

only medicine made any real progress, and a four-page chapter is sufficient to record the work of the Romans. The last chapter, a long one, is devoted to Greek scientific literature of the Byzantine empire, it being stated that the founders of modern science, such as Galileo, Copernicus, and Newton, learnt from the Greeks not only particular results but also the very meaning of science.

Naturally Prof. Heiberg's little book makes no pretence of being a complete history of science in classical antiquity. It puts the achievements of the different schools of thought into a true perspective, and the language throughout is free from technicalities. The book would be improved by the insertion of more dates, even when these are only known approximately. (A companion volume deals more fully with the medical and biological sides of the subject.) W. E. H. B.

*Tested Methods of Metallurgical Analysis (Non-Ferrous).*

By S. Pile and R. Johnston. Pp. 128. (London: H. F. and G. Witherby, 1922.) 7s. 6d. net.

IN referring to the literature of metallurgical analysis the student, and even the worker of experience, frequently finds himself at a loss to select, from the mass of alternative detail offered, a method suited to his immediate requirements. The authors of the present work, while disclaiming any novelty in the methods given, have collected together a series of well-tryed methods of which they have had personal experience. The book deals mainly with commercial metals and their more important alloys. It opens with a few introductory remarks on general analytical procedure, and on sampling. In the latter no mention is made of the frequent necessity for rejecting the first few drillings of a bar to avoid the introduction of skin impurities, as distinct, of course, from segregated elements. The suggestion of dissolving up a large quantity of metal, and working on an aliquot portion of the solution, is a good one, and worthy of more general adoption. The metals are dealt with in alphabetical order, several good methods being given for each metal, and special attention is paid to details of manipulation. The inclusion of "moisture" among the determinations is rendered possible by the somewhat "scrappy" reference to fuels and oils. A similar extension in the case of sulphur is treated at greater length. No mention is made of gold or its alloys.

With some exceptions, perhaps of secondary importance, the book is a sound and careful compilation, and should meet all the requirements of those needing, at the working bench, a trustworthy guide to assays coming within the scope of the book, familiar or otherwise.

*Faune de France. 4: Sipunculien, Échiuriens, Priapulien.* Par Prof. L. Cuénot. Pp. 31. (Paris: P. Lechevalier, 1922.) 3 francs.

To this excellent series, promoted by a federation of the French natural history societies, Prof. Cuénot, of Nancy, contributes an account of the curious marine animals that used to be classed together as Gephyrea. Nowadays it is supposed that the resemblances between the three groups mentioned in the title are due to convergence, and that each group was derived independently from some primitive ancestor of the annelids.

Prof. Cuénot, whose writings of twenty years ago on some of these creatures are well known to zoologists, has here given a clear, interesting, and well-illustrated summary of the species living round the coasts of France. British zoologists, though they have the works of Shipley and the more recent paper by Southern, may none the less welcome this convenient aid to the study of a remarkable assemblage. F. A. B.

*Manuel de filature.* Par F. Rubigny. (Bibliothèque Professionnelle.) Pp. 366. (Paris: J. B. Baillièrre et fils, 1922.) 10 francs.

THE volume under notice is one of a series of technological works, written primarily for the use of workers in the several industries, and deals with the spinning of all kinds of fibres, including asbestos and artificial silk, and also with the spinning of paper yarn. The treatment follows similar lines to those adopted by other writers on spinning, but with rather more attention to function and less description of machinery details than is the case with English works on the subject. Though this book cannot, any more than similar works on spinning technique, be taken as a trustworthy guide with respect to the raw materials, yet considering the wide field covered in less than 400 octavo pages, the treatment is otherwise remarkably adequate; and the book should be found a useful supplement to the usual works on spinning.

*Cours de physique mathématique de la Faculté des Sciences.* Par Prof. J. Boussinesq. Compléments au tome 3: Conciliation du véritable déterminisme mécanique avec l'existence de la vie et de la liberté morale. Pp. xlviii + 217. (Paris: Gauthier-Villars et Cie, 1922.) 30 francs.

THIS book is in the nature of a supplement to a complete course of mathematical physics by the University of Paris professor. It contains an extraordinary variety of matter, not very well arranged, but its main purpose is to round off a natural philosophy course by including, or rather by reconciling, the mechanism of physical nature with the indeterminism of life and consciousness. To a certain extent this has been the intellectual problem since Leibniz. Prof. Boussinesq can scarcely be said to claim to bring forward anything distinctively new, but he discusses the problem with full scientific knowledge and keen philosophical interest.

*Smith's Intermediate Chemistry.* Revised and rewritten by Prof. J. Kendall and E. E. Slosson. Pp. xv + 566. (New York: The Century Co.; London: G. Bell and Sons, Ltd., 1922.) 8s. 6d. net.

THERE can be no doubt that this book, the first edition of which was reviewed in NATURE of October 14, 1920, p. 208, has been greatly improved by revision. It is now more balanced in treatment, is very well printed and bound, and is probably the best elementary treatise on chemistry of the day. The inaccurate historical note on oxygen (p. 28), which was mentioned in the former review, has been toned down, but is still somewhat incorrect. Apart from the very clear and modern account of the chemistry of the common elements, the book contains a large number of brief notes on important matters (vitamins, enzymes, atomic structure, isotopes) not often met with in elementary manuals.