

*The Atom.* By Prof. G. P. Thomson. (The Home University Library of Modern Knowledge.) Pp. 252. (London: Thornton Butterworth, Ltd., 1930.) 2s. 6d. net.

THE needs of the general scientific worker and the scientifically minded layman wishing to acquire a general knowledge of the advances and spirit of contemporary physics are very fittingly met by Prof. G. P. Thomson's admirable little work. The author has, in a short compass, presented an up-to-date survey of physical theory and its bearing on chemistry with an extensiveness which would not be suspected from the title. Starting with the spectrum and not forgetting cosmic rays, the reader is led through the fundamental laws of chemistry to the electron, isotopes, positive-ray analysis, crystal structure, and radioactivity to energy units, the conception of the quantum, and its development on the older theory.

The most interesting part of the book is, however, that devoted to the recent wave theory of de Broglie, its development by Schrödinger, and the ideas underlying the electron wave. The clear logical treatment throughout is assisted by a variety of happily chosen analogies. A surprising number of topics come under notice; the reader will not look in vain for reference, necessarily superficial, to Heisenberg's uncertainty relation, Pauli's principle, the work of Davisson and Germer on the electron wave, Dirac and Darwin's work on the spinning electron, and Eddington's recent treatment of  $hc/2\pi e^2$ . The modifications of the older Bohr orbit scheme necessitated by the wave mechanics are explained, and the rôle of the electron in chemical theory is interpreted. The book concludes with some considerations on the philosophical aspect of modern physics.

Mathematics has been entirely avoided, the author confining himself mainly to those concepts which lend themselves to physical interpretation. Due prominence is given to the fundamental part played by probability. The reader will not appreciate the co-ordination and development of Heisenberg's matrix mechanics and Dirac's analysis with the wave mechanics; these being unsuited to verbal explanation are wisely omitted. The possibly one-sided view resulting is largely offset by the clarity of the wave picture. A difficult task has been accomplished in a manner which will repay the study not only of the non-specialist but also of the general scientific worker who has no wish to be lost in a mathematical fog. N. M. BLIGH.

*The Year-Book of the Scientific and Learned Societies of Great Britain and Ireland: a Record of the Work done in Science, Literature and Art during the Session 1928-1929 by numerous Societies and Government Institutions.* Compiled from Official Sources. Forty-sixth annual issue. Pp. vii + 413. (London: Charles Griffin and Co., Ltd., 1930.) 18s. net.

Is this to be the last issue of this useful annual? Unless further support is received the publishers announce that they cannot continue its publication, at least in its present form, and it is proposed to

economise by printing only the titles of papers which have been published as well as read. We doubt, however, if this would enable the publishers to reduce the price of the volume substantially and in these days of heavy expenses it is the high price which, we believe, prevents a wider sale. If the "Year-Book" as it is cannot continue, we would suggest an annual volume omitting all the lists of papers. Such a classified directory giving the names and addresses of learned societies and including, as now, their officers, brief particulars as to meetings, publications, and conditions of membership, would be useful and the information could be kept thoroughly up-to-date if the volume was issued about May. For the present, however, we must be grateful to the publishers for continuing their efforts and also to the officers of societies who have given the time and trouble to enable the "Year-Book" to retain its official character.

*Joy in Work.* By Henri de Man. Translated from the German by Eden and Cedar Paul. Pp. 224. (London: George Allen and Unwin, Ltd., 1929.) 8s. 6d. net.

THE English title is to be preferred to the original German, "Der Kampf um die Arbeitsfreude"; for joy in work is spontaneous, not the result of struggle. An interesting thesis is somewhat marred by extravagant phrasing; insensibly we think of "the devil rebuking sin" when the author inveighs against German books where "the old grist is re-ground into a new and jawbreaking terminology"; let the following from "Joy in Work" suffice—"certain kindred antinomies in proletarian characterology", which doubtless well expresses the Teutonic original. The subject is treated under the aspects of "Impulse" and "Hindrances" to such joy, and it is based on reports from workers, in response to a questionnaire furnished by the author. He discusses medieval craftsmanship and modern mechanised labour, the merits and demerits of payment by time and by results, and distinguishes the factors that influence Teutonic psychosis from those that affect the Anglo-Saxon races. He wisely remarks that "payment by the piece need only endanger the quality of the product when piecework rates and minimum wages are so low that the worker has to speed-up immoderately in order to earn a subsistence"; and suggests that the owner's profits should "increase only in proportion to the increase in the workers' wages". P. L. M.

*Gmelin's Handbuch der anorganischen Chemie.* Achte Auflage. Herausgegeben von der Deutschen Chemischen Gesellschaft. System-Nummer 59: Eisen. Teil A, Lieferung 1. Pp. 224. (Berlin: Verlag Chemie G.m.b.H., 1929.) 33 gold marks.

THE section of Gmelin's 'Handbuch' dealing with iron (Part A) is an ambitious work to which eight specialists have promised to contribute. The 224 pages now issued include a remarkable historical bibliography covering 59 pages, with nearly 2000 references, about 120 pages on the occurrence of iron, and in conclusion some 40 pages on the preparation of pure iron in various forms.