origin; secondly, certain local inflammations of glandular or quasi-glandular parts; and thirdly, all this supervening on the suppression of the function of an eliminating surface, which, taken in the aggregate, constitutes one of the largest glands of the body. And pleurisy is not the only serous inflammation that catarrh will produce; I am quite satisfied that I have seen, on three or four occasions, catarrhal peri- and endo-carditis. And, if you will not accuse me of reasoning in a circle, I will say that, if I wanted a clinching and convincing proof of catarrhal fever being a true blood-poison state, I should find it, in its tendency to give rise to serous inflammations.—(*To be continued.*)

To Correspondents.

Fly Paper.—Roll two ounces of pulverised arsenious acid, (common white arsenic,) and one ounce of carbonate of soda, (sal soda), in a tin vessel with a pint of water till dissolved; then add the solution to five pints of strong infusion of quassia, (made from a pound of the chips): and finally put in a pound of common brown sugar, when the mixture will be ready for the paper.

The small coarse wrapping paper, a little larger than foolscap, is the variety usually employed for the purpose, in this country. It must be separated into divisions of two or three sheets, and each alternate division be dipped into the mixture, when by placing them into an ordinary copying press, and pressing them pretty hard, the whole will become nicely damped, and may be dried easily.

The quantity of liquid mentioned above, is sufficient to saturate half a ream of paper.

The directions are, to place a small piece on a saucer, and wet it with a spoonful of water, keeping it moistened as it dries up.

The basis of all fly paper and powders, that we have ever examined, is arsenic. The above is one of the most efficacious and best, the quassia, apart from its rendering accidents less liable, seems to stupefy the flies, and so prevent their wandering about or purging. It is sold at three pence per sheet.

Aromatic or Toilet Vinegar.—Any cologne, made from the strongest rectified spirits, becomes aromatic vinegar by the addition of an eighth part of pure acetic acid. The formula we prefer is the following: To one pint of pure alcohol add one ounce of essential oil of bergamot, and a few drops each, of essence musk, and oils of neroli, lavender, rosea, cassia, cloves and rosemary; and having mixed them, put in two ounces of the strongest acetic acid, and filter for use.

Seidlitz Powders.—Put two drachms of Rochelle salts with two scruples of bicarbonate of soda, into the larger paper, and a sufficient quantity (from 30 to 35 grains) of tartaric acid into the smaller one to neutralise the soda, and render the draught most agreeable; this can only be ascertained by trial, as both acid and alkali vary greatly in strength.

When made in large numbers, the salts and soda should be repeatedly mixed and sifted together and be accurately weighed (not measured) into the papers. The quantity of acid having been carefully determined upon, an equal attention to its weighing will be necessary, the scalepan being constantly kept free from all adherent powder. An apothecary thus carefully preparing Seidlitz Powders, will soon find his sale of them to increase.

Medical Works published in Great Britain from the 1st July to the 1st August, 1868, with their sizes, numbers of pages, publishers' names, and prices in sterling.

Hardwicke, Shilling Guide to the Charities of London, corrected to April 1868; 12mo. pp. 174, sewed, (Low) 1s.

Ellis, Prof., and Mr. Ford, Illustrations of Dissections; part 4th, (Walton & Maberly) 2s. 6d.

Ashton, T. J. On the Diseases, Injuries, and Malformations of the Rectum and Anus; 4th edit. 8 vo. pp. 480, (Churchill,) 8s.

The British Medical Journal of 11th July, has omitted to give us credit for the article on "Cicarettes" copied from our columns. This is the third time we have noticed these omissions in British medical journals.

Periodicals received since 15th July.

London Medical Times, to 1st Aug.; British Medical Journal, to 18th July; London Lancet, to 25th July; London Pharmaceutical Journal, Aug.; London Chemical News, 4th July; London Medical Circular, 15th July; American Journal of Pharmacy, July; Boston Medical & Surgical Journal, to 13th Aug.; Philadelphia Medical & Surgical Reporter, to 1st Aug.; Pacific Medical and Surgical Journal, San Francisco, June; San Francisco Medical Press, July; Buffalo Medical & Surgical Journal, Aug.; Chicago Medical Examiner, July; American Medical Times to 8th of Aug.; Chicago Medical Journal, July; Cincinnati Lancet & Observer, Aug.; Cincinnati Medical & Surgical News, July; Philadelphia Medical News & Library, Aug.; London Chemist & Druggist, July; American Drug Circular, Aug; London Publisher's Circular, to 1st Aug.; American Publishers' Circular, to 1st Aug.; Philadelphia Dental Cosmos, Aug.

Books and Pamphlets received during the Month.

Studies in Physiology and Medicine by the late R. J. Graves, F.R.S. Edited by Wm. Stokes of the University of Dublin. From the Publishers, John Churchill & Sons, New Burlington st., London.

Illustrations of the Surgery of the Female Pelvic Organs, by Henry Savage, M.D., F.R.C.S.E. From the Publishers, J. Churchill & Sons.

Handbook of Uterine Therapeutics by E. J. Tilt, M.D. From the Publishers, J. Churchill & Sons.

Shilling Guide to the London Charities for 1868; by Herbert Fry, Robt. Hardwicke.

Some valuable pamphlets by Professor Laycock, of the University of Edinburgh, on Delirium, Tremens, Medical Psychology, Mental Diseases, causes of Fevers, Diseases of the Skin and several others. From the author.

Surgical experiences of the Peninsular Campaign, by John Swinburne, M.D., of Albany, N. Y. From the author.

Physician's Visiting List, for 25 patients, with tuck. A neat little pocket companion. From Lindsay & Blakiston, Philadelphia, pub. $1.00.

Subscriptions paid since July 15th.

Dr. J. McNab, Wells River Vt; Dr. G. Chevalier, Redford; Dr. R. Holden, Belleville; Dr. U. Ogden, Toronto; Dr. Garceau, Lowell, Mass.; Dr. J. B. T. Trestler, Vaudreuil; C. J. Tyler, Esq., Erin, Dr. J. N. Fraser, St. John's, N.B.; D. A. Matheson, Toronto; Dr. Cadieux, Sorel; Dr. Turcotte, Sorel; Prof. H. Townsend, Albany; Dr. J. W. Hunter, Stanstead; Dr. Selley, Compton; Dr. Teasdale, Rigaud; Dr. Anderson, Ormstown.

BIRTHS.

At Yamachiche, on the 11th instant, the wife of L. L. Desaulniers, Esq., M.D., of a daughter.

MARRIAGES.

At the Parish Church in this City, by the Rev. H. Privett, on the 2nd of July last, Dr. J. Garceau, of Lowell, Mass., to Signorina Eusebia De Angelis, daughter of Signor G. B. De Angelis, of Montreal.

At Hemmingford, C. E., on the 22nd July, by the Rev. James Patterson, Alexander Ault, M.D., of Hemmingford, to Jane, only daughter of the late John Martin, and granddaughter of the Rev. John Martin, of the same place.

On the 4th inst., at the residence of the bride's father, by the Rev. A. Andrews, Wm. E. Bessey, M.D., C.M. of Franklin, C. E., to Marianne, eldest daughter of the late John Dier, Esq., of Montreal.

At Toronto, on the 4th instant, by the Lord Bishop of Ontario, Wm. Herbert Campbell, Esq., of Brockville, to Louisa, eldest daughter of M. Barrett, Esq., M.A., M.D.

DEATHS.

In this city, on Saturday evening, the 8th instant, Alexander Rodger Finch, only child of Francis Wayland Campbell, M.D., aged 7 months and 29 days.

In this city, on the 14th instant, Ada Helena, third daughter of Edward Jaques, M.D., aged nine years.

The Canada Lancet is published monthly at the rate of one dollar, (or four shillings sterling) per annum. Remittances may be made to W. E. Bowman, M.D., Editor or Proprietor, or to Mr. John Lovell.

Subscriptions will be received in Great Britain by Messrs. S. Maw & Son, 11 Aldersgate st., London, E. C., who will forward any books or publications intended for notice.

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