

many children, seem more prone to them than any other patients; and it generally happens that they have suffered from cramp during pregnancy.

This form of "after-pain" is not serious, but very distressing to the woman; and as the trouble comes on at a time when your patient is left in your charge, it seemed to me right to direct you how to act in these emergencies until you receive your instructions from the Doctor. He would most likely find your patient almost free from pain in the morning and approve of what you had done.

(To be continued.)

PRACTICAL LESSONS IN ELECTRO-THERAPEUTICS.

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THAT portion of the function of electricity which we propose to discuss in these lessons is one which has, unfortunately, lent itself but too easily to the purposes of the charlatan in his impositions upon a credulous public.

One of the objects, therefore, of the course of lectures upon which these lessons are based was to bring forward, in an easily assimilable form, first, the elementary facts of the science; second, the physiological and pathological phenomena, which depend for their production upon the application of various kinds of electricity; and last, the methods by which it has hitherto been possible to employ this agent in the treatment of pathological conditions.

It was thus intended to keep clear of purely theoretical statements, and to illustrate by experiment such points as had important bearing upon the elucidation of the subject.

In these lessons we shall adhere to the same plan, replacing actual experiment by diagrams with descriptive letterpress, and avoiding, as far as may be consistent with clearness, the use of purely technical terminology.

To meet the requirements of Nurses and students, in showing how electricity may be used in the treatment of disease, we have arranged our material in such a way as to lead gradually from the consideration of the ground work upon which the science has been constructed, *always bearing in mind its Medical aspect*, to that of the delicate processes by which dosage can be accurately measured, and either localized or widely diffused as the nature of the case may demand.

The following outline indicates the general idea:—

The modes of generation and transformation of electricity, electro-motive force, current, resistance, Ohm's law. Electro-physics, electro-chemistry.

Measuring instruments, electrodes.

Modifications needed for Medical purposes.

Physiological action (*a*) of continuous current; (*b*) of interrupted current; (*c*) of alternating current. Skin resistance.

General sketch of electrical action in tissues normal and pathological. Cases suitable for electrical treatment, with suggestions as to the special methods to be employed. Directions for carrying out the varieties of treatment. Hints as to the management and care of apparatus.

LESSON I.

Energy — Electrical Energy — Transformation of Energy — Re-transformation — Loss — Electric Generators: Mechanical, Chemical, Thermal—Similarity of Electric Currents—Comparison of Generators.

What is electricity? The question is very difficult—we might almost say impossible—to answer at the present time, with any degree of certainty. There are many theories, but it would be useless to attempt to discuss them here. In evidence of the difficulty of giving a satisfactory definition of electricity, we may refer our readers to the words of one of the greatest physicists of the day (Sir William Thompson), who, in his inaugural address delivered last January to the Institution of Electrical Engineers, said that he had spent forty-two years in endeavouring to fathom the problem of what electricity is—forty-two years in which he might almost say the subject was never entirely absent from his mind—and yet he was still unable to give any solution of the problem. We will not theorise on the subject, but consider it sufficient for the purposes of these lessons if we regard electricity as a form of energy.

ENERGY.

Energy in some form is present throughout all nature. We cannot alter its total quantity. We can neither create nor destroy it, but we can change or transform its character, and so cause it to perform useful work. In the course of these changes various phenomena may be observed, to some of which it will be our duty to call special attention.

Most, if not all, of the known forms of energy may be transformed into electrical energy. The forms of energy best suited for illustration are

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