

acres of land. In the year 1916 the annual product of the acreage actually under treatment was estimated at more than 22,000,000 dollars. The contents of the book are deserving of careful study by engineers and others engaged in the development of irrigation schemes.

BRYSSON CUNNINGHAM.

MEDICAL ELECTRICITY.

Medical Electricity: A Practical Handbook for Students and Practitioners. By Dr. H. Lewis Jones. Seventh edition, revised and edited by Dr. Lullum Wood Bathurst. Pp. xv+588. (London: H. K. Lewis and Co., Ltd., 1918.) Price 15s. net.

DR. LEWIS JONES was chiefly responsible for raising medical electricity to its present honourable position. He rescued it from the depths of disrepute into which it had been thrust by the hands of charlatans. The best years of his life were devoted to this work; by painstaking study he sifted the real from the sham, and by original investigation and patient experiment introduced many new features in well-known electrical procedures. He showed a readiness to adopt new methods of treatment once he had convinced himself of their value. It was owing to the influence of Prof. Leduc, of whom he spoke in terms of affection and admiration almost verging upon reverence, that he first realised the great possibilities of ionic medication.

On the death of Dr. Lewis Jones the question arose whether the book that epitomised the history of medical electricity should be allowed to pass out of existence. If not, where was the champion who would rescue it and keep alive the name of its creator? Dr. L. W. Bathurst answered the appeal. We may say at once that in the new (seventh) edition, which he has revised and edited, he has carried out his difficult task in a worthy spirit. All the essential features of the book, as we know it, have been retained, and such new matter has been added as the experience of recent months has shown to be worthy of adoption.

Dr. Lewis Jones foretold the further expansion of ionic medication and the use of the thermal effects of electricity. Diathermy apparatus is now fully established in surgical practice as a means of coagulating the tissues. The introduction of drugs through the skin from electrodes moistened with them (ionic medication) is becoming more and more recognised as a valuable medical procedure. The drugs mostly used are the chlorides of sodium, ammonium, and lithium, salicylate of soda, sulphate of zinc, the iodides of potassium and lithium, quinine sulphate, and cocaine hydrochloride. Condenser discharges were first introduced into this country by Dr. Lewis Jones as a good diagnostic method of testing for the reaction of degeneration in diseases of the nervous system. These discharges are capable of accurate quantitative adjustment, and their use as stimuli for nerve and muscle gives more trustworthy results than are obtained by the galvanic battery

The methods of using the condenser discharges for treatment are described in detail.

Prof. Leduc's remarkable experiments on the production of "electric sleep" by rapidly interrupted currents passed longitudinally through the nerve-centres are described. "The anode was placed on the hinder part of the back of a dog or a rabbit, and the kathode on the skull. The skin was previously shaved. The current was increased gradually, and at a certain strength the animal became unconscious. When this stage was reached, a state of tranquil sleep was induced, in which the animal remained until the current was stopped. During this period of sleep there was anæsthesia. As soon as the current ceased, the animal jumped up and seemed quite well, and no injurious results followed." In the experiment of which Prof. Leduc had the courage to make himself the subject "the current was not pushed to complete insensibility, the operators believing that this had been attained, although the professor was able to tell them afterwards that consciousness had not been lost, though he was quite unable to communicate with them on account of his peculiar condition, which he compares to that of one in a nightmare, aware of some impending disaster, but unable to move or cry out. The current used in these experiments is the Leduc current (§ 63), with 100 periods of a second and with closures of one-thousandth of a second. The application of this electric sleep to practical medical purposes remains untried, but it seems possible that it may one day prove useful."

The subject of death from electric shock is discussed in detail. The action of X-rays and radium in treatment and the subject of X-ray dermatitis come in for reasoned comment, though the scope of the book does not permit of a very full account of this important branch of the subject. Chaps. xi.-xviii. contain classified lists of diseases, with the electric methods of treatment best suited to each disease. Finally, we find a useful appendix containing (1) a table of electro-chemical equivalents, (2) a comprehensive list of the towns of Great Britain and Ireland with particulars of their electric supply, and (3) plates, showing the motor points in the head, neck, and limbs, the areas of distribution of the cutaneous nerves, and the segmental distribution of the sensory nerve-roots.

"Medical Electricity" is a true text-book and a valuable work of reference. A. C. J.

INDUSTRIAL WELFARE AND HEALTH.

Welfare and Housing: A Practical Record of War-time Management. By J. E. Hutton. Pp. viii+192. (London: Longmans, Green, and Co. 1918.) Price 5s. net.

THE employment to-day in munitions factories of women on work to which they were not previously accustomed, and of men rejected by the Army on account of their inferior physique, has raised in an acute way problems of industrial welfare and health upon which efficiency and output are directly dependent—problems with us in