

tube in its centre was put in communication with the piston-recorder by means of a rubber-tube. If there is no leakage of air beneath the shield, which, with proper care, may be obviated, it is easy to obtain a record upon smoked paper of the circulatory changes in the orbit. The most striking feature of these records is the peculiar shape of the pulse-curve. The curve is anacrotic, the secondary undulations appearing in the ascending portion and vertex. In order to greatly magnify these curves, I employed the ether piston instead of the ordinary form, and recorded its excursions by photography according to the method

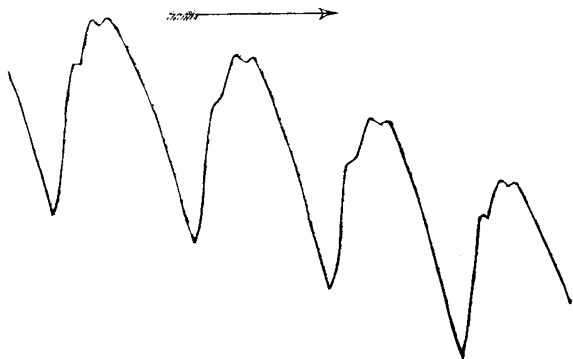


FIG. 2.

described by me in the *Journal of Physiology*.⁵ Figure 2 is a somewhat reduced reproduction of the outline of one of the records obtained. The very marked similarity of the form of the pulse-curves in this record to that of the brain-tracing in Figure 1, is very apparent. This tracing is entirely different from one taken from the carotid in the neck or from any peripheral bloodvessel. It shows very clearly how intimately the circulation of the orbit is related to that of the cranial cavity. The peculiar form of the pulse-curve may also contribute in a measure toward the advancement of our knowledge of vascular physiology in general. The purpose of this preliminary account of these researches is to call attention to the exceeding delicacy of the methods employed, and to record the interesting fact that the pulse-curve of the orbit is very similar to that of the brain. The subject should be of interest to ophthalmologists as well as physiologists. The researches to be made with the apparatus and methods employed in these experiments will naturally tend in two directions: first, to gain, so far as possible, information of the cerebral circulation; secondly, to ascertain to what extent the condition of the circulation of the eye is indicated in the general record of the orbital tracing.

— A correspondent of the *Lancet* (March 5th) describes a case of fracture of the thigh occurring during parturition. The patient was a quintipara; the labor natural, vertex presentation, O. L. A. The birth of the head was followed very quickly by that of shoulders and body; and, as the latter came through the vulva, the attendant heard a snap, which proved to have been caused by a fracture of the patient's left thigh. The only thing noted as unusual about the case was the marked and quick rotation of the face to the right thigh after the birth of the head.

ON A NEW METHOD OF TREATMENT OF CHRONIC-METRITIS, AND ESPECIALLY ENDO-METRITIS, BY THE INTRA-UTERINE CHEMICAL GALVANO-CAUSTIC.¹

BY DR. APOSTOLI, OF PARIS, FRANCE.

INTRA-UTERINE therapeutics is asserting its claims more and more, and is justly supplanting the old exterior treatment of the cervix. The new process, which I have followed for the past four years, in the electrical treatment of fibroids, I have pursued for the same length of time, and with equal success, in curing chronic-metritis; and this same process is even better adapted to the treatment of the form generally called endo-metritis. For a lesion which, before invading the uterine parenchyma attacks first the mucous membrane, fixes itself there more or less to seize afterwards the surrounding parts, I apply a treatment wholly intra-uterine, and which will cauterize all the membrane affected. For the modern process of scraping, of liquid injections, or purely chemical intra-uterine cautery, I substitute a galvano-chemical treatment, less harsh, more concentrated, which can be localized, and which every woman can bear, if properly applied.

The immediate chemical action which consists in a progressional destruction of the mucous membrane is soon followed by a process of shrinking and disintegration which promotes the absorption of the exudation and of the hyperplasia of new formations. To be successful in this operation it is necessary to have the following electrical instruments, the function and necessary qualities of which, ought to be well understood.

First. A medical galvanometer divided, for intensity into milliamperes which I was the first to have graded to 200. It gives the only exact measurement of the electric force used, which before was known only in a vague and empirical way, by the enumeration of the number of cells (a cell once used never affording the same strength as a new one).

Second. A permanent battery of sufficient size to last for some time, and to preserve practically the same strength, after several successive operations, which will furnish with a small number of cells, thirty on an average, a high intensity of 100 to 200 milliamperes; the best battery is that of Leclanché; a good portable battery of small volume is yet to be invented, but for the present, that with bi-sulphate of mercury with facultative immersion will suffice for the requirements of the operator.

Third. An intra-uterine electrode of sufficient length to extend to all parts of the uterine cavity and which is not affected by acids, as platinum. It must also be provided with an isolating muff to protect the vagina, the best being a celluloid tube.

Fourth. A neutral or insensible electrode, which applied on the abdomen, allows a very intense current to pass without pain, without heat, and without fear of burns; the best is the one of clay, which I introduced in 1882.

Fifth. Cords supple enough not to obstruct, and resisting enough not to be easily broken and cause interruptions painfully felt by the patient. The physician possessing a good instrument must conform strictly to the details of the operation hereafter described.

First. Make a tepid and antiseptic vaginal injection.

¹ Translated and read before the Gynæcological Society of Boston, February 10, 1887, by L. S. Fox, M.D., of Lowell, Mass.

⁵ Vol. VII, p. 314.

tion, placing the patient as if for an examination by the speculum.

Second. Charge the battery, arrange the galvanometer and put in proper position the abdominal clay muff, and arrange the current wires.

Third. Introduce into the uterine cavity slowly and progressively the electrode previously singed and disinfected. Isolate entirely the vagina and vulva.

Fourth. Cauterize the uterine cavity thoroughly and positively in all hæmorrhagic cases, and less thoroughly in other cases.

The predominating principle in all movements is never to surprise the uterus or to make a too painful application, for it is well understood that there are irritable uteri, though of a very limited number (say from three to five per cent.) as for instance in hysterical persons, who can scarcely bear any current, however weak it may be. Such patients can receive treatment only in a very mild form. Use the current at first very slowly. Pause before extreme sensibility has been reached, in order to accustom the patient to it, and to overcome all physical and moral resistance.

After two or three applications the intensity must be increased, in most cases reaching from 100 to 150, and, if required, even 200 milliamperes. The intensity must at first be proportioned and regulated according to the patient's power of endurance; afterwards by the extent and gravity of the lesion and the time it has existed. The duration of the application, which varies from five to ten minutes must, like the intensity, be graduated according to what is expected to be accomplished. Applications should be made every week, and every second day if required; and the physician should regulate their number and frequency by the urgency of the case. A rest of at least several hours should be required of all patients who have been operated upon. This rest is necessary for the safety as well as the efficacy of the method.

Vaginal antiseptic injections of carbolic acid should be prescribed which the patient should use morning and evening. This simple and harmless treatment, truly hysterometric, is only a galvano-chemical scraping, acid or basic, according to cases; it induces a formation of new mucous membrane, and forms a kind of intra-uterine exudation, the action of which can be prolonged and varied at will. Its beneficial effect, which I have verified in a great number of instances, does not fail to make itself felt from the first, increasing rapidly and soon restoring the patient to health. It does not condemn the woman to a forced repose, and calls for no additional treatment.

LAPAROTOMY FOR HYDROSALPINX.¹

BY F. B. HARRINGTON, M.D.

MRS. A. B., thirty-six years of age. Married about one year, had never been pregnant. She had always been well except for slight dysmenorrhœa until she was thirty years old, when she first noticed a watery discharge coming from the vagina. This discharge, the patient thought, was connected with the menstrual flow, either immediately preceding, following or accompanying it. The amount of watery discharge was at first small, but gradually increased until on one

occasion during a period of three weeks she was obliged to use one hundred and sixty-five napkins. These napkins were used until the water began to drip from them. The amount discharged was large, although it was impossible to measure it. The amount of blood lost during menstruation, was usually small, the period not lasting more than three or four days. The watery discharges never disappeared for a longer interval than five weeks. The discharges had no odor and did not stain nor stiffen the clothing on drying. It frequently came unexpectedly, with a rush, drenching the patient. Toward the close of the discharge, it sometimes became slightly urinous in odor.

The patient was nervous, worn-out and anæmic; with a systolic hæmic murmur at the base of the heart. The urine was normal. She had, of late, severe pelvic pains on the left side, which were augmented during the discharge.

The uterus showed left lateral displacement with slight anteversion. The cervix was soft, short and thick. The body of the uterus was slightly enlarged and the cavity measured three and one-quarter inches. At the right of the uterus could be felt a fluctuating tumor, somewhat movable, filling the right side of the pelvis and pushing the uterus into the left side. Between the tumor and the abdominal wall could be felt an elongated tumor, irregular in outline, extending transversely across the pelvis toward the body of the uterus. On the left side a somewhat similar mass could be felt. The diagnosis was hydros tubæ with a cyst probably connecting with the right tube and discharging into the uterus.

The prognosis was not favorable to recovery from the disease unless the tumors were removed. The patient gladly took the risk of an operation, for she preferred to die to the misery of her condition. On opening the abdominal cavity the right Fallopian tube was found distended to a circumference of two and three-fourths inches, connecting the uterus with an ovoid cyst three and one-half inches in the longest diameter. At the side of the cyst was another somewhat larger. Both of these cysts were covered by peritoneum. No ovary could be seen on this side.

The Fallopian tube on the left side was also dilated and at its outer extremity was the left ovary, so closely attached that they could not be separated. On this side were adhesions, old and new, to the sigmoid flexure of the colon. These masses were removed.

Examination of the tumors after removal showed those on the right of the uterus to have been made up of a cyst of the broad ligament, about three inches in diameter, and a cyst somewhat smaller resulting from the dilatation of the fimbriated extremity of the right tube. This latter cyst was connected with the remainder of the tube by a small circular opening with thickened edges. The uterine end of the tube was much less dilated than the middle portion, but the walls were greatly hypertrophied. Below the middle of the tube was a small red mass which was probably the remains of the right ovary. The left ovary and tube were intimately adherent. The former contained a number of small cysts.

Dr. Whitney, in a report of the specimens said: "The Fallopian tubes left with me show the result of chronic inflammation with retention of the secretion. The fluid which came from the left tube contained fatty degenerated epithelial cells. As to the relation of the larger cyst to the right tube, I am inclined to think

¹ Read before the Obstetrical Society of Boston, February 12, 1887.