meter is claimed to be the most accurate, but the vertical ones are the most convenient. They are graduated to indicate from 250 to 500 milliampères. The vertical ones are manufactured by *The Elektron Manufacturing Company*, and the horizontal ones by Waite & Bartlett, of New York. The adjustment is very delicate, and they require to be handled with great care. Before being put to practical use they should either be compared with a standard instrument or they should be tested by a practical electrician.

The Rheostat.—This apparatus was also described and illustrated in the December number of MEDICAL SCIENCE. Since then I have tried a dry rheostat manufactured by *The Elektron Manufacturing Company* of New York, but I do not find it as satisfactory as the apparatus already described, namely, the Bailey rheostat. The Bailey rheostat is a modification of the water-rheostat by which we can increase and diminish the strength of the current from any number of battery cells at pleasure. This saves the patient from a shock, and very strong currents can be administered without pain.

The Artificial Resistance.—For the purpose of testing the battery and apparatus before making an electrolytic operation, I use artificial resistance, having approximately the same resistance as that of the tumor to be treated. In uterine electrolysis the resistance of the circuit varies from 50 to 200 ohms. Taking 200 ohms as the maximum resistance, I give my resistance coil a resistance of 200 ohms. If the battery will give the desired number of milliampères through this maximum resistance it may be depended upon to give a stronger current through less resistance. Thus, if we wish to pass 100 milliampères of current through a fibroid and we find by using the resistance coil that this strength of current can be obtained from 18-battery cells, this number of cells can be depended upon to give the desired strength of current, when it is known that the resistance of the circuit through said fibroid will probably be found to be considerably less than 200 ohms. I might state here in passing that the resistance of the ordinary hand-telephone is about 100 ohms, and that this instrument may be substituted for the artificial resistance, bearing in mind, however, that the 100 ohms resistance of the telephone may be only one-half the resistance of the circuit when the current is passed through the uterine fibroid.

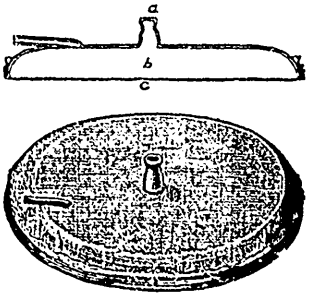

Fig. 4. The Abdominal Electrode (Martin.)
(*a*) Orifice for filling; (*b*) Space for fluid; (*c*) Animal membrane.

5. *The Abdominal Electrode.*—The Electrolytic treatment of uterine fibroids by means of strong currents is rendered not only possible but actually painless by the use of a very large abdominal electrode. This electrode was described in MEDICAL SCIENCE for December. It is about 8 inches in diameter, and the saucer-like metal part is covered with drum-head membrane. The space between the metal and the membrane is filled with either warm water or warm salt and water. Apostoli uses an electrode made of potters' or sculptors' clay, while Dr. Martin, of Chicago, uses an animal membrane electrode. The latter is more easily managed and is more cleanly withal. In a case of Dr. A. Jukes Johnson, in which I used the Martin electrodes with 13 cells of the battery just described, we got a current of 90 milliampères. This reduced the resistance of the circuit to about 130 ohms. In a case of Dr. Atherton's in which the Apostoli electrode was used we got a current of 100 milliampères with 17 cells. This made the resistance of the circuit about 155 ohms. And in a case of Dr. Allen Baines', in association with Dr. Temple, with 18 cells and the Martin electrodes, we got a current strength of 80 milliampères.

(To be Continued.)