

which was tried with some success about ten years later. Many horizontal marine engines were fitted with balance weights on the cranks, but balancing became of far greater importance with the introduction of fast-running engines for driving electric generators and torpedo craft, and with the construction of very large triple-expansion engines for Atlantic liners. Readers of the life of Sir Alfred Yarrow will recall his experiments on vibration made aboard the *Majestic* during a trip to America in 1890: experiments which led to his collaboration with Dr. Otto Schlick in the introduction of a design of a balanced four-cylinder engine.

Papers on balancing were read to the Institution of Naval Architects and the Institute of Marine Engineers by Schlick, Yarrow, Malloch, McFarlane Gray, and others, and it was to the former Institution Prof. Dalby read his important papers on the balancing of marine engines of 1899, 1901, and 1902. In 1901 he dealt with the balancing of locomotives, in a paper read to the Institution of Mechanical Engineers, and the following year he published the first edition of his well-known text-book. In these papers and text-book he introduced the idea of a reference plane and a schedule by means of which a draughtsman could find the balance weights for a complex system of masses about an engine crank shaft, and his methods have been used all over the world. The work of balancing locomotives has recently assumed a new importance through the experiments of the Bridge Stress Committee, and in view of this, Prof. Dalby in the fourth edition of his text-book has added a chapter dealing with the work of the Committee and at the same time has rewritten the chapter on locomotive balancing. A new chapter written for this edition, on the balancing of internal combustion engines, will be found of great use to those concerned with the design of engines for motor cars, aeroplanes, and motor ships.

*Photochemistry.* By Dr. D. W. G. Style. (Methuen's Monographs on Physical Subjects.) Pp. vii + 96. (London: Methuen and Co., Ltd., 1930.) 2s. 6d. net.

THE introduction of a volume on photochemistry into this well-known series of monographs on physical subjects, gives us an indication of the rapid change which has occurred in the study of the chemical action of light by the introduction of the Stark-Einstein law of photochemical equivalence in the primary light process, and of the work of Franck on the interpretation of band spectra and their significance in indicating the process of molecular dissociation. This small volume is well and clearly written and is by no means uncritical. Attention is directed first to the primary light process, and the possible subsequent reactions which the photo-excited molecule may undergo are then discussed in some detail. A little more concerning chemi-luminescence and fluorescence might well have been included in these sections. The fourth chapter is devoted to a consideration of the still debatable problems connected with the

dependence of the quantum yield on temperature and wave-length, and the volume concludes with a brief summary of the experimental methods adopted in photochemistry.

Although a rather slender volume, the reviewer can subscribe to Prof. Allmand's introductory remark that the volume can be recommended with confidence to students and research workers. E. K. R.

*The Statesman's Year-Book: Statistical and Historical Annual of the States of the World for the Year 1931.* Edited by Dr. M. Epstein. Sixty-eighth Annual Publication, revised after Official Returns. Pp. xxxiv + 1462. (London: Macmillan and Co., Ltd., 1931.) 20s. net.

THE new issue of this valuable work of reference has again been thoroughly revised in the light of official statistical publications. Many annual returns for 1930 are included, and in some respects the revision is even later. Mention is made of the change of political status in Spain. The year was one of census enumeration in several countries, and new figures are included for the United States, Hungary, Norway, Switzerland, and several other countries. The introductory tables record world production of coal, oil, iron, steel, and some other commodities. An extension of these tables is one of the few improvements that it is possible to suggest. Two coloured maps show respectively the administrative divisions of Yugoslavia and the status of South American boundaries, with the areas that are still in dispute. A welcome feature of this year-book is the small bulk, which is retained from year to year.

*Modern Psychotherapy.* By Emanuel Miller. (Modern Treatment Series.) Pp. 131. (London: Jonathan Cape, Ltd., 1930.) 5s. net.

DR. MILLER is to be congratulated on a very readable and concise work. He does not unduly stress only one aspect of the subject, as so many modern writers do; but provides us with a well-balanced summary of the three main schools of psycho-analytic thought. The author takes a very sensible attitude towards the treatment of the psychoses by psycho-analysis. Although psycho-analytic theory may explain the mechanism of a great many psychotic symptoms, it does not explain their cause and certainly does not supply a useful therapy. The author wisely points out that "full understanding can only come through personal contact with cases and through sympathetic understanding of what are very real and very painful disorders". Psychological medicine is not learnt in the laboratory with the experimental psychologists; but in the infinitely more difficult school of contact with life and its problems.

*The Gardener's Year.* By Karel Čapek. Pp. 160. (London: George Allen and Unwin, Ltd., 1931.) 3s. 6d. net.

THIS very entertaining volume with its delightfully humorous pictures should be read by all gardeners. The text is as amusing as the illustrations, and though in no way scientific, much common sense underlies the humour to be found on every page.