

applied to the skin unless previously warmed, it being as good an abstractor of heat as it is a conductor of electricity. If it is warmed before its application, it is apt to dry up, while if it is immersed in hot water, it is apt to wash away.

Martin's electrode is neat and clean and if, when not in use, it is left with the animal membrane immersed in bi-chloride solution, it will not soon get an unpleasant odor or putrefy. Some of the water can easily be poured out each time and some boiling water introduced so as to make it pleasantly warm; but, some day when we least expect it, and during an application, it will play us false, for a tiny hole will appear through which the contained water will escape over the patient's clothing. After this accident had occurred to me several times, I determined to discard the animal membrane and to employ a combination of Apostoli's and Martin's electrodes by filling Martin's metal dish with Apostoli's clay and covering it with one or two layers of gauze. The result has been all that I could desire. The clay, being contained in the metal dish, does not escape upon the patient's clothing and is not difficult to apply. Instead of mixing the potter's clay with water only, I have added from one-third to one-half of glycerine, which, owing to its great avidity for moisture, will always keep the clay wet, so that I am no longer in danger of finding that my clay has dried up during the night. As an extra precaution, I am in the habit of wrapping up my abdominal electrode in a large sheet of gutta percha tissue or oiled silk, into which I throw an ounce or so of water to supply the thirst of the glycerine.

This electrode weighs four or five pounds, which is sufficiently heavy to guarantee its close application to the abdominal integument and does away with the danger which I have several times experienced of the patient's suddenly removing her hands in order to gesticulate while talking to me during the application.

Martin's instrument is somewhat expensive, so that to meet the wants of those to whom expense was a consideration, I had the same thing manufactured by a local tinsmith for forty cents apiece, thus enabling me to have three or four; some with projecting surfaces of clay for the abdomen of thin women, others with more or less hollow surfaces, according to the prominence of the abdomen or of any part of it. For

instance, in a case where a large fibroid is projecting prominently, I applied an abdominal plate very much hollowed out, which fits on top of the the tumor like a cap. Any tinsmith can convert deep pie plates into Martin's electrodes by soldering on to the rim a corrugated flange and attaching a binding post and screw to the bottom of the plate. A piece of rubber tape or bandage must be fastened around the edge to prevent the metal from burning. The current having entered the body, we will suppose, by the abdominal positive pole, pours through like a fine, invisible rain from every part of the clay in a direct line towards the other pole, which, we will say, is the negative one in the uterus. If we could see it, it would look very like the spokes of a wheel running from the tire towards the hub. This will explain the condensation of force which takes place when the exposed surface of the electrode in the uterus is very much smaller than the surface on the abdomen and, for this reason, the electrode in the uterus is called the active pole.

When it is desired to produce a cauterizing effect, either positive or negative, this can be obtained by making the exposed surface in the uterus exceedingly small, for Martin has proved that it requires 50 milliamperes to one square centimetre of surface during a period of five minutes in order to obtain a cauterizing effect. Where a cauterizing effect is desired, there is every advantage in making the surface of the internal electrode as small as possible. But, *in cases where we wish to obtain the greatest possible inter-polar action*, we should make the internal as well as the external electrode as large as possible. Of course, if the internal electrode is connected with the positive pole, either gold or platinum must be employed, and the cost of these precious metals acts as a barrier to their being used. To overcome this objection, Apostoli has lately introduced graduated carbon electrodes containing one, two, three, four and more centimetres of surface, with which he is able to treat successively different portions of the intra-uterine mucous membrane. These carbon electrodes have another advantage in that they do not cauterize the cervical canal when it is our desire to only treat the lining membrane of the uterine cavity.

He has also invented another means of applying electricity to the interior of the uterus by