

phonodeik and architectural acoustics, are a few of the titles attracting attention in the first half of the volume, and in the second half, dealing with electricity and light, the author revels in up-to-date applications of physical methods. Of particular interest and merit are the biographical notes scattered throughout the volume. These brief records of the leaders in physics, both ancient and modern, are well conceived and admirably executed; they are remarkably accurate, and our only regret is that they are not more numerous.

The book is designed for college students but "no great store of mathematical knowledge is required". In words which possibly reflect his own experience as a teacher, the author adds: "Beyond this the reader's equipment is supposed to include an inquiring mind, ordinary human powers of observation, and an average acquaintance with modern civilisation." Prof. Saunders is not afraid to introduce "the newer, and presumably better, conceptions usually referred to as 'modern' physics. These will prove useful and stimulating, perhaps at times even irritating." Towards the end of the book the reader is informed as to the emission of light in quanta, Bohr's theory of the hydrogen atom, wave mechanics, and finally the theory of relativity.

The book is well produced and well illustrated, and in its freshness and completeness can be confidently recommended to the general reader as well as to the teacher in search of new material. It is one of the best college textbooks yet provided by our American colleagues.

H. S. A.

Wilhelm Conrad Röntgen und die Geschichte der Röntgenstrahlen. Von Dr. Otto Glasser. Mit einem Beitrag: *Persönliches über W. C. Röntgen*, von Margret Boveri. (Röntgenkunde in Einzeldarstellungen, herausgegeben von H. H. Berg und H. Frik, Band 3.) Pp. xi + 337. (Berlin: Julius Springer, 1931.) 29.60 gold marks.

In the autumn of 1895, Prof. Wilhelm Conrad Röntgen of Würzburg, Bavaria, discovered the rays which he called the 'unknown' or 'X' rays, but which are now frequently known by his name. In this book, Dr. Otto Glasser gives much miscellaneous information about his work, and Miss Margret Boveri, who was a friend of the great physicist, gives many interesting personal details of his life. An excellent photograph, signed 'Dr. W. C. Röntgen', forms the frontispiece, and there are many photographs of historic letters, documents, and skiagrams. A picture is given of the modest but attractive laboratory in the Physical Institute in Würzburg where Röntgen rays were first discovered. An excellent skiagram of a hand taken by Röntgen himself in Hamburg on Jan. 17, 1896, is shown. The development of Röntgen photography was extraordinarily rapid. Other skiagrams, taken in January 1896, are shown, including one by Campbell Swinton. In the appendix a list of 1044 communications to the press on the subject, published in 1896, is tabulated. Of these, twenty were written by Campbell Swinton, eight being published in *NATURE*. Lodge published fifteen and S. P. Thompson seven, several

of which were in *NATURE*. A picture published in *Punch* on Jan. 25, 1896, shows that the new photography has its humorous side. A long list, but far from complete, of the well-deserved honours received by this great physicist in his lifetime is given. It includes the Rumford Medal of the Royal Society in 1896 and the Nobel Prize in 1901. His letters show that in his private life he was a modest and lovable man. The book would be improved if it had an index.

Electricity and Magnetism: an Advanced Text-book for Colleges. By Prof. Charles A. Culver. Pp. viii + 383. (New York: The Macmillan Co., 1930.) 14s. net.

THIS book sets out to give a reasonably complete presentation of the fundamental principles upon which rest the everyday applications of electricity and magnetism. Its standard is somewhat higher than that styled 'intermediate' in Great Britain, clear accounts of the elementary principles of alternating currents and thermionics being included. The author has also made an attempt to give an up-to-date and simple description of the earth's magnetic field, and throughout the book emphasis has been placed on the practical applications of physics. The diagrams are very good, but some of the photographic reproductions could be improved. Why is it that nearly all publishers appear content to reproduce X-ray photographs in a manner which gives an utterly false impression of the radiographer's work with modern apparatus? When a new edition is called for, the exceedingly poor skiagraph of a human skull should be omitted, if not replaced by a more satisfactory picture.

La synthèse des ondes et des corpuscules. Par Karl K. Darrow. Exposé élémentaire publié avec une introduction et des notes par Marcel Boll. Pp. 54. (Paris: Hermann et Cie, 1931.) 10 francs.

THIS booklet is a translation of one of the admirable articles contributed to the *Bell System Technical Journal* by Karl K. Darrow. The fact that foreign publishers consider these articles sufficiently important to warrant translation, indicates that English readers would do well to consult them. The article before us is an extremely instructive explanation of certain simple optical and electron phenomena, such as diffraction by a grating, on the basis of the corpuscular and undulatory theories. In it, the author shows how recent work has so modified our conceptions that we now look upon corpuscles and waves, not as two alternatives between which we must choose, but as complementary aspects of the truth.

Physiology.

Ephedrine and related Substances. By K. K. Chen and Carl F. Schmidt. (Medicine Monographs, Vol. 17.) Pp. v + 121. (London: Baillière, Tindall and Cox; Baltimore, Md.: Williams and Wilkins Co., 1930.) 11s. 6d. net.

IN the course of the last few years numerous papers have been published on the clinical use of ephedrine and it now has a definite place in therapeutics.