

Our Bookshelf.

Alloys Resistant to Corrosion: a General Discussion held jointly by the Faraday Society and the Sheffield section of the Institute of Metals, April, 1923. Pp. 153-230. (London: The Faraday Society, 1923.) 5s. 6d. net.

THE demands of various industries for metals presenting a higher resistance to corrosion than the steels and non-ferrous alloys in general use have led to the introduction of a number of new alloys within a few years, and this collection of papers communicated to the Faraday Society gives interesting information as to the character and composition of those that have proved of value. The importance of the two metals nickel and chromium in this branch of metallurgy is very striking. One or the other is present in nearly all the alloys mentioned as being highly resistant to corrosion, whilst alloys containing high percentages of both metals, such as nichrome, are amongst the most resistant of all, not only at ordinary temperatures, but also in contact with oxidising gases at high temperatures. The so-called stainless steels contain chromium as the alloying element, whilst the further addition of nickel has resulted in the production of new steels of high quality, at present too costly for most commercial purposes. The ternary system iron-nickel-chromium is surveyed in one of the papers in this volume, and it would seem that a wide range of useful compositions is to be found within the limits of that system, although there has been little methodical investigation of the alloys as a whole. Monel metal is an example of the non-ferrous alloys that may be used where there is likelihood of corrosion, and it may be noticed on reading these papers that attempts have been made, with some success, to increase the resistance of the ordinary nickel silver by adding small quantities of tin. The theory of corrosion is in a backward condition, and the new alloys have been arrived at by a process of trial and error, theory giving at present little guidance. A paper on the corrosion of metals under comparatively dry conditions, by Mr. U. R. Evans, is the most scientific of those contributed to the discussion, the remainder being essentially records of observations, and including valuable results of workshop experience.

Les nouvelles conceptions de la matière et de l'atome. Par Prof. A. Berthoud. (Encyclopédie Scientifique: Bibliothèque d'histoire et de philosophie des sciences.) Pp. v+314. (Paris: Gaston Doin, 1923.) 13-20 francs; paper, 12 francs.

THIS book should form an excellent introduction to the modern theory of the structure of the atom, and can be confidently recommended for this purpose. The development of atomic theory is traced from its origin in chemical theories up to the point at which the various unsuccessful atomic models, with electrons in coplanar rings, became current, shortly after Bohr's successful model of the hydrogen atom. This is an early stage at which to stop in view of the date of publication. The author does not include the more recent developments in the detailed electronic structure, which have carried atomic theory successfully a long stage further. But the book is not the less

valuable. The reader will naturally not turn to such a book for the very latest developments. The whole subject matter is chosen with judgment, and the various lines of investigation—electromagnetic theory, relativity, radio-activity, isotopes, X-rays, α -particles, and atomic numbers—which have led up to modern views are shown in their proper perspective. The book ends with a good survey of recent structural speculations on the chemical side, and keeps in view throughout the essential unity of chemistry and physics.

Chambers's Encyclopædia: a Dictionary of Universal Knowledge. New edition. Edited by Dr. David Patrick and William Geddie. Vol. 3: Catarrh to Diophantus. Pp. iv+836. (London and Edinburgh: W. and R. Chambers, Ltd.; Philadelphia: J. B. Lippincott Co., 1923.) 20s. net

THE general usefulness of this work of reference is fully maintained in the third volume. Numerous short articles, instead of long sub-divided articles, make it an encyclopædia to which reference is quick and easy. The searcher can find the facts he wants with a minimum expenditure of time and trouble. Many of the old articles have been retained in a revised form, but a number of new ones have been added and others rewritten. There are new coloured maps of China, Czechoslovakia, and Denmark, and a number of useful woodcuts and diagrams. The advantage of having a complete but concise encyclopædia in one alphabet should make this work most useful to student, worker, and teacher. The paper is thin but opaque, and the type is large enough for easy reading.

Life of the Wayside and Woodland: When, Where, and What to Observe and Collect. (The Wayside and Woodland Series.) By T. A. Coward. Pp. viii+216 +111 plates. (London and New York: F. Warne and Co. Ltd., 1923.) 10s. 6d. net.

THE sub-title of this book indicates accurately its scope. The round of the year is divided into six bi-monthly periods, January and February—November and December; and in each such period paragraphs are allotted to the mammals, birds, reptiles, and other animals, both vertebrate and invertebrate, and also to the plants, both flowering and otherwise, that are then likely to come under observation. The illustrations, whether coloured or black-and-white, are excellent, being the work of some of the most expert nature-photographers. As a practical popular guide to the plant and animal life of the countryside, the book can be highly commended.

Van Nostrand's Chemical Annual: a Hand-Book of Useful Data for Analytical, Manufacturing, and Investigating Chemists, Chemical Engineers, and Students. Edited by Prof. John C. Olsen. Fifth issue, 1922, thoroughly revised and enlarged. Pp. xxii+900. (London, Bombay and Sydney: Constable and Co., Ltd., 1923.) n.p.

THESE tables contain much useful data, some of which are not to be found in chemical reference books of the same size. Some of the technical data refer to American practice, but for this reason will also be useful to British readers who consult American literature.