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ELECTROLYSIS IN SURGERY.\*

BY ROBERT NEWMAN, M.D., NEW YORK.

Of late it has become a fashion to lecture on the progress of the future. In a temporary mood of enthusiasm, during a lecture delivered fifteen years ago, I predicted and anticipated the progress of electricity in general in such a way that everybody considered it romancing, as a good joke. How far I was then behind the reality, nobody, myself included, had the faintest idea, and what are now accomplished facts, nobody would have thought possible in those days. For instance, the telephone, phonograph, incandescent light for illuminating streets, dwellings, railroads, steamboats, and cavities of the human body; the motor for railroads, factories, and the application in surgery.

Therefore, knowing how I have failed in predicting the progress of the future, I will confine myself to some remarks of the day. As the field is too large, and another paper on "Electricity in Gynæcology" is on your programme, I will make my text more on "Electrolysis in Surgery."

Electrolysis is the decomposition of a compound body by electricity—a chemical decomposition. The body to be decomposed must possess certain elements to be an electrolyte, and as a compound body, must contain water and a salt.

Nicholson and Carlisle discovered this process of electrical decomposition in 1800, and successfully electrolysed water into oxygen and hydrogen, therefore the theory is not new, and the explanation can be found in any text-book on elementary physics and chemistry. Only the galvanic current can be used for this purpose.

The art in applying electrolysis successfully in surgery consists in:

1. Using the correct strength of the electric current.
2. Applying the respective poles in the right place.
3. Selecting the size, shape, and material of the electrode.
4. Regulating the *duration* and intervals of seances.

Electrolysis applied with a mild current will cause absorption only—a galvanic, chemical absorption—while a strong current will burn, cauterize, or even destroy tissues. Therefore the operator must know what effect he wishes to produce, and graduate the strength of his current accordingly. The management of the operation must be such that every possible mishap is anticipated and prevented.

The first necessity is to see that the galvanic battery is in perfect working order, and for this the following tests can be made. To illustrate, Dr. Charles R. Dickson, of Toronto, has kindly furnished me with a galvanic battery, and will assist me in these experiments demonstrating and executing the text which I am explaining.

\*A paper read at the meeting of the Ontario Medical Association in Toronto, June 6th, 1889.

## TESTS FOR THE ACTIVITY OF THE GALVANIC BATTERY.

After the elements have been immersed in the fluid, and the electrodes moistened (best with hot water, to which a little table salt may be added), we are ready for the demonstration of the tests, which are as follows:

1. *Taste and sensation:*

(a) Taste.—A weak current is used, of a few cells only. One electrode being held in the hand, the other placed on the tongue, a coppery taste is experienced.

(b) Sensation.—With a stronger current, one electrode in the palm of the hand, the other sponge electrode touching the dorsum of the same hand will cause contraction of the muscles and a prickling sensation.

2. *Spark test:*

Touching for a moment the two electrodes, a spark will be seen distinctly, if the battery is in working order. The best materials to illustrate this experiment are a platinum needle for one pole, and carbon for the other, as you will observe we have here.

3. *Galvanoscope:*

If the electrodes touch each other the needle will show a deflection.

4. *Mille-ampère meter:*

Needle will move if an electrolyte is brought into the circuit.

5. *Water test:*

If the two electrodes in the shape of platinum needles are immersed in water, bubbles will arise, particularly around one pole.

The action of the poles is very different in electrolysis, hence each has its own function.

The *positive* pole attracts the acids, and the oxygen from the tissues coagulates blood.

The *negative* pole attracts the alkalies, hydrogen, and the base of the salt, dissolves blood (but forms a plug from froth of the hydrogen), coagulates albumen and causes absorption.

Hence the positive pole acts like an acid, and burns like fire, which is not only exceedingly painful but may leave a hard resilient cicatrix. On the other hand the negative pole acts more like a caustic alkali, which does not hurt so severely during the application, and leaves, if carried to excess, a cicatrix which is soft and not retractile. From this it is evident that for the immediate destruction of tumors and for

strictures the negative pole should be selected. Electrolysis requires the presence of water, and that you will find in every tissue.

As it is most important to distinguish the poles, and as we cannot trust to the marks of the instrument maker, we must always ascertain which is the positive and which the negative pole.

## TESTS FOR THE IDENTITY OF EACH POLE.

We have five principal tests which we will now demonstrate with Dr. Dickson's kind assistance.

1. *Water test.*—The simplest and best method is to repeat the last experiment which we made for testing the battery. Immerse two electrodes in the form of platinum needles in water, and you will see the hydrogen at the negative pole, which shows itself in distinct bubbles like pearls around and above the needle, sparkling almost like carbonic acid in an effervescent.

2. *Meat test.*—The poles of the battery in the shape of two needles (platinum are best) are inserted in a piece of raw fresh meat. After the electrolytic action has been allowed to take place for a while, the difference in pole action can readily be observed. To save time we have electrolysed a piece of meat a few hours ago, in different places, with a variety of current strengths, the result of which is here for your inspection. On this side you will find the result of a current of five mille-ampères, with four cells of the battery for five, ten, and twenty minutes respectively. On the other side of the meat a current of fifty-five mille-ampères was used for five seconds, five, and twenty minutes. The insertion of each pole is labelled, so that you can see and study the effect of the current and of the pole. You will find an effect from a current of even five seconds duration; you will see that the positive pole has made the meat black around the needle, almost charred and destroyed it, while at the negative pole you will observe the color different, nearly white, as also again the bubbles of the hydrogen.

Let us try now the same experiment before you, and here again you can see the bubbles of the hydrogen, observe a white color, and even hear a hissing sound all around the negative pole, while the positive pole is noiseless, blackens the color, and the litmus paper applied to it shows an acid reaction.

A piece of fresh meat still contains water enough to be an electrolyte, while the living body in which the circulation is active, is better, and a dried up piece of meat is no electrolyte.

*Practical experiments* I have made on dogs, also on pieces of meat and pathological specimens, particularly with carcinoma. From among them I will mention the following:

(a) Into a piece of raw fresh pork two large platinum needles were inserted, at a distance of three inches. The current from a galvanic battery of thirty-five cells was allowed to pass for fifteen minutes, after which time the meat between and around the needles was thoroughly changed into a soft pulp. A weaker current caused changes accordingly; the current of five cells produced distinct effects in five seconds, twenty cells in one second.

(b) Into a piece of meat containing a bone in its centre the needles were inserted at a distance of two and a-half inches from each other. One large platinum needle was then connected with the positive pole, while with the negative pole two small steel needles were connected. These needles were inserted close to the bone, and one directly into the bone cells. The galvanic current of thirty-five cells in fifteen minutes produced changes in the entire tissues, so that even the bone around one negative needle was entirely destroyed.

3. *Decomposition of a salt.*—If, for instance, a solution of iodide of potassium be subjected to electrolysis, one equivalent of iodine liberated at the positive, will have one equivalent of hydrate of potassium liberated at the negative pole, showing that the potassium liberated from combination with the iodide has combined with some of the surrounding water. This can be illustrated by simply holding both poles in the solution, while the galvanic battery is in action.

The experiment, however, which we will now make before you is more strikingly demonstrative and I believe is original with me. These two small glass vials we have filled with a solution of iodide of potassium. The bottoms of the vials are substituted by a piece of pig's bladder, the necks are then stopped by a cork, through which runs a platinum wire, one end of which is immersed in the solution, and the other attached to a pole of the galvanic battery.

Both vials so closed are now placed in a dish of water; they are six inches distant from each other. There is, as is seen, no communication between them except the water, and so long as the battery is at zero, you will see no change in the solution, which is transparent and undisturbed. Please notice the change which now takes place as soon as the battery begins to act. We begin with only six cells, and you will notice almost immediately in the vial connected with the positive pole, that in the clear solution streaks of yellow appear, and in about five minutes the vial contains only a dark yellow fluid, which is the iodine set free at this pole. At the negative pole the contents of the vial remain clear, only the bubbles of froth welling up. This is the hydrogen set free from the water. The result of this electrolysis is iodine, oxygen, and hydriodic acid at the positive pole, while at the negative pole we find hydrogen and potassium.

If this same experiment is tried with a Faradic battery, as I have often verified, no change whatever takes place in the solution. This is another proof that the action of the galvanic current is widely different from that of the Faradic, and that for electrolysis a galvanic current only can be used.

4. *Test by Galvanoscope (or Mille-ampère Meter).*—If the two electrodes are brought in contact with each other the needle will deflect towards the positive pole.

5. *Stammer's Polarity Distinguisher.*—Is a simple and practical test. It is constructed on the principle discovered by Oersted, that the magnetic needle tends to assume a position at right angles to the direction of the electric current. This little instrument shows the positive pole by the appearance of the red color in either fenestrum as soon as the poles are held in contact with the instrument.

#### SIZE AND MATERIAL OF ELECTRODES.

The *size* of the electrodes will concentrate or diminish the force of the electricity accordingly; therefore, an electrode of large size is indicated if the respective pole is used merely to close the circuit, etc.

The *material* of the working electrodes may be metal, as brass, copper, lead, nickel, silver, gold, platinum; while the material for the electrode to close the circuit only may be

sponge, clay, carbon, or brass, covered with absorbent cotton or other suitable fabric.

The *shape* of bulbs may be acorn, olive, egg, flat, round, long; and needles of different shapes and sizes are used.

The *manner* of applying electrolysis is two-fold:

1. One pole is used for effecting the electrolysis, and the other pole is indifferent, only to close the circuit.

2. Both poles are inserted as working electrodes, as in the case of tumors, when both poles in the form of needles are used. In either case the poles may be constructed in one piece, or divided into different points. If divided each point will do the work in proportion to its subdivision.

#### MEASUREMENT AND UNITS OF ELECTRICITY.

At the present time of progress it is imperative to measure currents used for electrolysis. The mille-ampère meter is the instrument used for that purpose. For a better understanding, and to make this part of the paper more complete, a brief mention of units in electric nomenclature is here in place. The term "legal" is applied to the units adopted by the Paris Electric Congress in 1881, hence the following are the practical legal electric units, based on the C.G.S. system.

A *Volt* is the unit of electro-motive force, the measure for pressure of difference of potential. It is nearly equal to one cell of Daniell's battery.

The *Ohm* is the unit of resistance, or rate of velocity, the standard of which is a column of pure mercury one square millimeter in cross section, and 106 centimeters in length, at the temperature of 0° C.

An *Ampère* is the unit of current strength or volume; the standard measure of the electric current. An ampere is equivalent to the strength furnished by an electro-motive force of one volt, passing through a resistance equal to one ohm  $(C = \frac{E}{R})$

A *Coulomb* is the unit of quantity. It is equal to one unit of current ampere passing in one unit of time (one second); or in other words a current of one ampere in a circuit will produce one coulomb in a second.

A *Watt* is the unit of energy or force, or

equal to a combined volt and ampere. One horse power =  $\frac{\text{Amp.} \times \text{Volt}}{746}$

A *Farad* is the unit of capacity. It represents the storage of one coulomb of electricity in a condenser.

A *Joule* is the unit of heat; it also represents the work done by a watt in a second.

Manifold are the practical uses of electrolysis in the different branches of surgery. I will mention only some in a cursory manner without going into their details, description, or systematic order. The field is too large, and the time allowed too short, being some of the reasons that compel brevity.

*Aneurism.*—The first cure is reported by Petriquin as far back as 1845 (*Bulletin Gén. de Thérap.*, Vol. XXXI). Many other cases are reported; among them, however, are a large percentage of failures. More recently better results have been obtained, so that out of eighty-nine cases thirty-two cures have been reported, one of which was an aneurismal tumor of the external iliac. Dr. Bowditch reports one case of aneurism of the aorta improved in 1876 (*Boston Med. and Surg. Jour.*, No. 2, 1876). Among other operators are Ciniselli, Dujardin-Beaumetz, Laurent Robin (Robin, *De l'Electroponcteur dans la Cure des Anéurysmes, Intra-thoraciques*, 1880), Sands, Lincoln, Levis, Pepper, Heath (*Lancet*, Jan. 31, 1883), Francisco Brancaccio reports one successful case (*Revista Internaz. di Med. e Chir. Napoli*, 1884, I., pp. 73-79). Prof. Saboia, one case, unsuccessful (*Med. Press*, May 19, 1886). Olelar, one case, temporary relief (*Boston, Med. and Surg. Jour.*, Oct. 20, 1887).

*Varicocele.*—In varicocele I have had cures and failures, according to the different cases, patients, and methods employed.

*Nævi and Port Wine Marks.*—The use of electrolysis in nævi and port wine marks has resulted probably in many more failures than successes, and galvano-cautery acts in general better in these cases. However (Beard in *Archives of Elect. and Neurolog.*, Vol. II., No. 1), Bartholow says: "Polypi, nævi, sebaceous tumors, and similar new formations are promptly cured by electrolysis." Hardaway, of St. Louis, has had success with a single needle in port wine marks. Duncan reports eleven successful

cases to British Medical Association (*Med. Record*, Sept. 15, 1888). Lewis W. Marshall reports on nævi (*Lancet*, N.Y., Feb. 1889).

*Epilation.*—Dr. C. Heitzmann, in a paper read before the American Dermatological Society, Aug. 27, 1885, extols electrolytic epilation. Other favorable reports are from G. H. Fox (*N. Y. Med. Rec.*, March 22, 1879), A. D. Rockwell (*N. Y. Med. Jour.*, Oct. 13, 1883), H. Montague, Detroit (*Times and Register*, May 18, 1887), G. H. Rohè (*Atlanta Med. and Surg. Jour.*, July 1, 1888). For the electrolysis of nævi and removal of superfluous hair, W. E. Stevenson (*Provincial Medical Journal*, Dec. 1888), uses platinum needles with the positive pole.

*Spermatorrhœa.*—This is reported on by Richard Wagner, of Blankenburg, Berlin Klinische Wochenschrift (*Med. Register*, Oct. 6, 1888).

*Hydrocele.*—Cures by single or by repeated applications have been reported by Althaus, Frank (*Archives of Elect. and Neurol.*, Vol. I., No. 2), Rodolfi (*Practitioner*, Sept. 1873), Erhardt (*Allgem. Med., Central-Zeitung*, 99, 1874), Bartholow (*Medical Electricity*, 1881). The principal method recommended consists in evacuating the fluid, then introducing two needles into the tunica vaginalis, where the electrolytic action is carried on. Variations of this method may be made. Failures take place just as well as with other means.

*Subcutaneous Erectile Tumors.*—These have been successfully treated by W. T. Hutchison, of Providence (*Archives of Elect. and Neurol.*, Vol. II., No. 1), M. Bories, of Montainbau (*Revue de Therap.*, April 15, 1888), Redard (at the Meeting of Société Médicale des Hospitaux, Paris, *Jour. Amer. Med. Assoc.*, Sept. 15, 1888).

*Ganglions.*—Ganglions, or weeping sinews, have been cured by David Prince, of Jacksonville, Ill., thus: "A needle introduced through the little tumor which encloses the gelatinous accumulations around a tendon, and held there only a few seconds until some apparent action has been induced, leads generally to a speedy disappearance of the tumor without slough or suppuration."

*Ranula.*—In ranula the electrolysis decomposes the contents of the sac, coagulates, or destroys it. I have had a few cases.

*Hernia.*—The radical cure of hernia by electrolysis, originated with Dr. J. Craft, of Cleveland, who has had success with the method. After reducing the hernia, he closes the inguinal canal by inserting a positive needle electrode, properly insulated except at the tip, between the internal and external rings, using a current strong enough to excite adhesive inflammation.

*Hemorrhoids.*—Hemorrhoids have also been successfully treated by Dr. Craft, who writes: "In hemorrhoids I apply the positive needle also, yet in a few cases I have applied the negative, but do not get such decided cicatrizing and shrivelling up of the pile, as with the positive. I select the particular pole according to the peculiarities of each individual case. If I want to absorb the pile I use the negative; if I desire to seal up the vessels by adhesive inflammation, I use the positive needle."

*Tumors.*—Tumors of all kinds give a wide field for the employment of electrolysis. The sanguine reports of some operators are contradicted by return of the malady and other unsuccessful cases. However, the successes of undoubted cases should stimulate the continuation of treatment in this direction in order to establish good methods. Dr. A. C. Garrett, of Boston, reported to the Ninth Internat. Med. Congress, in Washington, 184 tumors of the breast, treated by galvanism, from 1864 to the present time, of which 157 were cured. M. Meyer, in Berlin, absorbed a large callus at the elbow of a boy, and motion was restored. It required 118 sittings.

Good results have been reported in *enlarged sub-maxillary glands*, by Davis (*Philadelphia Med. Times*, Oct. 2, 1871).

*Goitre.*—Morrell Mackenzie, in a paper on bronchocœle, says he cured by electrolysis nine cases out of thirteen. C. R. Dickson, of Toronto, has had good results in several cases. Of the cystic variety cures have been reported by Amussat (*Bull. Gén. de Therap.*, Oct. 15, 1872), Uitzman (*Wiener Med. Presse*, No. 26, 42, 1872), Smith (*Med. Record*, Aug. 7, 1875), Althaus (*Brit. Med. Jour.*, Vol. II., 1875).

Of the solid variety cures have been reported by Wähltuch (*Med. Times and Gazette*, Jan. 28, 1879), A. D. Rockwell (*Med. Record*, Jan. 17, 1884), Duncan (Report to British Medical Association, *Med. Record*, Sept. 15, 1888).

G. C. Pitzer, St. Louis, reports great success (*Chicago Med. Times*, May, 1888). J. B. Green, of Mishawaka, Ind., reports in a private communication. G. Rohè, of Baltimore, reports success in several cases to Clinical Society of Maryland. Weinbaum, of Kovel, reports two cases in Vrach (*Jour. Amer. Med. Assoc.*, Oct., 27, 1888).

*Malignant Tumors* (including epithelioma, carcinoma, and sarcoma).—With these diseases I have had considerable experience, the results varying in both directions. While some patients succumbed to the disease, others were permanently cured. One case, particularly, has been reported to the Pathological Society, New York, in which the history and diagnosis were fortified by specimens and microscopical slides, which removed any doubt about the correctness of the statement (Newman, *Medical Record*, Dec. 24, 1881. Among other favorable reports, I mention W. H. Mussey (*Transactions Amer. Med. Assoc.*, 1872), A. D. Rockwell (*Archives of Elec. and Neurol.*, Vol. I., p. 74), Nefel (*Virchow Archives*, Vol. LXX., p. 171), Nefel (*N.Y. Med. Record*, Sept. 1st, 1869). J. T. Parsons details in *Brit. Med. Jour.* four cases treated with powerful galvanic currents 600 mill-amp. (*Times and Register*, May 25, 1889).

*Nasal and Pharyngeal Neoplasms*.—"Electrolysis in the Removal of Nasal and Pharyngeal Neoplasms," by D. G. Campbell, is an excellent theoretical article, explaining the electrolytic action, and different dosages needed (*Jour. Amer. Med. Assoc.*, Aug. 25th, 1888). Bruns reports good results in nasal polypi (Berlin *Klin. Wochenschrift*, No. 27, 28, 1872; No. 32, 1873).

*Pseudo-Membranous Laryngitis*.—A case is reported by F. E. Waxham, in which the patient died (*Jour. Amer. Med. Assoc.*, Jan. 1st, 1887).

*Prostate*.—In disease of the prostate gland and seminal ducts, great caution is required in order not to cause an inflammation or overstimulation of the parts. There is no doubt that with care in the manipulation of the instruments and the electric current much good can be done. Diminution of senile hypertrophies has been effected by different operators. Five cases have been reported by Biedert, of Hanan (*Berliner Klinische Wochenschrift*); Bryce reports success (*Southern Clinic*); Leopold Casper of Berlin, treated fourteen cases of enlarged

prostate by electrolysis, applying the negative pole per rectum (*Med. and Sur. Rep.*, July 14th, 1888); J. D. S. Davis, of Birmingham, Ala, reports in *Atlanta Mca. and Sur. Jour.*, January, 1889.

*Eye and Ear*.—C. H. H. Hall, in "Removal of Opacities of the Cornea by means of Galvanism," reports nine cases (*Med. Record*, June 23, 1888). "On a New Operation for Deafness caused by Obstruction of the Eustachian Tube" is the title of a paper by A. E. Cumberbath, F.R.C.S. and W. E. Stevenson, M.R.C.P., London (*The Lancet*, Nov. 24, 1888).

*Strictures*.—Strictures in different localities of the body have been treated by electrolysis with great benefit. Gorecki's method for *strictures in nasal cavities* has also been used for the *lacrimal canal*, and for the *dilatation of the eustachian tube*, by M. J. Mercie (*Medical News, Quarterly Epitome*, March, 1883, p. 117).

*Stricture of the Eustachian Tube*.—At a meeting of the Academie de Medicine, March 11, 1884, there was read a note by M. Mercier and M. Garricon, Desarenes, Paris, on the treatment of this affection by electrolysis. The operation consisted in passing a fine silver sound into the eustachian tube, and a small olive-shaped electrode into the external auditory meatus. A feeble current was then passed, the sound gradually pushed on, and the stricture disappears.

*Stricture of the Œsophagus*.—Œsophageal strictures yield to electrolysis when not malignant; cures have been reported by Frank, Butler, Prince; one successful case by E. T. Painter, Pittsburg (*Med. Register*, Oct. 13, 1888), by twenty-five seances in three months; one case cured by M. Fort, reported to the Academie de Medicine (*Med. Record*, April 6, 1889), one case of tumorous stricture of Œsophagus with cure by electrolysis in Transactions of the Michigan State Medical Society, June 15, 1888, by D. S. Campbell, Detroit (*Med. Record*, May 4, 1889); two cases, private report by Dr. Dickman, who writes that he had one unpublished case in June, 1888.

One peculiar case is on record in which electrolysis produced a cure in conjunction with gastrotomy, reported by Professor H'jorth, of Christiania, at the International Medical Congress in Copenhagen. The stricture was caused

by the patient swallowing an alkali. The contraction following was of such a nature that no sound would pass below the cricoid cartilage, and swallowing was nearly impossible. Gastro-tomy was resorted to, and electrolysis applied at the part. The current was commenced with five cells, gradually increased to fifteen cells. After one hour the electrode bougie suddenly passed through the stricture. The second

electrolysis successfully a case which has not been published.

*Stricture of the Male Urethra.*—Strictures of the urethra have been treated by myself successfully for nearly twenty years, and so many hundred cases are on record, that I did not intend to take up any time here, on this subject; but having seen in this city very imperfect instruments, which have been called, and sold as,

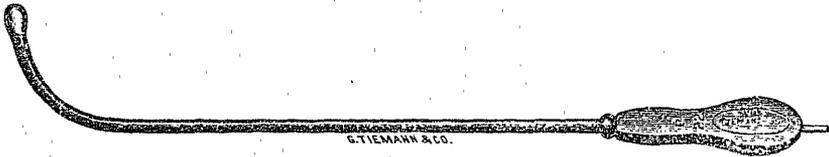


Fig. 1. Egg-shaped Electrode.

application was made after twelve days, after which the stricture was so well cured that the patient could eat and swallow both solids and fluids, and a Charrière bougie No. 19 passed through the former stricture both ways, from below and above. Two weeks later the gastric fistula was closed by operation. The prognosis in cesophageal stricture is almost always grave. The elaborate statistics by M. Petit, of Paris, of one hundred and fifty-five operations show only two per cent. of cures, and seventy-five per cent. of deaths. Therefore electrolysis in cesophageal strictures must necessarily play an important part in the treatment in future.

*Stricture of the Rectum.*—Strictures of the rectum have better chances by electrolysis than by other means, provided they are not malignant. I have prepared a paper on this subject for the next meeting of the American Medical Association which will be held this month in Newport. I have to report twelve of my own cases with nine permanent cures and three relieved,

Newman's Electrodes, I consider it a duty to show you the original set of electrodes as devised by myself. They consist of four distinct sets, and are manufactured to my perfect satisfaction by the well-known firm of Geo. Tiemann & Co., No. 107 Park Row, New York City.

1. *The Egg-shaped Set.*—The regular electrodes for all ordinary cases have a short curve, an egg-shaped metallic bulb at the working end; while at the upper end there is a round wire rod for the binding screw of the negative pole of the battery; the only points not insulated and acting as conductors are these extremities. The rest of the electrode must be well insulated, smooth, and without inequalities. I consider a conical bulb objectionable in most cases, as we depend on the electrolytic power of absorption, not on force. The length of the bulb is proportioned to the size of the electrode, thus for No. 11 French the bulb is  $\frac{1}{8}$  of an inch, while for No. 21 it is  $\frac{3}{8}$  of an inch. The set consists of Nos. 11, 14, 17, 18, 20, 21, 23, 25, 28 of the

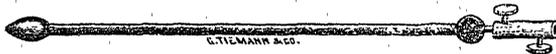


Fig. 2. Acorn-shaped Electrode.

as also successful cases of Dr. S. T. Earle, of Baltimore; Samuel Benton, M.D., and W. T. Whitmore, M.D., of London.

*Stricture of the Female Urethra.*—Strictures of the female urethra are rare, but they occur occasionally and are readily cured (Newman, *Americal Journal of the Medical Sciences*, Oct. 1875).

*Atresia Vaginae.*—In 1872 I treated by

French scale.

2. *The Acorn Set.*—These are for use in the first six inches of the urethra in certain cases, and consist of Nos. 15, 17, 20, 22, 25, 27, French. They are without a curve, short, and the bulb is acorn-shaped. Sometimes it is desirable to gain ground by entering the contraction first with the point of the electrode, in order to follow easier with the larger part of the

acorn, here this form will do good work. The action of the electrolysis depends on the largest diameter of the bulb in these cases, and does most service on the withdrawal of the electrode when the operator feels best how much work should be done. It is also used when the stricture is near the meatus.

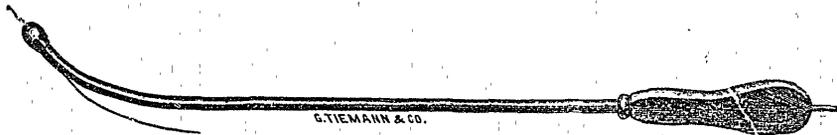


Fig. 3. Tunnelled Electrode.

3. *The Tunnelled Electrode.*—These are in Nos. 9, 11, 14, 17, 20, 21, French. They are very important for bad, tortuous strictures and are to be used only by the expert operator. The curve is shorter and the egg-shaped bulb tunnelled so that it may be introduced over a filiform guide. They are on the principle of the tunnelled sound invented by Dr. J. W. S. Goulay, and were devised by me so that electrolysis and tunnelled sound could be used simultaneously. Where the stricture was impassable

of the Urethra by Electrolysis," in the *Medical Record*, August 12 and 19, 1882, and "The Armamentarium for the Treatment of Urethral Strictures by Electrolysis," in the *Medical Register*, Philadelphia, 1887, but the following is a summary of general rules to be observed:

1. Any good galvanic battery will do which has small elements and is steady in its action; the 20-cell battery zinc and carbon elements is an excellent instrument and sufficient for the beginner.

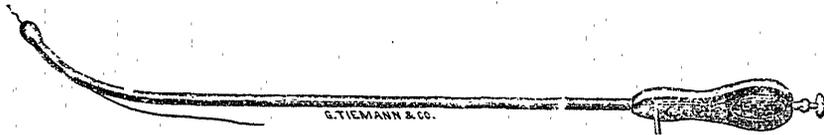


Fig. 4. Combination Electrode.

with ordinary instruments this was used successfully, and passed through the stricture without the possibility of making false passages.

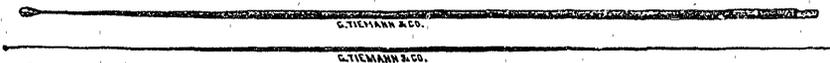
4. *The Combination Electrode.*—This is tunnelled electrode and catheter in one. It is an auxiliary electrode for extreme cases. Where a very tight stricture is complicated with retention of urine the indications are to remove the obstruction and draw off the water with one instrument, as the parts are too sensitive to tolerate the

2. The fluid for the battery ought not to be used too strong.

3. Auxiliary instruments are important to the expert, but not necessary for the beginner. However, a mille-ampère meter is desirable.

4. For the positive pole a carbon electrode is used, covered with sponge, moistened with hot water and held firmly against the cutaneous surface of the patient's hand, thigh, or abdomen.

5. For the absorption of the stricture the



Whalebone Bougie.

Filiform Guide.

introduction of two instruments in succession. Also the patient may be benefitted by washing out the bladder, all of which can be done with one introduction of the instrument.

The armamentarium is completed by a few binding screws, some whalebone bougies, olive-pointed whalebone filiform guides, a galvanic

negative pole must be used.

6. Electrode bougies are firm sounds, insulated with a hard baked mass of rubber. The extremity is a bulb, egg-shaped, which is the acting part in contact with the stricture.

7. The curve of the electrode is short; large curves are mistakes.

8. The plates must be immersed in the fluid before the electrodes are placed on the patient, and raised again after the electrodes have been removed.

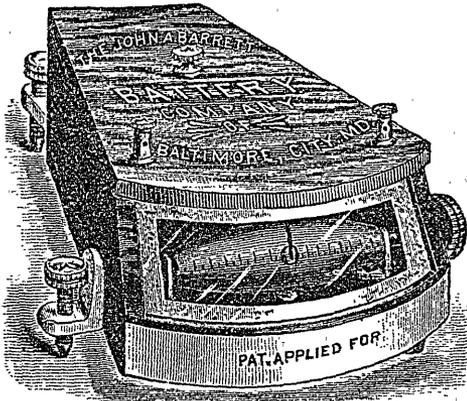
9. All operations must begin and end while the battery is at zero, increasing and decreasing the current slowly and gradually by one cell at a time, avoiding any shock to the patient.

10. Before operating, the susceptibility of the patient to the current should be ascertained.

11. The problem is to absorb the stricture, not to cauterize, burn, or destroy tissues.

12. *Weak currents at long intervals.*

13. In most cases a current of six cells, or from two and a half to five mille-amperes, will do the work, but it must be regulated according to the work to be done.



Mille-ampere Meter.

14. The *séances* should be at intervals, not too frequent in succession, about once a week average; and lasting from five to twenty minutes.

15. The best position for the patient to assume during the operation is that which is most comfortable to himself and to the operator. I prefer the erect position, although the recumbent or others may be used.

16. Anæsthetics I like to avoid; I want the patient conscious, so that he can tell how he feels.

17. Force should never be used; the bougie must be guided in the most gentle way; the electricity alone must be allowed to do the work. Avoid causing hæmorrhage.

18. During one *séance* two electrodes in succession should never be used.

19. All strictures are amenable to the treatment by electrolysis.

20. Pain should never be inflicted by the use of electrolysis; therefore it should not be applied when the urethra is in an acute, or even sub-acute inflammatory condition.

21. The electrodes should not be greased with substances which are non-conductors, and would insulate.

22. For ordinary strictures, the size of the bougie selected should be three numbers (French) larger than the stricture.

Since my method has become popular, some instrument makers have sold an inferior and faulty article by the thousands cheap. Some have even manufactured at random instruments which they sell as Newman's Electrodes, for which I am not responsible, and deny most emphatically the parentage. Some of these I have seen here in Toronto, with which nobody could perform the operation correctly. For such and many other reasons, it is only a wonder that more failures are not reported.

*Electrolysis in Gynecology* is too large a field to enter on this occasion in detail, for reasons given before. However, I consider it my duty to mention that gynæcologists have almost as a unit adopted the practice of electrolysis, and gained thereby wonderful successes. It has been used with success in the following conditions and diseases:

1. *Tumors and Cysts*, principally fibroid and ovarian, *Peri-uterine Hæmatocele*, *Cellulitis*, *Peritonitis*, with and without adhesions, including all sub-acute and chronic pelvic inflammations.

2. *Uterine Diseases*: Subinvolution, hyperplasia, stenosis, displacements, menstrual irregularities, chronic cervical catarrh, etc.

3. *Diseases of the Genito-Urinary Organs and Appendages*: Oophoritis, salpingitis, stricture of the urethra, atresia vaginæ.

4. *Extra-Uterine Pregnancy*.

The application and methods vary very much in these diseases, and the question of the day to be solved is the strength of the current, weak *v.* strong currents, either of which has its advocates, and either is applied in extremes.

Coroners' juries proverbially bring in curious verdicts. The latest is by a Pennsylvania jury: An embankment caved in on some railroad laborers, and the verdict was: "Died of Gravel."

## HEREDITARY SYPHILITIC TRANSMISSION THROUGH TWO GENERATIONS.\*

BY EDMUND E. KING, M.D. TORONTO AND VICTORIA, L.R.C.P. LONDON.

The subject of this paper is so important, and the present state of opinion on it is so unsettled, that I offer no apology in presenting the following case and remarks thereon :

Mrs. G., aged twenty-four, one of a family of nine ; none of them in rugged health. One brother dead ; he suffered from chronic deafness, and was, as near as I can discover from the history given me, strumous. One sister, married, had several miscarriages, and suffered for some years from severe headaches, sore throat and tongue. Her husband is free from venereal taint. Mrs. G. has never been seriously ill, but has been a sufferer from headaches for some years past ; nor had she any skin eruption previous to her confinement, which took place in April, 1887, when I delivered her of twins—boy and girl ; the boy, born first, was the larger. He had a perfectly clear skin and well-shaped head and skull-bones ; exceptionally prominent forehead. The girl was smaller, and had a pinched face, old expression, and a wrinkled skin, which was covered with a red rash ; the cranial bones loose ; fontanelles large and gaping. The rash appeared on the boy in a few days, and both children developed severe snuffles ; each had a sore mouth in the second week. The mother's nipples became sore and hard in the fourth week. The axillary and cervical glands were indurated and painful. The girl was worse than the boy. Both developed very severe, persistent diarrhoea, and the rash did not fade. The skin of the girl became of a decided copper color, and in the fifth or sixth week anal condylomata developed on both of the children. Up to this time I had used no specific treatment, trying to believe it was not a syphilitic case. I now put the children on gray powder internally, and applied calomel locally. The diarrhoea improved rapidly, and the condylomata decreased in size, while the children, who previously had thrived but poorly, began to pick

up in flesh. The girl developed a bullous skin eruption early in July, and died on the 27th of July, extremely emaciated. The expression was that of a very old woman, the abdomen was sunken, and the child presented a horrible appearance. No post-mortem could be obtained. The boy continued to improve under treatment, and when I last saw him, a couple of weeks ago, he was a healthy-looking, bright child, but slow in cutting his teeth. I have examined the father carefully, and catechized him particularly, but can find no trace of his ever having had venereal disease in any form. The skin is clear ; the inguinal and cervical glands show no signs of previous induration ; the tonsils are normal and healthy, with no signs of cicatrices. Previously he had not lived in the city, and the chance of being deceived in his case is exceedingly small. His history is good, and I do not attribute the disease to the paternal side of the family. The subsequent history of the mother is of a nature that indicates to my mind the syphilitic nature of the case. In the second month, and in about four weeks after the breasts became sore, a typical rash developed on the body. Secondary symptoms appeared in the mouth and on the tonsils, and her hair kept falling out for some months. All these symptoms disappeared under specific treatment. Since, she had one miscarriage at three months, and is now again pregnant.

It appears quite clear to me that in this case the child, who had inherited the disease from the mother, was the source of re-infection to her, and that a clear exception to Colles's law is established. It is also possible that, if these children had been suckled by a wet nurse, the mother would have escaped the disease and the nurse have been the victim.

This case deals with the children from the moment of birth to the present time, and thus shuts out the many possibilities of error that otherwise might have presented themselves.

Of other cases, I shall quote first one that was related in the discussion on syphilis before the London Pathological Society, 1876, page 421, of Reports by Simon :

A lady, whose father died of hereditary syphilis, herself had a first child which was judged to be syphilitic, and had in her own person some symptoms which were ascribed to the

\*Read at the third annual meeting of the American Association of Genito-Urinary Surgeons, May 22, 1889.

same poison, there being not the smallest possibility of syphilis, as far as could be ascertained, being conveyed to her in any other way than by descent.

Jonathan Hutchinson, in Reynolds' "System of Medicine," edition of 1880, page 431, reports the following case :

A respectable young woman came to me about six months ago on account of an inflamed eye. She had interstitial keratitis in typical form, her teeth were notched, her physiognomy characteristic. She told me she was suckling her first child, an infant of two months. I inquired if it was healthy. She said it was a fine baby and ailed nothing whatever. I asked her to bring it with her at her next visit. She did so, and, on having it stripped, I found it covered with coppery blotches, with condylomata at the anus and snuffles in the nose.

Under subsequent treatment by mercury all these symptoms disappeared. There remains, of course, the source of fallacy that this child's parents, one or other of them, may have acquired syphilis. As to the father, I may state that he has been under treatment for severe sycosis by iodide of potassium, which has had no impression on him, and I have made most diligent inquiry for venereal disease. "I believe thoroughly he never had any." He concludes : "I incline to the belief that we have in this instance an example of the transmission of syphilis to the third generation."

A "Case of Alleged Transmission of Hereditary Syphilis to the Third Generation." Mentioned by Paul and E. Diday in "Dict. Encyclopédia d. sc. méd.." Paris, 1884, vol. cxliii :

In May, 1868, E. Collin was called to see a child who was, it is said, dying from lung disease. His mother had had a miscarriage, then a daughter in good health, and lastly three boys. The first of these is the subject of the observation ; the second is in delicate health ; the third is in good health. The first boy, born in 1862, very poorly developed, was nourished by his mother. When between eight and nine months old he had a cutaneous eruption, with frequent attacks of bronchitis, constant coryza, and later a series of attacks of capillary bronchitis. After having been kept housed for two years his skin was of a yellowish hue, his eyes sunken, and he suffered from constant flow of nasal mucus.

He looked like a little old man. Crepitant, sibilant, and even cavernous râles were noted at apices of lungs, with a corresponding dullness on percussion ; cough constant, night sweats, extreme weakness. E. Collin considered the trouble to be of a syphilitic nature, although it was impossible to discover in either parent any syphilitic sign or antecedent. Sulphurous waters were employed in July as a diagnostic means productive of a roseola, then mucous patches on the tongue and anus, and diminution of pulmonary symptoms. The child was then submitted to a mixed treatment with the syrup of biniodide of mercury and iodide of potassium ; rapid and great amelioration, which was permanent, resulted.

E. Collin has since learned that the maternal grandfather had died with syphilis. Considering the condition of the children, the cutaneous eruption coming on at the ninth month, the frequency of pulmonary accidents in syphilitic children, the peculiar appearance of the child in question, the possibility of the disease escaping one generation, and the successful use of the specific medication, Collin concludes that the child was born of a mother to all appearances healthy but possessing a syphilitic germ or taint transmitted by her father.

These cases strongly resemble the one I had under observation, excepting that I had the opportunity of seeing the case from the birth of the child, born with unmistakable evidence of syphilis on its person, and of following its subsequent history to date. In analyzing some of the negative symptoms of the mother, I find entire absence of notched incisor teeth, clear physiognomy, no infantile history, and general healthy appearance. The subject of hereditary disease may have all of these symptoms absent.

Jonathan Hutchinson, in Wood's "Monographs," says, page 355 : "It must be granted, however, in the fullest manner, that not all or nearly all of those who really inherit a taint betray it either in physiognomy, teeth, or by concurrent disease of suspicious character ; and further, it is precisely in those who do not betray it that we must expect the history of symptoms in infancy to be wanting." Here we have an original investigator of syphilitic teeth and physiognomy putting forth evidence that not in all cases do these symptoms of necessity appear.

So some of the negative proofs against my patients disappear. The improbability of second-generation transmission has always been to me anything but clear. It is, and always has been, difficult for me to comprehend why any diathesis of less virulence should be transmissible through several generations, and that syphilis alone, the severest of all systemic blood diseases known to us, should be unlikely to affect the second and be impossible to affect the third. We take gout, and find it skips one and sometimes two generations, and appears in the third or fourth, but syphilis never! No; I cannot accept this matter as settled with the evidence of these cases before us.

Again I quote Jonathan Hutchinson, "Woods' Monographs," page 351: "Five, ten, twenty, and even five-and-thirty years without any further indication of its taint, and then may occur some definite and most peculiar affections." It seems to me that so long as this disease is lying dormant but still exists in the parent, any offspring is likely to be affected with the disease to a greater or less degree. It may also lie dormant in that offspring until some opportune time when a condition of the system may arise that is favorable to its development, when it will assert itself in no uncertain way.

I believe in my patient's case that pregnancy was the systemic crisis at which the latent syphilis became active. There is no doubt that contagiousness ceases in a limited time; but does heredity ever cease?

The literature on the subject is scarce. Dr. J. E. Atkinson reports a case in "Archives of Dermatology," 1876, at considerable length, but in a conversation with him in 1888 he said that, in the light of subsequent events, he was not so positive of the hereditary transmission. Dr. E. L. Keyes, on page 73, "Venereal Diseases," says that he has a case under observation, but in a letter he says that the evidence is not clear in the case.

In the case I have quoted from Paul and E. Diday the discussion was entered into by Diday, Rollet, and Rodit, and the long time—six years—before roseola and mucous patches developed showed that a possibility of subsequent infection from some source was present and made a decided uncertainty in the case.

Dr. Keyes, on the same page, (73), "Vener-

al Diseases," says: "The reason syphilis is not generally transmitted to the third generation is that if the quantity of poison in the child is great and the quality intense the baby does not survive. If it is less powerful, the child overcomes it, throws it off, or at least gets so far in the tertiary stage before it has reached the age at which it can marry and have children, that transmission to the third generation is very seldom encountered."

Jonathan Hutchinson says, in his remarks on "Hereditary Transmission," Reynolds' "System," edition of 1880, page 431: "I have repeatedly seen cases, patients of various ages between twenty and twenty-eight, subjects of syphilitic keratitis for the first time. We might conjecture that such persons would be likely to transmit to their offspring some degree of taint, seeing that the taint is in full activity in their own bodies. About eight cases have come under my own observation in which persons, undoubtedly the subjects of inherited disease, have become parents. With one exception, I have never been able to discover any evidence of disease in the offspring. In several instances the offspring appeared to be in excellent health." The one exception, though, illustrates the possibility of transmission.

J. Nevins Hyde, in the article on "Syphilis," "Reference Hand-book, Medical Sciences," vol. vi., page 701, says: "A few exceptions are reported to this law—so few, so inconclusive, as to rather more establish its general applicability." I cannot find the article quoting these exceptions.

Behrend, in the "Berliner klinischer Wochenschrift," 1881, Nos. 8 and 9, pages 107-124, says that all facts go to prove that the so-called law of Colles is not worthy of the name of law. But when answering a vigorous article by P. Diday and A. Dogon, which appeared in "Annal. de dermatologie et de syphilis," Paris, 1883, iv., page 79, which defended Colles's law as well established, he said: "The exceptions to the Colles's law are much more important than the law itself—a law which only merits oblivion. Its exceptions alone should be taken into consideration, as they alone fairly merit the name of law."

The conclusions I would draw from the above quoted case are:

1. That the husband is and always has been free from venereal taint.
2. That the mother was previously a healthy woman, now is syphilitic.
3. That no third party could have inoculated the children, especially the girl.
4. That the trouble existing in the children was syphilitic, and that antisiphilitic treatment caused the symptoms in the surviving child to disappear.
5. That there is an apparent exception to Colles's law.

44 QUEEN STREET, E.

## Selections.

### ILEUS.

TRANSLATED BY DR. R. B. NEVITT.

Leichtenstern, at the German Medical Congress, defines ileus as follows :

"A grave array of symptoms following intestinal obstruction, determined either by a mechanical obstacle or by a paresis of smooth muscular fibres of the intestine." Thus ileus may be divided according to its manner of production into mechanical and paralytic. Yet account must be taken of the fact that the paralytic and the mechanical ileus often co-exist; indeed it may be said that in the majority of cases these two methods of production concur in the genesis of the diverse phenomena of the table of symptoms proper to this disease.

The stenosis, which may have begun in a mechanical manner, or by a paralytic process, may be manifested suddenly after some occasional cause,—as, for example, the passage of a large biliary calculus, and may present thus a mode of invasion, whose symptoms are those of acute ileus. Still the sudden appearance of the symptoms should not lead us to suppose necessarily the sudden formation of the stenosis likewise, since this may be manifested in a progressive way, and even persist for a certain time without the health being apparently altered. Until the moment in which a determining unforeseen cause destroys the compensation which results from the muscular hypertrophy arising in that part of the intestine situated above the stenosis, this may indeed remain latent, since the contraction of the smooth fibres above the

stricture may be sufficient to permit the flow of the fæcal matter. Amongst the causes which may be the point of departure of the stenosis, latent for a time, may be cited peritoneal bridles, fixations of the appendix, diverse alterations of the uterus and its appendices, etc., set forth in all treatises relative to intestinal occlusion.

Occlusion, or acute strangulation, is always accompanied by paresis or inertia of the intestinal fibres, and consequently ileus is never purely mechanical.

The symptoms of ileus are local and general, and may appear suddenly or slowly, according as the stenosis is more or less suddenly impassable, and also according to the situation occupied by the lesion in the intestinal tract.

Fæcaloid vomiting received in the Galenic school an interpretation based upon the theory of antiperistaltic movements. Morgagni contributed to the reception of this idea by demonstrating that in their color the intestinal matters were then normally as deprived of liquid as at the moment of exit from the rectum. He admitted afterwards that the matter of fæcaloid vomiting was formed by substances, which, detained in the small intestine, underwent there, by virtue of their stagnation, a putrid fermentation, to which was due the fæcaloid character observed after their expulsion. Kuhne and others observed in the vomited matters in cases of ileus the presence of products chemically determined and perfectly referable to the action of a putrid fermentation. The investigation of the bacteria of putrefaction has also given, of late, results which concur with those of chemical analysis.

There should then be a distinction drawn between fæcal vomiting (which is extremely rare) and fæcaloid vomiting, which consists not in the expulsion of true fæcal matter, but of intestinal contents, fermented by reason of their detention above the occlusion, or impregnated with an odor analagous to them but arising in the small intestine not in the large. The vomiting may become fæcaloid even when it proceeds from the upper part of the ileum or jejunum, as Kahler, in Germany, has demonstrated. Certain authors calculate from the precocity of the fæcaloid vomitings the higher or lower elevation of the lesion.

The antiperistaltic theory was abandoned then for the hydraulic theory, which counted many partizans, though later it was contradicted by Morgagni, Haller, and Van Swieten.

Antiperistaltic movements have been undeniably demonstrated by many authors, and they have been observed without occlusion; thus fæcaloid vomiting has occurred in hysterical cases.

Thus in ileus fæcaloid vomiting may proceed from any point in the intestine where the current of the contents has been interrupted either by a mechanical obstacle, or from muscular paralysis, or from both causes combined.

The detention of the matters in the intestine gives rise to a urinary symptom of considerable diagnostic importance. According to Jaffé indicanuria and phinoduria occur only in those cases in which the occlusion is found in the lower part of the ileum. The meteorism contributes sometimes, by its form, to aid the diagnosis of the lesion.

The general symptoms result from reflex phenomena, or from the phenomena of auto-intoxication. Besides the pain at the seat of obstruction there supervenes by the sympathetic nerves a series of peculiar reflexes which are manifested in the innervation and vascularisation of the region concerned, and in the cardiac activity. Hence, also, the origin of the collapse, of the hypothermia, of the cutaneous ischæmia, of the facies abdominalis, of the tachycardia, and small pulse. Hence is derived, also, the albuminuria, or the anuria, also the respiratory difficulties, which may also be caused by the meteorism, the chills, the cold sweats, and, in fact, the great part of the symptoms.

The nervous symptoms consist in local or general contractures, delirium, coma, and a variety of tetanic accidents, such as are exactly analagous to those observed in certain ovariotomies. It is to be noted that many of these nervous symptoms may be referred to disturbances of the circulation, giving rise to cerebral anæmia, or to the phenomena of stercoræmia.

The penetration into the lymphatic or blood vessels of the putrid products which arise from the arrested intestinal contents is favored constantly by the necrotic processes which may supervene at the site of the obstructed fold of

intestine, and which produce in such case a species of auto-intoxication quite comparable to that of typhic cholera. There generally exists a notable descent in the watery element of the blood, which may explain in part, as in cases of cholera, the difficulty of the circulation, and the weakness of the cardiac contractions. This diminution of the water of the blood results from the vomiting and from a hypersecretion from the intestines. Malgaigne studied a type of this under the name of herniary cholera: then Moreau and Hanan demonstrated that section of the branches of the mesenteric nerves determined a considerable afflux of liquid into the intestine. Cohnheim sees in this an example of paralytic hypersecretion. The investigation of such symptoms will permit of making a diagnosis, of distinguishing ileus from the divers affections which may simulate it, such as the accidents due to utero-ovarian lesions, the inflammation of an incarcerated testicle in the inguinal canal, the enteralgia and enteritis, and especially the perityphlitis and peritonitis which may be accompanied by a paralysis of the intestinal fibres.

The diagnosis proposes then to demonstrate the situation of the occlusion. In such sense it is suitable to note that when the occlusion is situated in the upper part of the small intestine the abdomen is retracted, and that in the other case the belly presents an increase quite uniform with depression at the level of the ascending and descending colon. Moreover, when the occlusion is at an advanced period the tumefaction of the intestinal folds produces characteristic abdominal eminences.

The duration of the strangulation before the explosion of the accidents and the tardy appearance of fæcaloid vomiting, likewise the gradual onset of the reflex symptoms indicate in general that the lesion occupies a lower part of the intestine.—*La Cronica Med.*

#### FOR UTERINE HÆMORRHAGE.

R.—Extract of Indian hemp 7½ grs.

Fluid extract of ergot 15.

Fluid extract of hamamelis,

Tr. of cinnamon aa ½ʒ.—M.

Sig.—One teaspoonful three times daily.—*Revue de Thérapeutique—Medical Chronicle.*

THE  
Canadian Practitioner

A SEMI-MONTHLY REVIEW OF THE PROGRESS  
OF THE MEDICAL SCIENCES.

*Contributions of various descriptions are invited. We shall be glad to receive from our friends everywhere current medical news of general interest.*

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TORONTO, SEPTEMBER 16, 1889.

THE COMING SESSIONS IN THE  
MEDICAL COLLEGES.

The regular winter sessions will commence October 1st in all Canadian Medical Colleges. There is every indication that the numbers of students will be large—probably too large. The recent change in the regulations of the Ontario Medical Council, adopted two years ago, by which a second-class non-professional certificate with Latin is required, instead of a third, has caused no reduction. This makes matriculation in medicine equal to that in arts. There are many who think the standard should again be raised, but we think it would be well to note the results under the present laws before making any further changes. Candidates for a license to practise in Ontario must have matriculated, and after such matriculation must have attended four winter sessions and one summer session. The amount of practical work in laboratories and hospitals is greatly increased. With such a curriculum in the Universities and Council, a fair opportunity is afforded the Medical Colleges to furnish good courses of instruction. We are pleased to note that the character of the teaching in Canadian Schools of Medicine is improving from year to year. While willing to give them full credit for such advances, we have to say that none are yet perfect. There is still, and probably ever will be, room for improvement in a progressive art and science such as that of medicine.

MEDICAL FACULTY, UNIVERSITY OF  
TORONTO.

The establishment and development of the Toronto University Medical Faculty has been watched with deep interest by all the friends of our provincial school system. The excellent facilities afforded by the University in the science department has given a stimulus to medical students which is already bearing good fruit. The new building of the Biological Department will be ready for students at the commencement of the session, and large additions are being made to the chemical laboratories and lecture rooms. The demonstrations in the dissecting rooms of the College building will, we are given to understand, be more complete and satisfactory than ever before, as the staff of demonstrators has been increased and an ample supply of material is assured. The facilities granted to the three Toronto schools (including the Woman's) by the trustees of the General Hospital, the largest and best ordered in Canada, are all that could be desired, and the clinical teachers are likely to make the most of them. There will be a "general opening" for the faculties of medicine, law, and arts of the University of Toronto, in the Convocation Hall, on the afternoon of October 1st, when Sir Daniel Wilson, Professor Daniel Clark, and others, will deliver addresses. The regular sessional work will commence in all the faculties on the following day.

MEDICAL COUNCIL CURRICULUM.

A strange mistake has been made in certain quarters with respect to the changes in the Curriculum enacted at last meeting of the Ontario Medical Council. Certain papers and medical journals (including the *Montreal Medical Journal*) have published the statement that the Council in future will require two six months' courses on medical jurisprudence. We are thankful that we can say this is entirely incorrect. The previous requirement of the courses of three months' each was not changed. This is bad enough—to have doubled up in the way indicated would have been simply outrageous. We have certainly too many didactic lectures as it is, but the members of the Council hesitate about introducing reforms in this direction. To ask students in these days to

listen to various courses of lectures in two successive years is so absurd when all the circumstances of the case, with the greatly increased requirements of all sorts of laboratory and hospital work, are considered that even the Ontario Medical Council must see it before long, and provide the remedy.

#### CRANIOTOMY.

The history of craniotomy during the present century has been a somewhat curious one; although the operation with its various modifications is quite ancient it never became very common until a comparatively few years ago, at a period which is quite within the recollection of some of our veteran practitioners. The frequency of its performance was probably the first serious blot on the brilliant record of the justly celebrated Dublin School of Obstetricians. In the rotunda, during the masterships of Clarke and Collins, craniotomy was performed once in every 208 to 211 cases, or about three times as frequently as the application of the forceps. One of the first to raise his voice against it with no uncertain sound was Tyler Smith, who, in his lectures delivered in the fifties of this century, described it as only less horrible than Cæsarean section.

During recent years the vast improvements in our methods of abdominal surgery, and the greatly increased success of the modified Cæsarean section have modified the opinions of the medical world very materially. One of the subjects for discussion at the September meeting of the American Association of Obstetricians and Gynæcologists in Cincinnati is this: "Is craniotomy justifiable in living children?" The operation and its alternatives, abortion, premature labor, forceps, version, Cæsarean section, laparo-elytrotomy, the porro operation will be fully discussed. We know of no more interesting subject for discussion, and we hope the time has now arrived when the profession can say that craniotomy should never be performed in living children.

AFTER THE VACATION.—Coles—"Back from the country?"

Boles—"Yes."

Coles—"Feel recruited?"

Boles—"Haven't been back long enough to feel the benefits yet."

#### NOTES.

DR. S. WEIR MITCHELL has published a volume of poems entitled "The Cup of Youth."

THE next International Congress of Dermatology will be convened at Vienna in 1892, with M. Ricord as its President.

BRAVO France! In that country the physician's claim on the estate of a deceased patient takes precedence of all others.

DR. J. H. RICHARDSON has been nominated for the senate of the University of Toronto since our last number was issued.

DR. S. LUSTGARTEN, late assistant to Prof. Kaposi, of Vienna, has left Austria to make his home probably in New York. He was the discoverer of the bacillus of syphilis in 1885.

THE Swiss Government is so intolerant to the English visitors as to disallow an English physician in a hotel prescribing for an English visitor, and also forbids the druggists dispensing his prescription.

AT the triennial meeting of the College of Physicians and Surgeons of the Province of Quebec the following officers were elected: President, Hon. Dr. J. J. Ross; vice-presidents, Drs. R. F. Rinfret and Gibson; treasurer, Dr. Dagenais; secretaries, Drs. Campbell and Belleau; registrar, Dr. L. Larue.

BROMOFORM IN WHOOPING COUGH.—Dr. Stepp, of Nürnberg (*Lancet*), publishes in the *Deutsche Medicinische Wochenschrift* a large number of cases of whooping cough, in which he claims to have obtained most satisfactory results from the internal administration of bromoform. The drug has, according to the author, no ill effect of any kind, and his numerous observations have proved that bromoform as applied by him, is non-poisonous, and that the pulse and temperature remain unaffected by it. The action of bromoform is entirely different from that of bromide of potassium, as has been observed in epilepsy, the former being rather an excitant than a sedative. Children

are ordered from five to twenty drops during the twenty-four hours, in very frequent doses.

THE *Times and Register* repudiates the insinuations and charges of the Druggists' Circular in the following language: "Neither manufacturers nor patent medicine houses own or control our company. It is not a trust and has no designs upon its contemporaries. The absorption policy suggested only exists in Lillard's imagination. This, and the impudent attempt to represent the *Times and Register* as favoring substitution, are simply intended to create a little prejudice against our enterprise in the minds of publishers and advertisers. One thing is demonstrated by the publication in the *Circular*, and that is, that its manager's action is adopted by the journal itself, and hence, that the latter's standing, professionally and morally, is to be gauged by that of Benjamin Lillard. To those who are familiar with this personage's career, no further reply to his insinuations is requisite; to others, we will say that the unblushing mendacity of the editorial in the *Circular* removes the matter into a region into which we are unable to follow. We can hold no controversy with a man who has no reputation to lose, and whose statements are bounded only by the fertility of his imagination."

## Meeting of Medical Societies.

### CANADIAN MEDICAL ASSOCIATION.

BANFF, August 12th, 1889.

The twenty-second annual meeting of the Canadian Medical Association was called to order by Dr. Ross at 11 a.m.

Dr. Hingston, a past President, was invited to a seat upon the platform.

The following members by invitation were introduced by Dr. Ross:

Drs. Whittaker and Wiggings, of Cincinnati; Drs. Bulkley and Gibney, of New York; Dr. Marcey, of Boston; Dr. F. S. Connor, of Cincinnati; Dr. Gordon, of Quincy, Mass.; Prof. Barker, of Philadelphia; Dr. Hannon, of Hoosac Falls; Dr. Lathrop, of Dover, N.H.

Dr. Brett, of Banff, on behalf of the citizens of Banff, presented the following address of welcome:

*To the President and members of the Canadian Medical Association:*

GENTLEMEN,—We, the members of the Citizens' Committee, representing the community of Banff, on this occasion of your assembling here for the purpose of holding the twenty-second annual meeting of your important Association, desire to express our appreciation of the honor which the gathering of so learned a body implies, and, in the absence of a demonstration worthy of the occasion, beg to tender you through this unpretentious address a sincere and cordial welcome to our midst.

We venture to assert that the selection of this spot for your place of meeting is singularly felicitous, inasmuch as you are members of an Association distinctively national, could find no more appropriate place in which to conduct the important and useful affairs of your Association than at this little town of Banff, the heart of the Canadian National Park.

We hope that your brief stay here may not be altogether without interest to you, that in the grandeur of the scenery, the extent and diversity of mountain, forest, and river, or in the healthful qualities of the springs which abound in these parts, and whose sanitive properties are now so well known, you may find worthy of more than a passing notice, worthy in fact, of being treasured, when this short visit is over, among the memories which it shall be a pleasure to recall.

Assuring you of our desire to make your sojourn among us as agreeable as possible, we have the honor to be,

Yours, etc.,

R. G. BRETT,

F. J. BOSWELL,

B. B. C. O'DONOGHUE.

On behalf of the Citizens' Committee.  
BANFF, August 12th, 1889.

Thirty-four new members were elected.

Dr. Ross reported on behalf of the Committee on Revision of By-laws. The report was referred to the special meeting at 8 p.m. for discussion.

The following gentlemen were appointed as a Nominating Committee: Dr. Stewart, Pictou; Drs. Armstrong, Roddick, and LaChapelle, Montreal; Dr. Henderson, Kingston; Drs. A. H. Wright, and Grasett, Toronto; Dr. Chown,

Winnipeg; Dr. O. C. Edwards, Qu'Appelle; Dr. LeFevre, Vancouver. The President and Secretary *ex officio*.

Dr. Wright, the President, then read his inaugural address.

The meeting then adjourned until 8 p.m., for discussion of the amendments to the by-laws.

8 p.m.

A prolonged discussion on the by-laws took place, and was about as interesting as such discussions generally are.

Dr. Trenholme, of Montreal, gave the following notice of motion:

"That the Nominating Committee shall be appointed by and for each province by the members present thereof at the annual meeting."

August 13th.

The meeting was called to order at 9.30 a.m. Dr. Wright presiding.

The minutes of the previous meeting were read and confirmed.

Mr. Niblock, Assistant Superintendent of the Western Division of the C.P.R., was introduced by the President, and addressed the meeting on behalf of the new hospital now being built at Medicine Hat.

Dr. F. W. Campbell and Dr. T. A. Rodger, of Montreal, gave information on behalf of the Committee on Reciprocity of Registration.

Dr. Campbell expressed the view that it would be impossible to secure reciprocity between Canada and England under existing circumstances.

The Committee was continued.

At the three sessions of the 13th papers were read by Drs. Adam Wright, G.A. Kennedy, V.P. Gibney, Buller, Grasett, James Ross, James Stewart, Reeve, Whittaker, Shepherd, Bulkley, I. H. Cameron, Praeger, and Dupuis. Many interesting discussions took place as will be reported hereafter.

Dr. Stewart, of Pictou, moved, seconded by Dr. Roddick, "That the President nominate a committee to confer with the provincial and local societies and approach the Federal and Local Governments with a view of reducing the tariff on surgical instruments."—*Carried*.

Dr. P. S. Connor, on behalf of the American visitors, in a happy manner, thanked the Association for having invited the American delegates.

Cheers were then given for the American delegates.

The Treasurer's report, audited by Drs. Buller and LaChapelle, was received and adopted by motion.

The report shows that after paying certain liabilities there will be a balance of \$47.93 in hand. Regrets were expressed that the Association would be unable to present the usual honorarium to the Secretary, who had done an immense amount of work in connection with this meeting.

Dr. Stewart, of Pictou, Convener, reported on on behalf of the Nominating Committee, as follows:

*Place of Meeting*.—Toronto.

*President*.—Dr. James Ross.

*Secretary*.—Dr. James Bell.

*Treasurer*.—Dr. W. H. B. Aikins.

*Vice-Presidents*.—British Columbia, Dr. E. Berts; N.W.T., Dr. Brett; Manitoba, Dr. R. Spencer; Ontario, Dr. Bruce Smith; Quebec, Dr. E. P. LaChapelle; New Brunswick, Dr. Holden; Nova Scotia, Dr. L. Johnston; Prince Edward Island, Dr. McLeod.

*Local Secretaries*.—British Columbia, Dr. Fagan; N.W.T., Dr. Rutledge; Manitoba, Dr. H. Higginson; Ontario, Dr. J. J. Farley; Quebec, Dr. J. Elder; New Brunswick, Dr. Raymond; Nova Scotia, Dr. W. S. Muir; P. E. I., Dr. Warburton.

The following Standing Committees were appointed:

*Necrology*.—Drs. Hingston, A. H. Wright, and Geo. Ross.

*Medical Education and Literature*.—Drs. Dupuis, I. H. Cameron, and Mullin.

*Prize Essays*.—Moved by Dr. Bell, seconded by Dr. Stewart, Pictou, "That no Committee be suggested this year as there are no prizes offered."—*Carried*.

*Climatology and Endemic Diseases*.—Drs. Oldright and Bryce, Toronto; Campbell and LaChapelle, Montreal; Parker, Halifax; Jukes, Regina; Robillard, Ottawa; Patterson, Winnipeg; Milne, Victoria; Kennedy, McLeod, N. W.T.

*Ethics*.—The President, and President-elect, and the eight Vice-Presidents.

*Committee on Arrangements*.—Drs. James Ross, W. B. Geikie, Oldright, Graham, Strange,

Grasett, A. H. Wright, O'Reilly, and W. H. B. Aikins, with power to add to their numbers.

*Publication Committee.*—Drs. A. Morrow, Halifax; Dr. James Stewart, Montreal; Dr. Sheard, Toronto.

The report was adopted, and the above-named officers and committees declared elected for the ensuing year.

The following resolutions were then proposed, seconded, and carried :

Moved by Dr. Buller, and seconded by Dr. Chas. O'Reilly, "That this Association has great pleasure in conveying to the Canadian Pacific Railway its most cordial acknowledgments for the facilities that have been accorded in coming to Banff, for the civility and kind attention they have received from all the employees of the Company with whom they have had to deal, as well as for the superb accommodation and the great enjoyment they have derived from their sojourn in the world-renowned Banff Springs Hotel. Taking into consideration the length of the journey, the season of the year, and the unavoidable imperfect information as to the location and numbers of those who formed the main body of the excursion, the arrangements as carried out by the Company have been such as to excite the admiration and grateful recognition of the Association. The thanks of the Association are especially due to Mr. William Whyte, General Superintendent of the road, for his exceeding kindness in accompanying them from Winnipeg to Banff, and giving his personal supervision in all matters concerning their safety and welfare."

Moved by Dr. Geikie, seconded by Dr. Bruce Smith: "That the cordial thanks of the Canadian Medical Association be and are hereby given to the citizens of Banff, for the kindness and courtesy exhibited towards this Association during the annual meeting just held, and especially for the address of welcome presented by the citizens to the Association at its first session, which contained so many expressions of interest in the Association and of good-will towards it."

Moved by Dr. Geo. Ross, seconded by Dr. McLellan: "That this Association hereby tender to his Honor, Dr. Schultz, Lieutenant-Governor of Manitoba, its grateful thanks for his cordial reception of them at the Government

House, during their passage through his province. That they rejoice to observe that the press of political duties has not interfered with the continuance of a keen interest on the part of his Honor in everything calculated to advance the interests of that profession in which he is so proud to number himself among its loyal members. That this Association assures Dr. and Mrs. Schultz that their generous hospitality in Winnipeg has been highly appreciated, and will in retrospect make one of the brightest memories of an ever memorable meeting."

Moved by Dr. Farley, seconded by Dr. Edwards, "That this Association appreciates and will gratefully remember the Grand Trunk Railway Company for kindly co-operating with the C. P.R. in making our trip to Banff a pleasant one."

Moved by Dr. Oldright, seconded by Dr. LaChapelle, "That the Canadian Medical Association do respectfully submit to the Government of the Dominion that it is highly desirable in the public behalf, as well as in the interest of medical science, that the profession should be in possession of reliable statistics of the climatic conditions of Banff and other resorts of the North-west Territories, as well as of the chemical composition of the soil and waters of the district, in order that we may act with greater confidence in sending patients to these resorts; and that the Association do further memorialize the Government to establish a signal station at Banff, with branches at such other points as may be found necessary, a competent person being appointed to superintend the observation at such station or stations."

Moved by Dr. W. S. Muir, Truro, N.S., seconded by Dr. Shepherd, Montreal, "That the local provincial secretaries be requested to ascertain the feeling of the medical societies of their respective provinces on the subject of affiliation with the Canadian Medical Association."

Vote of thanks to the medical men of Winnipeg, moved by Dr. W. S. Muir, of Truro, N. S., seconded by Dr. Geikie.

Moved by Dr. LaChapelle, seconded by Dr. Oldright, "That this Association hereby declares its opinion that it is the duty of all practitioners to loyally comply with the regulations in force in the different provinces, and to report cases of contagious disease to the respective local authorities so as to enable these authorities to give

suitable advice and take such measures as might be required in order to prevent the spreading of contagious diseases and prevent epidemics."

Moved by Dr. Strange, seconded by Dr. Henderson, "That the cordial thanks of the Medical Association be tendered to the Manitoba and other clubs of the city of Winnipeg for the privileges conferred on its members."

Proposed by Dr. Shepherd, seconded by Dr. LaChapelle, "That the thanks of the Association be conveyed to Mr. Lalonde for his great care and attention, and unflinching kindness to the members during the trip from Banff to Montreal."

Moved by Dr. Campbell, seconded by Dr. Proster, "That the thanks of the meeting are hereby tendered to Dr. Wright, the President, for the impartial and business-like way in which he has conducted the business of the Canadian Medical Association."

Moved by Dr. Campbell, seconded by Dr. Sloan, "That the thanks of the Association are tendered to Dr. Bell, General Secretary, for the able and courteous manner in which he has performed the large amount of work which has of necessity fallen to him, in organizing what has been the most remarkable meeting in our history."

The following letter was received from His Honor, Lieutenant-Governor Schultz, of Manitoba :

Government House, Winnipeg, Man.,  
August 12th, '89.

MY DEAR SIR,—In answer to the wish expressed by the officers and many of the members of the Association that I would be present at your Banff Meeting, I regret to say that I find other duties will, for a time at least, call me in another direction, though I will make an effort to meet you all somewhere in British Columbia before you return. Kindly allow me to say to the Association through you, how gratified I am, personally, and how pleased I know the profession here to be, at the choosing of a place in the North-west for the meeting of the Association this year. To my mind Banff is particularly appropriate, for it is one of our national sanitariums. There are questions of medical and other scientific importance which may be better observed and discussed there than almost anywhere else in Canada. You are on a range of mountains memorable with recollec-

tions of several great medical men. Dr., and afterwards, Sir John Richardson followed their course down our mighty northern river till their grand heights slowly descended to the flat plain which forms the shore of the Arctic Sea. This worthy companion of the great Arctic voyageur, whose dust is sepulchred in the snows and ice of the Arctic Archipelago, first gave to the world the knowledge of Arctic and sub-Arctic flora, and much of their knowledge of the animal life of the great northern wilds. Dr. Hector gave most valuable information in the same direction, and of the diseases of the Indian tribes, when with Captain Palliser he explored the Rocky Mountain passes to the south of the one in which your meeting is now being held. Dr. Cheadle, surgeon to Lord Milton's party, wrote that most interesting book "The Northwest Passage by Land," describing one of the passes to the north of where you now are; and I feel sure that so many men learned in the profession, to which I am proud to belong, when discussing in council cannot fail to throw light upon many of the questions which will naturally present themselves for solution; such as, for instance, whether the high temperature of these springs is due to the disintegration of the sulphites and sulphates, or is the result of volcanic action, and whether if from either of these causes, the temperature varies, and the proportion of chemical constituents changes from the published analysis; the effect of high altitudes upon the bacilli of phthisis and upon other disease germs, and the effect of large areas of non-absorbable granite rocks upon the life of such bacteria as may be found at these elevations; and I would ask my learned conferees, when the discussion of more scientific questions shall have been completed, to pause and reflect for a moment, that they are there for economic purposes. Canada is widest and no longer a mere arable strip on the banks of the St. Lawrence, where on the east (and northward from the boundary line) Canada measures thirteen hundred miles of arable and pastoral land, and to the west nearly an equal north and south width of one of the richest mineral districts in the world. I am, dear sir,

Very faithfully yours, (sd.) JOHN SCHULTZ.

To the Secretary of the Canadian Medical Association, Banff, Alberta, N.W.T.