Gem Testing

By B. W. Anderson. Fifth edition. Pp. 268. (London: Heywood and Co., Ltd., 1951.) 21*s*. net.

THE author, as director of the London Chamber of Commerce Precious Stone Laboratory, has unique experience in gem testing. That five editions of this book have been called for in ten years shows that it has filled a need both of the scientifically untrained jeweller, to whom it was originally addressed, and of the more advanced student.

Because of the value of the material, routine gem-testing must be non-destructive and is limited to physical methods. About half the text is devoted to their careful description and explanation. The basic physical properties, refractive index and specific gravity, serve to distinguish most of the natural gem species, although their determination is often made difficult by the mounting of the stone or limitations of the apparatus—for example, in the measurement of high refractive indices. A most useful additional property in such cases may be the absorption spectrum. Its use has been pioneered by the author to the extent that it now ranks as the key method in a number of cases. In this book is the only adequate description known to the reviewer.

With certain exceptions all these methods fail in that most important aspect of gem-testing, the distinction between natural stones and their synthetic, as opposed to imitation, counterparts, and the microscope becomes the *pièce de résistance*. Its use for this purpose is fully explained, and of the sixty-two text figures nearly half are photomicrographs; these are excellent in quality and selection.

The latter half of the text covers the identification of, and distinction between, all the principal gem-stones, including those of organic origin such as pearl and amber. In this, as in the first section, useful hints and examples abound. There are also an alphabetical summary of properties in tabular form, a glossary, tables of specific gravity and refractive index, and suggestions for further reading. Despite its superficial simplicity, this is an authoritative work, well produced in clear type.

G. F. C.

Geography from the Air

By F. Walker. Pp. vii+111+96 plates. (London: Methuen and Co., Ltd.; New York: E. P. Dutton and Co., Inc., 1953.) 30*s*. net.

THIS book provides a useful introduction to the correlation of geographical data with the air photographs from which maps are finally constructed. Such a technique is most favoured in undeveloped countries where information is otherwise not rapidly obtainable; but in Great Britain, the only source tapped by the author, many geographical and ecological features have been made or modified by man, and excellent maps prepared by more pedestrian methods exist. It would be desirable to include and discuss examples—which are certainly available from the British Dominions and Colonies—of untouched virgin country in diverse geographical, geological and climatic provinces; and to consider the uses of oblique photography, monochromatic filters, the habits of vegetation growing under natural control, and weathering action differing from that of the British Isles.

As regards details: it is not necessarily true (p. 11) that geological facts evident on air photographs are equally well observed on the ground, nor (p. 1) that there is no vertical scale distortion in a stereo-pair—it can be troublesome over mountainous country. Reference to the page-numbers of the text-descriptions ought to be made on the plates, only three of the ninety-six embodying pairs for viewing with a pocket stereoscope. Since the main force of the technique lies in the three-dimensional appreciation, the inclusion of more of such pairs would be preferred, though the effect of the process screen is disturbing. Plate 37 (p. 1 of text) should be Plate 38.

In recognizing that examples from overseas are lacking and that archæology and photogeology have received but scant attention, the author has disarmed criticism, for the subject is expertly handled within the limits chosen; but it is worthy of a wider range of treatment. This would be welcome in a later edition, which might well include a selected bibliography.

D. W. BISHOPP

Ants

By Derek Wragge Morley. (New Naturalist Series.) Pp. xii+179+15 plates. (London: William Collins, Sons and Co., Ltd., 1953.) 18*s*. net.

THE pleasantly discursive story of the author's own observations on the habits of ants, in Chapter 1, might have formed the happy beginning of a book for the non-technical reader with an interest in natural objects; the notes on the various species and the illustrated key, though not free from defects, could serve the same purpose. But as a scientific monograph that is said to give "a clear and excellent summary of the knowledge of these fascinating creatures", this book is scarcely a success. There is little of moment that cannot be found in Donisthorpe, Wheeler and nineteenth-century authors; the book lacks coherence and precision; and some of the truly fascinating aspects of ant biology, such as the structure and development of the colony and the determination of the castes, are virtually omitted (except for some details of mixed colonies). The chapters on anatomy are heavily weighted with details that are of interest principally in systematic work: in many cases the terminology is old-fashioned (for example, "chitin" for 'cuticle', p. 33; "bourreleted glands", p. 124), and there are a number of odd mistakes (for example, "mesonotal sternite", Fig. 5). The growth of ants is dismissed with extreme brevity; the distribution maps, given for every species, are often incomplete (for example, *Monomorium pharaonis*, which now has a respectable Scottish literature, is shown nowhere north of Essex). Some of the photographs, however, are excellent; it is a pity that the text is scarcely of the same standard.

J. A. DOWNES

Chemistry of Carbon Compounds

A Modern Comprehensive Treatise. Edited by Dr. E. H. Rodd. Vol. 1, Part B: Aliphatic Compounds. Pp. xvii+779–1462. (New York and Amsterdam: Elsevier Publishing Co., Inc.; London: Cleaver-Hume Press, Ltd., 1952.) £5 15*s*.

THE second part of Vol. 1 of this work carries on the discussion of the aliphatic series begun in the first (reviewed in *Nature*, **170**, 508; 1952) and deals with the more complex (and therefore more interesting) compounds of this type. After a description of the hydroxy-, amino-, aldehydo-, keto- and poly-carboxylic acids, there follows a series of chapters on the carbohydrates and their multitudinous derivatives. Authoritative coverage of this latter topic has been ensured by the expert knowledge of