

Our Bookshelf.

Columns: A Treatise on the Strength and Design of Compression Members. By Dr. E. H. Salmon. (Oxford Technical Publications.) Pp. xvi + 279. (London: Henry Frowde and Hodder and Stoughton, 1921.) 31s. 6d. net.

THE question of the strength of columns is one of considerable difficulty, on both the theoretical and the experimental side, and the author is to be congratulated on the value of his contribution to this subject.

Dr. Salmon's book consists of three parts: Part 1 is a bibliography arranged chronologically and gives the author's name and the title of the work. Part 2 is an analytical discussion covering various methods of fixing the ends; in each case ideal conditions are first assumed, and then departures from these conditions are considered until the ordinary column is reached. Part 3, synthetical, contains accounts of various formulæ used in practice and the experimental evidence on which they are based. The last two parts are taken substantially from a thesis submitted for the D.Sc. (Engineering) degree of the University of London. Part 1 in the thesis was historical, consisting of short summaries of each important memoir, including experimental work; it is unfortunate that, owing to the present impossibility of publishing the complete work, this section has been compressed into a bibliography of sixteen pages. The treatment in Part 2 is mathematical without unnecessary refinements.

Apart from the advantage of the presentation in one volume of much valuable work, hitherto scattered in many books and journals, the author's systematic treatment has led him to elucidate various new points, and will undoubtedly stimulate the reader in the same direction. For the same reason the suggestions given for future research must carry weight. Dr. Salmon considers that the most pressing point for future research on columns is the question of the degree of imperfection common in practical direction-fixed ends. This matter is of great importance in other structural members as well as in columns, e.g. arch ribs and encastred beams. We can thoroughly recommend the volume to all who are interested in the subject of the strength of materials.

A Text-Book of Mineralogy: With an extended Treatise on Crystallography and Physical Mineralogy. By Prof. Edward S. Dana. Third edition, revised and enlarged by Prof. William E. Ford. Pp. ix + 720. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1922.) 25s. net.

THIS well-known book was first published in the year 1877, and a second edition appeared in 1898. The present third edition leaves the form essentially unchanged, the close relation between the author's "System of Mineralogy" and this book having rendered it inadvisable to revise the chemical classification of the minerals until a new edition of that larger work can be undertaken. The distinguished author is now professor emeritus at Yale; he still retains the post of curator of Mineralogy, however, but being well advanced in years the revision of the book has been undertaken by Prof. Ford.

The principal changes appear to be the introduction of a section on stereographic and gnomonic projections, and improvements in the description and explanation of the optical properties of crystals. The reference to the very important recent work on the elucidation of crystal structure by means of X-rays, however, occupies only slightly more than one page, without a single illustration. On the other hand, however, there is a much longer and really valuable section on the determination of the refractive indices of microscopic crystals by the more recent improved microscopic methods of F. Becke and F. E. Wright.

We are glad to see that the references to classes of lower than full systematic symmetry as "hemihedral" and "tetartohedral" (possessing a half or a quarter of the full number of faces) is now only a passing one, as to an antiquated, misconceived, more or less discarded and inadequate method of description. The crystal classes are now referred to as possessing each their own definite elements of symmetry, the only truly scientific method of distinguishing them.

A. E. H. T.

General Economic Geology: A Text-book. By Prof. W. Harvey Emmons. Pp. xiii + 516. (New York and London: McGraw-Hill Book Co., Inc., 1922.) 20s.

STUDENTS and others interested in economic geology will appreciate Prof. Emmons's volume. The scope of the work is extremely wide and all of the following are dealt with: coal, petroleum, natural gas, metalliferous and non-metalliferous minerals of economic importance, and building stones.

The text as a whole shows a great resemblance to that of two of the author's previous works, e.g. "Geology of Petroleum" and "Principles of Economic Geology," but the section on coal is entirely new. The chapter on oil appears to be a précis from the former of the two books mentioned, and some parts dealing with mineral deposits have largely the same text and diagrams of the corresponding earlier work. The chapters on the non-metallic minerals, however, have been greatly enlarged, and contain much additional information.

It is evident that the author has written his "General Economic Geology" primarily for an American public, since all his examples, where possible, are from American localities, with little or no mention of occurrences of equal or greater importance in other parts of the world. An outstanding example of this is the 70 pages which he devotes to the coalfields of North America to the exclusion of fields elsewhere.

The value of the book is greatly enhanced by the addition of an excellent bibliography, which will allow of a more specialised study of particular areas when required. Moreover, the text throughout is plentifully supplemented with maps, diagrams, and half-tone blocks.

Imperial Institute Handbooks. The Agricultural and Forest Products of British West Africa. By Gerald C. Dudgeon. Second edition. Pp. xii + 176 + plates. (London: J. Murray, 1922.) 7s. 6d. net.

SINCE the first edition of this handbook appeared in 1911 many changes have taken place. The development of British West Africa has experienced a serious