

PROGRESS AND PROMISE OF ELECTRO THERAPEUTICS.

By M. H. MEHRJI.

THERE can be no doubt that electro-therapy is at present and has been for some years past attracting as much attention from the profession as any branch of medical practice. The interest seems to be spreading and has even communicated itself to the laity, whose mind in this respect was prepared by the enormous importance of electricity in nearly every department of human activity.

The discovery of Röntgen contributed a goodly share toward bringing electricity prominently before the eyes of an expectant public.

Thus we have arrived at a state of affairs which is accomplishing many a change in our therapeutic reasoning and methods. The medical mind has been submerged, as it were, by an avalanche of electricity. The number of physicians who employ electricity is constantly increasing. Electrical machines are no longer an uncommon feature of the office equipment of even conservative general practitioners. It is not surprising to find many enthusiasts who are shooting beyond the mark in displacing an optimism which had a strongly marked morbid element mixed with it. Everything in sight is claimed for medical electricity. We are hardly given a chance to recover from the surprise of one extravagant claim before we are startled by something still more wonderful. Then there are those who cannot be made to believe that electricity is anything beyond a fad, a passing fancy.

They deny that it has a place in medicine. Between the irrepressible enthusiast and the persistent sceptic it is difficult for the uninitiated to come to any conclusion. To help in untangling this Gordian knot of contradictory statements and in defining if possible, the clinical indications and limitations of electro-therapy, I beg to present a few stray thoughts on the subject with a view of giving the uninitiated some tangible, incontrovertible facts concerning the clinical possibilities of electricity. If I succeed in interesting one or the other of those who decry electro-therapeutic methods, I shall consider my task well done. I shall confine myself to a consideration of electro-therapy properly so-called, to wit: the uses of the continuous, the interrupted, the static and high frequency currents in the treatment of diseased conditions.

The continuous current, usually called the galvanic current, possesses properties which are too apparent to be denied. The negative pole has an affinity for hydrogen and in this way effects dehydration of living tissues. This is equivalent to disintegration and destruction and

technically known as electrolysis, is a most valuable therapeutic agent in the hands of a physician. For the removal of warts, moles, naevi, and all kinds of facial blemishes, there is no better method,* the imperfect or bad results being almost invariably attributable to the lack of skill and knowledge on the part of the operator and not to the method itself. In the management of urethral stricture a wonderful amount of good can be done by a skillful hand guiding the electrolytic urethral sound. In touching upon this subject it is but just to pay a befitting tribute to the life work of Robert Newman who did so much for the elaboration of this important branch of bloodless surgery. The experience of all thoughtful and skilled operators bears out the claims which Newman made on behalf of the electrolytic treatment of urethral strictures.

Closely allied to Newman's method is the electrolytic treatment of fibroid tumors of the uterus, originated by the lamented Apostoli and highly valued in suitable cases by all conservative gynecologists.† In the treatment of goitre the use of the galvanic current has everything in its favor. There is hardly a case that cannot be benefitted. Mild galvanization is capable of affecting the functional power of nerve-trunks in a peculiar manner.

The sedative action of the galvanic current is well shown by the manner in which spasmodic and irritable conditions of certain structures and organs are allayed by galvanization of the nerve supply of the affected parts.

The application of a mild galvanic current to the vagus, frequently relieves conditions of irritation in the parts and regions supplied by the vagus, especially the stomach.

This is well shown in pregnant women suffering from gastric irritation of more or less severity. Most of these cases can be relieved by galvanization of the vagus.

The anodyne action of the positive pole of a galvanic current is well marked and can be utilized clinically in a variety of ways.

The pain of muscular rheumatism, for instance in case of lumbago, pleurodynia, etc., can usually be relieved by an application of this kind. The action of a mild galvanic current on the nerve supply of the epigastric region is of cardinal virtue in cases of chronic dyspepsia, especially the atonic variety and supplements the stimulating effects of massage and vibration. The solar plexus responds to galvanic stimulation in a manner most striking as is shown by the sense of buoyancy which usually follows the application of the galvanic current to the epigastrium. The galvanic current has a distinctly reconstructive

* (Opinion differs on this point. Sir J. Bland-Sutton states:—"No method is so safe and effectual as excision. . . . It is infinitely preferable to treatment by electrolysis" (Tumours, Innocent and Malignant—page 161, 1911 edition—Ed.)

† ("All attempts to cure fibroids by drugs or by means of electricity have been conspicuous failures"—Ibid., page 267.)

action. It counteracts degenerative and retrograde changes, it facilitates absorption and guards the integrity of normal tissue. This is exemplified by the good results which follow its use in the treatment of hypertrophic and hyperplastic changes in the uterine texture. Knowing its physiological potencies, the physician can find many uses for it in the treatment of well-nigh numberless diseases and diseased conditions.

The faradic current, while it is much less valuable than the continuous current, has a sphere of usefulness of its own, although hardly in proportion to its popularity.

The buzz of the faradic battery is familiar alike to physician and patient.

The interrupted or faradic current acts upon contractile tissue of all kinds. It contracts muscular fibres and in this way affects the arterial, venous and lymphatic circulation and conduces to the preservation of nerve force in the structures acted upon. It is the natural handmaid of massage and Swedish movements. It secondarily affects function in a manner similar to the action of galvanism on structures. It controls and equalizes the function of contractile tissue and in this way becomes a powerful therapeutic agent in the treatment of a variety of conditions in which primarily the muscular system or some portion of it, and secondarily the function of some related or contiguous structure, are at fault. This makes the faradic current an antispasmodic, and an antineuralgic of value in suitable cases. In cases of muscular or nervous spasm, dysmenorrhea, etc., its therapeutic value cannot be gainsaid.

The static current seems to claim the lion's share of attention on the part of the general practitioner to-day. It has its ardent supporters and its equally fervent antagonists, while many physicians are not prepared to take sides with either of them. If the static machine were properly understood as a powerful therapeutic agent with a distinct sphere of usefulness of its own, the controversy would soon resolve itself into an intelligent discussion of an interesting and important clinical subject. Those of us who have given to static electricity a place in our therapeutic resources know with absolute certainty that characteristic physiological effects are obtainable by positive and negative static currents. There can be no doubt about the contractile action of positive currents of high voltage on the muscular coat of the arteries. The muscular fibre contracts, the vessel becomes smaller, the amount of arterial blood is lessened, intra-vascular pressure decreases, and the process of nutrition (metabolism) is retarded. As a necessary result a sedative, anodyne effect is produced. On the other hand, we are likewise familiar with the stimulating, irritating action of a negative current resulting from dilation of the arteries, increase in the nutrition of the part and in the vascular pressure.

We are familiar with the prompt antispasmodic effect of a static current in cases of asthma. No one doubts the tonic effect of static electricity especially on the nervous system. The so-called wave current is also a therapeutic quantity of no uncertain action. As a pain reliever it is as prompt as it is powerful. I would hardly be doing justice to the subject of medical electricity if I were to ignore the importance of extremely high voltage in the treatment of disease. I refer to those currents, commonly included under the head of "high frequency" currents.

They are probably without exception, the most powerful clinical weapons in the hands of the up-to-date dermatologist, and modern neurologist. The high frequency current possesses a singularly alterative action on the skin and is capable of producing most remarkable results in chronic skin troubles, especially eczema.

The neurologist utilizes the high frequency current as a means of reaching the minutest structural and functional component parts of the nervous system. Every neuron, as it were, can be made to vibrate in harmony with the rapidly oscillating electricities during a high frequency application. Other methods of utilizing high frequency are no less valuable. The solenoid and the diasolenic cylinders have long passed the experimental stage and have established themselves as therapeutic agents of great virtue.

Electro-therapy is by no means a fad. It has come to stay because it is capable of producing definite physiological results. This being the case, it is worthy of attention and study. In the hands of a thoughtful physician its value can hardly be over-estimated. Study it as you do your other branches of practical medicine and you will find yourself neither on the side of electro-maniacs who claim everything in sight, nor within the fold of the sceptics who condemn what they do not know. In practicing physio-therapy as well as any other branch of practical medicine, we should have an object in view, according to the old Roman adage: "*Quidquid agis, prudenter agas et respice finem.*" (Whatever is useful it is prudent to employ and should be applied to the purpose).

[Dr. Mehrji has kindly offered to show his electrical appliances and explain their use to any nurse who cares to see them. His address is 19, Esplanade Road, Bombay.—Ed.]

POEM.

The Angels of the Seven Planets, Bearing the Star of Bethlehem
(From Longfellow's "The Golden Legend.")

The Angels of the Planets Seven,
Across the shining fields of heaven
The Natal star we bring!
Dropping our sevenfold virtues down
As priceless jewels in the crown
Of Christ, our new-born King.