

was experienced in each finger. This shock was repeated every time one finger was *raised out of the fluid* and re-dipped. But no shock was felt all the time the finger *remained* immersed, as the electricity passed in a continuous stream through the body from one end of the chain to the other; the physiological phenomenon of "shock" being produced only at the moment the current first entered the body. This is of course the same with all voltaic apparatus which yield an uninterrupted current.

These experiments are sufficient to demonstrate the electro-genic power of Pulvermacher's apparatus, and to point out that the current evolved is small in quantity, but of moderately high tension.

When a continuance of sensible shocks is required, an ingenious apparatus, contrived by the inventor of the chain, may be used. This consists of a small helix of thin wire fixed in a glass tube; one end of this wire passes through a cork in the tube, and ends in a hook; the other end is free, and is barely in contact with a metallic plate (also furnished with a hook), which closes the other opening of the tube. On connecting a chain of fifty elements to each of the hooks of this apparatus, the first and last link being grasped in the hands, a rapid succession of rather violent shocks will pass through the arms. These occur in consequence of the slight motion communicated to the chain by the hands, being sufficient to make the helix vibrate, and thus rapidly approach and recede from the plate at the end of the tube.

It must not be supposed, however, that sensible shocks are required to develop physiological phenomena or therapeutical effects. We are chiefly indebted to the laborious researches of Dr. Marshall Hall for teaching us the vast amount of therapeutical influence developed by a continuous current of voltaic electricity. I cannot, indeed, too strongly impress upon those who have to treat a case of old paralysis (unconnected with spasm) the vast importance of allowing a current of voltaic electricity to traverse the palsied limbs persistently for half an hour or more daily for weeks or months, nor to be disappointed at not witnessing any *immediate good results*. Nutrition of the limb is certainly thus increased, its waste and emaciation prevented, at least to some extent, and the probabilities of cure are much increased. Pulvermacher's chain, when once excited by immersion in vinegar, soon begins to evolve a current of decreasing intensity; but so long as even a small quantity of fluid remains unevaporated between the folds of wire, evidence of the circulation of electricity can be made out by the electrometer. A moment's re-immersion in vinegar will at once restore the energy of the current.

The advantages of this apparatus to the medical man consist in its giving him a means of obtaining a current of electricity, of amply sufficient tension and quantity for all physiological purposes, at a moment's notice. He can, moreover, diminish or increase the tension, by making use of a greater or smaller number of links. He can make the current continuous or interrupted, painful or painless at will,—and he has, moreover, an apparatus so easily managed as to require no especial tact for its application. On the other hand, it must be recollected that the current evolved has no *peculiar* properties, and that it will effect nothing more than that evolved by other means. It is, indeed, deeply to be regretted that so convenient a source of electricity runs the risk of losing favour in the sight of educated men generally, and of our profession in particular, by being injudiciously puffed in the public prints, by advertisements claiming for it a medical influence it in no wise possesses.—*Lancet*.