

## Original Communications.

*Remarks on Electro-Therapeutics, with cases,* by DONALD BAYNES, M.A., M.D., L.R.C.P., E., Lecturer on Diseases of the Throat, Medical Faculty, University of Bishop's College. Read before the Medico-Chirurgical Society of Montreal, February 8th, 1878.

MR. PRESIDENT AND GENTLEMEN,—In my paper for this evening, I propose simply to mention the different kinds of electricity; their different modes of application, and their uses as therapeutic agents. Also, to bring before your notice for discussion some of the cases I have had under treatment, hoping it may awaken fresh interest in this very valuable therapeutic agent.

### FORMS OF ELECTRICITY USED IN THERAPEUTICS.

1st. *Static or Frictional Electricity*—The electrical machine for producing this form is very simple, its essential parts being three, viz., the rubber, the rubbed body and the prime conductor, the rubber being usually a pair of leather cushions amalgamated with a paste made of zinc and tin turnings rubbed down with mercury and lard, the rubbed body, a large circular plate of glass, mounted on a glass axle, and turned by a handle between the cushions, and the prime conductor, usually an insulated metal cylinder intended to receive the kind of electricity required. This form of electricity is used for medical purposes in three ways, viz., the electric bath, electrization by sparks and the Leyden jar. The electric bath is of two kinds, electro-positive and electro-negative. The former increases the vital forces, the latter decreases them. In the electro-positive bath the electricity is gathered from the glass-plate on to the prime conductor, while the negative electricity is carried away by a chain from the cushions to the floor. The patient being placed on an insulated stool or chair, is connected with the prime conductor. The whole surface of the patient's body is thus charged with positive electricity, while the surrounding air is rendered negative. If the electric bath be given in a dark room a luminous appearance is produced by the escape of electricity into the air. The electro-negative bath is given in the same way, with this difference: the negative electricity from the cushions is collected, while the positive is liberated and carried to the ground by a chain. The electro-negative is said to have a weakening effect by reducing the natural elec-

tricity of the patient, acting like blood letting, the pulse being retarded.

These baths have been found useful in old standing tics, sciaticas, unpleasant flutterings about the heart depending on weak innervation, and tremor of the limbs have been removed, by simply charging a patient as it is called, even when the other forms of electricity have failed.

Electrization by sparks.—The patient is charged in the manner just described as an electric bath. The operator brings his hand near the patient, his hand becomes negatively electric. The negative electricity of the hand combines with the positive electricity of the patient; this produces a flash of light accompanied by a snap, and this is called the electric spark. These sparks may be drawn from the body by metallic conductors, and produce a sharp pricking at the part; if continued the skin becomes reddened, and white wheals are produced. At Guy's Hospital there is a chain or movable wire suspended from the ceiling and connected with the ground, to which is attached a brass ball which slides up and down the wire. This is brought close to the patient, about an inch from the spine; the patient is now charged, and the ball passed up and down in a line with the spine; sparks now pass to the ball and thence to the ground by the wire. In this way a rapid succession of sparks can be obtained. Cavallo has recommended the drawing of the sparks through flannel. If the sparks follow each other rapidly, they may cause slight vibration of the muscles which are close under the skin. This form has been used with success in paralysis, chorea, some kinds of amenorrhœa, and in some spasmodic affections.

The Leyden jar is charged as follows: you hold the jar by its outer coating, and bring the knob which is connected with the inner coating to the conductor of an electric machine in action. The inner coating becomes charged with positive electricity and the outer coating with negative. If these two coatings become connected, neutralization of the two electricities takes place, and the jar is discharged. For medical purposes it is used as follows:—A conductor communicates with the inner surface of the jar to the part to be electrified, the outer surface is connected to the opposite side, a spark is produced and the neutralization of the opposite electricities takes place through the part of