

Book Reviews

RESIDUE REVIEWS: RESIDUES OF PESTICIDES AND OTHER FOREIGN CHEMICALS IN FOODS AND FEEDS. Volume 2. Edited by FRANCIS A. GUNTHER. Pp. iv + 156. Berlin, Göttingen and Heidelberg: Springer-Verlag. 1963. Price DM 22.

The second volume of "Residue Reviews" is essentially similar in scope to the first (see *Analyst*, 1963, **88**, 486). All the chapters deal with pesticide residues and, with one exception, all are presented in English. Polarographic methods for the determination of insecticide and fungicide residues are reviewed, in French, by P. H. Martens and P. Nangiot (pp. 25); and, incidentally, this imparts a bilingual atmosphere to the subject index at the end of the volume. The applicability of the method to copper, mercuric, arsenic, selenium and organo-tin compounds, to phosphides and to products containing elemental sulphur are briefly considered, followed by specific accounts of the use of polarography for nicotine, the pyrethrins and a full review of the work on various synthetic organic pesticide residue determinations in soils, seeds, fruit and vegetables.

The volume begins with a short account by A. L. Taylor (U.S. Department of Agriculture) on nematocide residues in plants (pp. 8, including three pages of summaries and references), about which there appears to be little published information. C. H. van Middelem writes on the nature, incidence and effects of parathion residues on leafy crops (pp. 22), the amount of published and unpublished information on which (he remarks) is exceeded only by that for DDT. This is a useful summary of the whole subject; chemistry, mode of action, toxicology, translocation and decomposition, residue determination and results, together with the implications of the latter in the United States. J. W. Mitchell and P. J. Linder write on the movements of plant growth regulating substances (pp. 26). The accumulation of residues is influenced by translocation and exudation mechanisms; by external factors such as those arising from the choice of wetting agent, dispersion solvent and the pH condition of the preparation applied; and other environmental factors.

Melvin E. Getz reviews published work on the determination of organophosphate pesticides and their residues by paper chromatography (pp. 17), emphasising the difficulties arising from the need to characterise not only the pure (or commercial) pesticides themselves, but also any toxic break-down products. The positive identification of individual constituent compounds still requires further attention. This is a straightforward review of published chromatographic systems, including clean-up methods and chromogenic agents. The longest chapter (pp. 54), by R. C. Blinn and the Editor, is on the use of infrared and ultraviolet spectrophotometric methods of residue analysis. This is a useful summary. It opens with a brief introduction to the theoretical basis for the spectra and the consideration of such practical details as the radiation sources and optical materials. Considerable use is made of tabulation in the presentation of the review of infrared work (5 Figs. and 7 Tables in all) and there are some hundred classified references to the use of the method in residue and formulation analysis and in metabolic studies. There is less to say of ultraviolet methods, but again a tabular summary of published methods for pesticide residues is provided. The authors remark, somewhat quaintly, that in the United States the field of residue chemistry has recently emerged from its gestation period; perhaps the same could be said of "Residue Reviews," although it remains to be seen what will be the eventual width of scope of the publication and how broad will be the shoulders of this lusty infant. H. EGAN

LINE INTERFERENCE IN EMISSION SPECTROGRAPHIC ANALYSIS: A GENERAL EMISSION SPECTROGRAPHIC METHOD INCLUDING SENSITIVITIES OF ANALYTICAL LINES AND INTERFERING LINES. By J. KROONEN and D. VADER. Pp. viii + 213. Amsterdam, London and New York: Elsevier Publishing Company. 1963. Price D.fl. 30; 60s.; DM 33.50.

This publication is the outcome of several years experience in the authors' laboratory with a general emission spectrographic method for the analysis of miscellaneous powdered samples. The sample is diluted with a lithium carbonate-graphite mixture, which acts as an internal standard and buffer, and this is excited in a d.c. arc.

The authors have studied the characteristics of 38 of the more common elements and most of the book (190 pages, in fact) is taken up with tables giving data on their analytical lines. For each analytical line is given its wavelength, excitation potential (where known), sensitivity, useful concentration range and a list of interfering lines within the interval $\pm 0.65 \text{ \AA}$. The sensitivities of interfering lines and differences in wavelength from the analytical line are also included. Over

500 lines are listed with about 8500 interfering lines, of which nearly 1000 are recorded for the first time. Full details of the method used are given in the early pages of the book.

Two basic shortcomings are almost inevitable in any book of this kind: the incomplete coverage of the elements that are detectable by emission spectrography, and the fact that the information it contains does not necessarily apply when alternative methods of excitation are used. For instance, no information is given on any of the metals of the rare-earth or platinum groups (with the exception of platinum itself). The sensitivities quoted both for analytical and interfering lines apply only when the recommended method, or a method giving a similar arc temperature (about 5500° K), is used. For example, the authors recognise that their tabulated lists of sensitivities are different from those published by the N.B.S. based on a copper arc.

In laboratories where semi-quantitative spectrographic methods differ from those described, little value will be gained from this book, because the recorded sensitivities are not applicable and most of the interfering lines will be found in the more extensive M.I.T. wavelength tables.

When, however, the recommended method is, or can be, used and particularly where the development of a general spectrographic method of analysis is intended, the book will be invaluable.

The size of the book (12 inches \times 8½ inches) is rather large for many book cases, but the layout and the printing make the tables easy to read.

J. A. F. GIDLEY

MICROCHEMICAL TECHNIQUES. Edited by NICHOLAS D. CHERONIS. Microchemical Journal Symposium Series. Volume II. Pp. xviii + 1181. New York and London: Interscience Publishers, a division of John Wiley & Sons. 1962. Price £15.

This book contains the proceedings of the 1961 International Symposium on Microchemical Techniques organised by the Metropolitan Microchemical Society at the Pennsylvania State University, U.S.A. The contents are divided into Introduction (Welcoming Addresses and 2 "historical" papers), Plenary Lectures (4), Microscopical Techniques (10 papers), Techniques of Inorganic Elemental Analysis (7 papers), Techniques of Organic Elemental Analysis (17 papers), Techniques of General Organic and Functional Group Analysis (8 papers), Chromatographic Techniques (8 papers), Titrimetric, Polarographic, Electrochemical and Radiochemical Techniques (19 papers), Microchemical Implements and Techniques for the Determination of Molecular Weight and Physical Properties (13 papers), Micro and Semimicro Methods in Teaching (6 papers) and Round Table Discussions (5 topics). The discussion is reported for several of the papers; an author and subject index complete the book.

The Section of Analytical Chemistry of the International Union of Pure and Applied Chemistry extended its sponsorship to the Symposium, a clear indication of the high quality of the papers. The book itself maintains the standard of production set by Volume I of the Series (see *Analyst*, 1962, 87, 415). It is a credit both to the publisher and to the editor, whose unfortunate death occurred before the publication was completed. Although the price places it well outside the pocket of the individual purchaser, the book seems certain to become a valuable library reference work.

A point of some concern to myself, and no doubt to others, is the time lag that often elapses before symposium proceedings are finally published. In the present instance, I was particularly interested in some of the papers in mid 1962, by which time only the paging of the text had been reached. Although it is virtually impossible to get all of some 100 authors to submit their manuscripts by any agreed date and the volume of editorial work is large, surely something can be done to hasten publication. One possible solution is that successfully adopted in connection with the International Gas Chromatographic Symposium held at Houston, Texas, U.S.A., in January, 1963. It was stipulated that all of the papers must deal with original material and be submitted to *Analytical Chemistry* for review before the meeting. The few papers not meeting the deadline were reviewed during the symposium itself. In this way it was possible to publish the 23 symposium papers in the April issue of *Analytical Chemistry*.

M. WILLIAMS

ROCK-FORMING MINERALS. Volume 4. FRAMEWORK SILICATES. By W. A. DEER, M.Sc., Ph.D., F.R.S., R. A. HOWIE, M.A., Ph.D., F.G.S., and J. ZUSSMAN, M.A., Ph.D., F.Inst.P. Pp. x + 435. London: Longmans, Green & Co. Ltd., 1963. Price 95s.

The publication of Volume 4 sees the completion of this work on the rock-forming minerals, selected as they are on the basis of their presence or absence determining or modifying the name of a rock.

This volume deals with the so-called framework silicates, *viz.*, the feldspars, the zeolites, the silica minerals quartz, tridymite, and cristobalite, the sodalite and nepheline groups, and the single minerals petalite, leucite, cancrinite, scapolite and analcite, on the lines used in the volumes published earlier (see *Analyst*, 1963 **88**, 246).

The 1620 chemical analyses spread throughout the five volumes are the main feature for the analyst; but there is, besides these plenty that is of wider chemical interest in this work, which presents an up-to-date account of modern views on the many important minerals that have been selected for consideration.

The printing and the diagrams are well done, as, indeed, they should be at the price charged for each volume.

L. S. THEOBALD

PROBLEMS IN INORGANIC CHEMISTRY. By HOWARD NECHAMKIN. Pp. x + 171. Princeton, N.J., New York, Toronto and London: D. Van Nostrand Company Inc. 1963. Price 30s.

The problems set and illustrated in this book are designed to illuminate the general range of topics covered by an up-to-date course on Inorganic Chemistry and they should help the advanced student to a fuller understanding of his subject. Among analysts, only those who have some knowledge of modern ideas on inorganic chemistry are likely to be interested. L. S. THEOBALD