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, nickle, silver, gold, platinum; while the material for the electrode to close the circuit only may be