

work of this kind. One might wish for a greater allocation of space to crystal structure and related topics. There is no cross-reference between the articles dealing with crystallite size and particle size.

Altogether, an examination of these four volumes

confirms the conclusion of the reviewer of Volume 1 'it will serve as a valuable and useful guide to any scientist reader.' Apparent deficiencies in content may well disappear when the index to the entire set is available.

A. J. C. WILSON

## Books Received

*The undermentioned works have been received by the Editors. Mention here does not preclude review at a later date.*

**Introduction to Molecular Spectroscopy.** By GORDON M. BARROW. Pp. [xiv] + 318. London: McGraw Hill, 1962. Price 83/6d.

This book attempts to give the basic theory which the ordinary chemist will need, to appreciate properly the results of ultraviolet, optical, infrared, and microwave spectroscopy. For the chemist who is not frightened of mathematics it should fulfil its purpose very well. There is a long chapter (43 pages) dealing with molecular symmetry and group theory. Only a few actual substances (benzene, formaldehyde, hexatriene, and some di- and triatomic molecules) are mentioned by way of illustration.

**Absorption Spectroscopy.** By ROBERT P. BAUMAN. Pp. xiv + 611. London: Wylie, 1962. Price 94/-.

This book on absorption spectroscopy is in complete contrast with that of Barrow mentioned immediately above. It is a fairly elementary college textbook, with the emphasis on the experimental details. Only 47 pages are devoted to theory. Within their common field, therefore, they complement each other very well.

**Thermophysics.** By ALLEN L. KING. Pp. [xviii] + 369. London: W. H. Freeman, 1962. Price 68/-.

Thermophysics is a term suggested by Guggenheim to include thermodynamics, thermohydrodynamics, thermoelectrostatics, thermoelectrodynamics, and thermochemistry. It has been used by the author of this book, intended for use by undergraduates in their last year or two, to cover a rather extended course in heat and thermodynamics. Besides the topics always included under these headings, there are treatments of the kinetic theory of gases, including mean free path and transport phenomena, statistical thermodynamics, Brownian motion and the shot effect, quantum statistics, the low-temperature properties of helium and superconductivity, irreversible flow processes, and phenomena at very high temperatures, including plasmas. The book appears well suited to its purpose.

**Catalysis by Metals.** By G. C. BOND. Pp. [x] + 519, with many figures. London: Academic Press, 1962. Price 100/-.

This book gives a full account of catalytic processes in chemistry, the catalysts being mainly metallic, and the products being mainly organic. The literature is covered up to the end of 1960, and the experimental results are carefully separated from the theories explaining them, the author regarding the latter as being the less certain part of his subject. There is some discussion of the relative catalytic efficiency of various faces of single crystals, but otherwise little of direct crystallographic interest.

There is an extensive author index, and a rather brief subject index.

**Errors of Observation and Their Treatment.**

By J. TOPPING. Pp. 119, with 16 figures. London: Chapman and Hall, 1962. Price 7/6d.

This is the fifth reprinting of a little book first published in 1955 intended primarily for students in technical colleges. The steady demand shows that it has fulfilled its purpose, and recommends it more than any review could. The three chapters are entitled Errors of observation, Some statistical ideas, Theory of errors. The definition of the Cauchy distribution is unusual, in that the range is taken as  $-1$  to  $+1$  instead of from  $-\infty$  to  $+\infty$ , and the ordinates are doubled to keep the area unity.

**On the External Characters of Minerals.** By A. G. WERNER, translated by A. V. Carozzi. Pp. [xxxii] + 118. Urbana: University of Illinois Press, 1962. Price \$4.50.

This book is, in a sense, the second edition of a work first published in 1774. The original German title was *Von den äusserlichen Kennzeichen der Fossilien*, and is described as the first modern textbook on descriptive mineralogy. In spite of much urging, Werner never

published a revised edition during his lifetime, but kept his personal copy up to date with corrections in his own handwriting and with new material on inserted pages. This copy was purchased by the library of the University of Illinois, and the present English translation incorporates all the additional material. A portrait of Werner and reproductions of the original title page, one other original page, and a page of manuscript are included.

The crystallography is rather primitive, even by the standards of the time. Nevertheless, this edition forms a very valuable source book for the history of descriptive mineralogy, and the price is not excessive. It ends with a three-page glossary giving the modern equivalents of the old mineral names.

**Lötrohrprobierkunde. Mineraldiagnose mit Lötrohr und Tüpfelreaktion.** By MARTIN HENGLIN. Pp. 108, with 12 figures. Berlin: Walter de Gruyter and Company, 1962. Price DM 3.60.

This little book on blowpipe analysis forms Volume 483 of the 'Sammlung Göschen'. It is the fourth edition of a book of which the first edition was published in 1912, and the continuing demand is an indication of its usefulness to students and to prospectors and others without ready access to a chemical laboratory. All the usual blowpipe methods are described in the first part of the book (about 40 pages), and these are followed by a 'special part', dealing with particular minerals and groups

of minerals. The last dozen pages of the text are devoted to a detailed description of the reactions and behaviour of 26 chosen minerals. The index contains about 1500 mineral names, corresponding to 800 different minerals.

**Treatise on Sedimentation.** By WILLIAM H. TWENHOFFEL. In two volumes, [xx]+460; xii+461-926. New York: Dover Publications, 1961. Price \$2.35 per volume.

This is an unabridged and unaltered paper-back reprint of the second (1932) edition of a work originally published in 1926. It and the following reprint will be of interest to crystallographers who are also mineralogists or geologists, but there is nothing relating to crystal structure in either.

**Principles of Stratigraphy.** By AMADEUS W. GRABAU. Two volumes, pp. xxxiv+581; 582-1185. New York: Dover Publications, 1960. Price \$2.50 per volume.

These two volumes are paper-back reprints of the 1924 edition, revised by A. G. Seiler. The reprint contains a short preface by Professor Marshall Kay of Columbia University, but is otherwise unchanged.