

tumblerful of water with ease and comfort." I asked him to give me a demonstration of the feat, and lying downward upon the couch in my consulting room, with the head and arms hanging free over the end, and with the feet higher than the rest of the body, he took a large tumblerful of water in both hands, and placing the open end of a piece of India-rubber tubing (about six inches in length, and with a vulcanite mouthpiece) in the fluid, and the mouthpiece between the lips, drained off the contents without stopping, and with the greatest ease and comfort. Not the slightest pain or cough accompanied the act, showing that none of the fluid entered the larynx. The feat was the more remarkable to me, who had often seen him making great efforts to swallow fluids, but unsuccessfully, in the sitting position. In the ordinary position a teaspoonful of fluid was as much as he could manage to get down, and this was accomplished only at the cost of much pain and terrible paroxysms of coughing. The plan is simple enough and is one which will procure relief for other patients afflicted with the same terrible laryngeal conditions; as I have never seen it applied before, I venture to mention it to those who have to treat similar conditions, and I am sure they will find it an excellent method of alleviating one of the most distressing sufferings of patients of this class."

THERAPEUTICS.

Electro-Therapeutics.

In connection with the polar theory it was stated that the freed H atom combined with the adjacent chlorine atom which left another free atom of H, but it must be remembered that while the positively electrified H atom is travelling towards the platinum plate a fresh supply of chlorine is being formed which is passing in an opposite direction continuously to the zinc plate and with the transfer of electricity from particle to particle of the liquid there is at the same time a transfer of the chemical constituents of the liquid in opposite directions; said transfers occurring simultaneously in all parts of the liquid, and when these changes are produced uninterruptedly we have a *Voltaic current* produced; the term current, signifying merely the continuous transmission of electrical action and not of a material substance. It is always assumed that in a Voltaic current that equal amounts of

negative and positive electricity are proceeding along the conductor at the same time but in opposite directions, therefore, to avoid confusion, when the direction of the current is spoken of, only the direction of the positive current is considered.

The platinum and zinc plates have been constantly referred to as the negative and positive plates. This relation of the metals has been found to depend solely on the relative oxidisability of the metals concerned, the more oxidisable metal being positive to the less; thus zinc is positive to platinum but negative to potassium; it is also found that the direction of the positive current through the liquid, mentioned above, depends upon the oxidisability of the metals as the positive electricity always sets out from the more oxidisable which may be called the positive element towards the less oxidisable or negative and this explains what might otherwise be considered an anomaly, as the insulated wire or *reophore* which is attached to the connection of the platinum or *negative* plate is said to be attached to the *positive pole* or *anode*, and the one to the zinc to the *negative pole* or *cathode*, but as has been seen, the positive current upon leaving the battery to traverse the conductor in its circuit starts from the platinum, and as the direction of the current, outside of the cells, is alone dealt with, the platinum connection is the positive starting point or *pole*.

It has already been stated that without chemical action there can be no electrical action, and it may further be said that the amount of the electricity developed is directly proportionate to chemical activity; also, in order that a current shall be produced, it is necessary that the exciting liquid shall act more readily upon one of the elements than the other, and the *electro-motive force* or amount of voltaic energy produced by a combination, is dependent upon the difference of attraction for the radicle of the acid by the two metals. The electro-motor force is measured by the amount of chemical decomposition which occurs in a given time. The unit for electro-motor force is called a *volt*, and the ordinary Daniel's cell so nearly approximates this, that it is usually taken as the standard; and the strength of other cells, as regards electro-motor force, is compared with it. The measure of electro-motor force of a cell does not, however, represent the amount of active current, as the initial energy of the cell is modified by certain obstruc-