

Dr. Felice La Torre, of Rome, Italy, sent a contribution to the discussion. The galvanic current, in his opinion, certainly arrests hemorrhage, but the diminution in size of the tumor was rare. He discussed a number of theories as to the action of the current, and concluded that it acts chiefly in two ways, viz.: (1) by causing energetic contraction of the uterus, and in this way causing compression of its vessels and arrest of hemorrhage; (2) by producing a disturbance in the molecular interchange of the elements of the tumor, by which the nutritive juices are transformed into peptones or other substances which are absorbed or eliminated by the kidneys, thus giving rise to absorption of the fibroma.

Dr. A. Laphorn Smith had found that this treatment arrests hemorrhage, even in every desperate case, and the general health is at the same time improved. In about half of his cases there was arrest of growth, and in about half of these, the tumor had diminished in size. In only one case was he sure that the tumor had entirely disappeared. The treatment is contra indicated when there is reason to believe there is pus in the tubes. He favored the use of mild currents, and the sittings not oftener than twice a week. He had never given in any one case of this kind more than one hundred applications, and he usually observed marked improvement after about fifteen applications.

Dr. Cleaves said that she had found the treatment of especial value in intra-mural growths, and that in this class of tumors the pressure symptoms were invariably relieved, the general health improved, and in hemorrhagic cases there was arrest of the hemorrhage. In a limited number of cases there was anatomical retrogression, but in no instance had she observed a complete disappearance of the tumor. She believed that the arrest of the hemorrhage was as largely due to the cataphoric action of the current as to the chemical cauterization. She called attention to the experiments made by Mr. Stewart, of Owen's College Laboratory, by which he had demonstrated the increase of liquids at the negative pole and also an accumulation of salts at the negative pole. In order that there should be such an accumulation, it was necessary that first there should be a decomposition and redistribution of the salts. Fibroid tumors and inflammatory products are rich in salts, especially in chloride of sodium, and are very largely dependent upon the presence of these for the maintenance of their nutrition and growth. The experiments to which she referred go to show that the removal of a considerable proportion of the salts, even if that removal were temporary, would result in the destruction of the tissue, while the removal of a small proportion would affect its nutritive activity. She had also found the induced and static-induced currents of very great value as an ad-

juvant to the treatment of fibroid growths by means of the constant current. Cases in which the static-induced had been used noted a marked sense of well-being, buoyancy and lightness, not only in the pelvis, but in the entire abdominal region.

Dr. Massey said that in a series of eighty cases, in all of the thirty-four hemorrhagic ones, the hemorrhage was controlled; in ten, the growth was simply arrested; in forty-nine, there was distinct retrogression; and in seven, the tumor disappeared. The average current strength was 50 to 150 m.a., and the duration of active treatment varied from six weeks to three months.

Dr. Engleman had had much the same experience as the other speakers. He did not doubt that the tumors could be reduced in size provided they were placed under treatment at the proper time; but he was also compelled to admit that he had seen some very large tumors disappear without any treatment, and this had been the experience of other surgeons. We should be very careful not to employ electrical treatment if there is reason to suspect that the tumor had already begun to undergo malignant metamorphosis, for under such circumstances electricity will certainly aggravate the condition.

The President said that one of the principal uses of electricity in some cases of large tumors is to so improve the general health of the patient when it is so much deteriorated as to admit of operative procedures when they are demanded. He had observed considerable retrogression in favorable cases, but had never seen a complete disappearance of the tumor. It was almost always possible to effect a symptomatic cure. He preferred strong currents and short sittings, and did not think much could be accomplished in less than six months. In recent growths, and in myomata, he would expect retrogression. He advocated the use of the positive pole in myomas and where hemorrhage was a symptom, and the negative pole in fibromas. He called special attention to the danger of producing stenosis, even with negative applications of only 50 m.a., when the cervical canal is included in the action exerted by the current.

Dr. Hayes thought a useful adjuvant to the ordinary Apostoli treatment consisted in applying the static-induced current by means of abdominal and vaginal electrodes.

"Improvements in Electro-Statical or Influence Machines."

Paper by Dr. Wm. James Morton. The improvements related to important points in mechanical construction and to utilizing Dr. Morton's discoveries for converting statical discharges into currents. There are two directions in which influence machines are of use to physicians, one, the spark and its modifications, the other, the Morton currents. The former are familiar to all, the latter exhibit the phenomena