

oscillations, to act as cut-outs so as to prevent reverse currents, to measure small alternating currents, and for many other purposes.

The method of producing direct current by rotary converters entails having an attendant to look after the rotating machinery. Electric valves need very little attention. There are many different types of rectifier in use, each involving a different physical process. The best known are the mercury arc, thermionic valve, electrolytic valve, those that produce discharges through gases, and contact rectifiers.

The book under notice is divided into two parts. The first part gives a good account of the physical theory of the action of valves. The second part describes the various kinds of devices used in commerce. The arc valve is the most important in practice, and large mercury arc rectifiers with outputs measured in thousands of amperes are in everyday use. The author gives a very brief account of the mercury jet rectifier invented by Prof. Hartmann. This mechanical device is now well known. An interesting and novel use for valves is for producing electric waves of any desired shape. The method is fully described. This book will be specially useful to research physicists.

*The Cable and Wireless Communications of the World: a Survey of Present Day Means of International Communication by Cable and Wireless; containing Chapters on Cable and Wireless Finance.* By F. J. Brown. Pp. ix + 148. (London: Sir Isaac Pitman and Sons, Ltd., 1927.) 7s. 6d. net.

THIS book appears at a timely moment, as the question of the future of international communication is one that must soon be settled. Great Britain has always taken the lead in submarine communication. It still possesses nearly half the total mileage of submarine cables in the world. The price of cabling to New York was originally £20 per message consisting of 20 words and one pound for each additional word averaging five letters. It is now ninepence a word. This can be greatly reduced by the use of codes or by sending deferred messages. Letter telegrams are also coming into use, the communication being sent by post to the sending end of the submarine cable and being sent by post from the receiving end. In the beam radio service between Britain and Canada a post-radio-letter telegram system is used at a charge of 1½d. per word. We see no reason to doubt that the prices will be still further reduced.

Notwithstanding the remarkable rate at which radio communication has developed, submarine cables still remain the principal means of telegraphic intercourse between the widely separated countries of the world. The author of the book under notice investigates the inherent costs of radio and cable systems; but it is difficult to arrive at definite conclusions, as the radio public companies do not separate the financial results of their communication services from their manufacturing activities. The desirability of having State or private ownership of long-distance telegraphy and telephony is also discussed. Many interesting data are given, and the book can be commended to all interested in long-distance communication.

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*Cain; or, The Future of Crime.* By George Godwin. (To-day and To-morrow Series.) Pp. 108. (London: Kegan Paul and Co., Ltd.; New York: E. P. Dutton and Co., 1928.) 2s. 6d. net.

A VERY strong plea for the humanitarian and scientific treatment of the criminal. At the same time, the author's wholesale rejection of the death sentence for murder is a matter for considerable argument. He thinks that the deterrent effect of hanging is of small moment. Let him visit a few of the London bars and study the occupants, and say if fear does not keep some of them from taking the lives of their fellow-creatures. Why do race-course gangs work in gangs? For one reason—because of the individual's fear of punishment and hope of avoiding it in the crowd. There is, however, much very good sense in the book, and the author's plea for the delinquent child is sound and his peep into the future of crime not far off what will be truth.

*The Phase Rule and its Applications.* By Prof. Alexander Findlay. (Text-books of Physical Chemistry.) Sixth edition, revised and largely rewritten. Pp. xv + 326. (London: Longmans, Green and Co., Ltd., 1927.) 10s. 6d. net.

FINDLAY'S "Phase Rule" is too well known to call for a lengthy review on the appearance of a new edition. It is now five years since the *format* was changed in a new post-War edition of the book, and the subject is too well established to require a similar drastic revision at the present stage. The present edition is, however, 28 pages longer than its predecessor, and includes a new chapter on the practical application of equilibrium diagrams, in addition to the modifications and additions that have been made elsewhere. The revision has therefore been sufficiently thorough to ensure that the book shall be kept up-to-date, and the purchaser of the sixth edition need have no fear that he is securing a mere reprint of a former issue.

*Outlines of Scientific Anatomy: for Students of Biology and Medicine; designed to Supplement the usual Text-book Teaching.* By Prof. Dr. Wilhelm Lubosch. Translated from the German by Prof. H. H. Woollard. Pp. xiii + 392. (London: John Bale, Sons and Danielsson, Ltd., 1928.) 21s. net.

In this book Prof. Lubosch attempts to deal with the facts of anatomy in such a way as to bring them into the widest possible correlation with learning in general. Or perhaps it would be more correct to describe his essay as the creation of a system of philosophy based upon speculations concerning the structure and developmental history of the human body. To many biologists such a mode of approach to the study of living creatures may seem far too transcendental to be of serious value; but the philosophically-minded student may discover a new interest in the dry bones of anatomy by indulging in such day-dreaming as Prof. Lubosch's fantasies provoke.