

this book will be found equally suitable for the middle forms of secondary schools. Containing, as it does, excellent descriptions of the mode of working in wind-mills, the steam engine, the internal combustion engine, hydraulic, steam, and internal combustion turbines, etc., it cannot fail to interest boys and to increase their interest in their physical studies. There is enough, but not too much, speculative matter included to stimulate the thoughtful reader. We can thoroughly recommend the volume as providing a useful addition to the ordinary school course.

*An Introduction to the Physics and Chemistry of Colloids.*

By E. Hatschek. (Text-Books of Chemical Research and Engineering.) Fourth edition, entirely rewritten and enlarged. Pp. xiv + 172. (London: J. and A. Churchill, 1922.) 7s. 6d. net.

MR. HATSCHEK's book is one of the best introductory text-books on the subject in any language, and is widely appreciated. The present edition has been rewritten and enlarged, and embodies much of the recent work on the subject. It should be in the hands of all students of chemistry, and for this reason it is much to be regretted that the price is not lower.

*The Manufacture and Uses of Explosives, with Notes on their Characteristics and Testing.* By Dr. R. C. Farmer. (Pitman's Technical Primer Series.) Pp. xii + 116. (London: Sir I. Pitman and Sons, Ltd., 1921.) 2s. 6d. net.

ALTHOUGH interest in the military applications of explosives has probably waned to a considerable extent in most countries, it is perhaps not generally realised what an important part these products of chemical invention play in the arts of peace. The name of the author of this small book is sufficient to guarantee the accuracy of the information contained in it, and it is only necessary to state that Dr. Farmer has compressed into about a hundred small pages a surprising amount of up-to-date material. The style is easy, but the treatment is such that the book is far from being merely a "popular" account of the subject: it is a small encyclopaedia, which may be read with advantage by all students of chemistry as well as by those more directly interested in the manufacture and uses of explosives. The very important source of sulphur at Louisiana should have been mentioned on p. 37.

*Directive Wireless Telegraphy: Direction and Position Finding, etc.* By L. H. Walter. (Pitman's Technical Primer Series.) Pp. xii + 124. (London: Sir I. Pitman and Sons, Ltd., 1921.) 2s. 6d. net.

IT is now thirteen years since Bellini and Tosi read their paper on "A Directive System of Wireless Telegraphy" to the Physical Society of London. Although Marconi and Fleming had previously done good work on directive radio-telegraphy, it was this paper that first showed British physicists how directive signalling could be obtained by using a fixed aerial and only rotating a small coil of wire. The method, however, lay almost dormant until the war proved its great practical utility. Mr. Walter was one of the pioneers of the Bellini and Tosi system, and in the volume under notice a *résumé* is given of most of the useful practical information available. The author has utilised much of the theory recently published by the Bureau of Standards and by the Signal Corps of the

United States War Department. The mathematics given is of the most elementary description, and will be readily understood by every physicist and engineer. We can commend this book.

*Fuel and Lubricating Oils for Diesel Engines.* By W. Schenker. Pp. xii + 114. (London: Constable and Co., Ltd., 1921.) 15s.

THE title of this book is apt to convey a wrong impression, as its contents in the main are of a general character, and not specially devoted to Diesel engines. There are three sections, the first of which deals with the origin and preparation of various kinds of fuel oils, with special reference to the varieties which may be used for Diesel engines; the second section treats very briefly of lubricating oils; whilst the third consists of a description of the commercial tests applied to these oils. The book would have been of greater service to British consumers of oil had the author included a fuller account of the methods of testing and forms of specification used in this country instead of confining himself to Continental practice in these particulars. Thus Redwood's viscometer, the British standard instrument, is dismissed in a dozen lines, and Abel's flash-point apparatus is not mentioned. Descriptions of other appliances are sometimes too meagre, the bomb calorimeter being given only eleven lines, whilst a purifying apparatus, illustrated on p. 66, is entirely undescribed in the text. In spite of these drawbacks, however, the book contains much useful information of a practical kind. C. R. D.

*The Wonder Book of Science.* By J. H. Fabre. Pp. 287. (London: Hodder and Stoughton, Ltd., n.d.) 8s. 6d. net.

THE object of Fabre in writing the series of essays under notice was to impart general knowledge about things that are familiar to the eyes, though not necessarily to the understanding. The first seven essays deal with insect-life, and these are followed by a number on birds, on some of the facts of plant-life, on the various forms of water and the application of steam, on the elementary phenomena of electricity, etc. These essays, which touch on so many subjects, illustrate Fabre's method of arousing the interest of young people in the phenomena around them. In all, forty-eight essays are reproduced, but the name of the translator does not appear.

*More Hunting Wasps.* By J. H. Fabre. Translated by A. T. de Mattos. Pp. viii + 376. (London: Hodder and Stoughton, Ltd., n.d.) 8s. 6d. net.

THROUGH the energies of the late Alexander de Mattos a number of Fabre's most interesting studies in insect-life have been rendered accessible to the general reader in this country. The present volume consists of fourteen chapters, which complete the essays in the "Souvenirs Entomologiques" devoted to wasps. The remainder have already been translated in two earlier volumes entitled "The Hunting Wasps" and "The Mason Wasps." Two of the essays in this book, which form chaps. 2 and 10, have already appeared in previous translations, while the remainder are rendered in English for the first time. Most admirers of the writings of the French *savant* will welcome the appearance of this book and revel in the fascinating