

REVIEWS

Qualitative Analysis by Spot Tests—Inorganic and Organic Applications. By Fritz Fiegl. Third, completely revised English edition, translated by Ralph E. Oesper. (Elsevier Publishing Co., Inc., New York, Amsterdam), 1946. Pp. 574 + xvi. Price \$8.00.

The first English edition of the book appeared in 1937 and the second in 1939, the latter translated from the third German edition. Several reprints of the second translated edition were issued. Now, with the return of peace, the third edition—the one under review—has been brought out. The frequency with which several editions of a book and numerous impressions of the same edition appear, undoubtedly speaks of the demand for the popularity of the book.

Analytical chemistry is an unobtrusive branch of chemistry with few flowers and hardly any fruit. It attracts few votaries, as its pursuit seldom yields spectacular results. Yet those ardent few who more than nibble at this branch sometimes lay foundations in chemistry as firm and permanent as those others who gave it its laws. That is what is exceptionally revealed by a study of the 'art' which Fiegl has almost made his own and made known through the pages of his book.

In a book of practical nature where nothing can be irrelevant nor redundant, the summary of its contents is best given by quoting relevant portions from the author's preface. Here it is. "The present edition includes the newer spot reactions, together with details of the pertinent procedure and applicatins. . . . The author has tried to assemble and present the entire literature on spot test analysis in such form that the reader will be able to secure here a rapid survey of the available spot tests and their applications. Tested directions for carrying out the tests are of course an integral part of the text."

Among the several other features is a new chapter: "Working methods and special aids" included to give a complete picture of all the phases of spot test analysis.

Further appraisement of the book leads to commenting on the general methods of spot test analysis itself. The new scheme of analysis could not be said to be yet as perfect as the classical methods of qualitative analysis, inorganic or organic. Because the classical analysis is systematised and rather simple, it is usually easy to get familiar with its methods. But it is quite different with the tests prescribed in the book. Each of these tests is so specific for a particular radicle or group that in its application one must have a prior knowledge, at least approximate, of the constituents of test mixture. Chapter V provides but a partial remedy to this. The science is comparatively recent, and it is as yet too early to say whether these new methods of analysis would supplant, if even, the classical systematic methods of qualitative analysis. Even in its present limited role of being a supplement to the classical methods, the 'spot' test is already proving to be a very potent weapon in the

armory of the analytical chemist. But the technique is very special; and only those versed in it can wield it, and the book helps one in this respect.

S. N.

Trace Elements in Plants and Animals. By W. Stiles, Mason Professor of Botany in the University of Birmingham. (The Cambridge University Press), 1946. Pp. xii + 189. Price 12sh. 6d.

Although Mazé gave a fillip to the trace element problem as early as 1914, through demonstrating the sources of errors inherent in the experiments and suggesting precautionary measures, the work did not proceed far, as no sensitive methods of estimation of "traces" were then available. It is only during the last decade that the problem has progressed by leaps and bounds with the development of physical instruments, such as the absorptiometer, the polarograph, and the spectrograph, and chemical techniques such as the Dithiozone method. Since the discovery of their importance in the so-called physiological diseases, the trace elements have engaged the interest of not only the plant physiologist but also the plant pathologist, the veterinary surgeon, the agriculturist and the horticulturist. In fact the work done in recent years is so bewilderingly enormous that a masterly résumé on the subject has been very much needed. In bringing forth the book, therefore, Professor Stiles is catering for the earnest demands of both the erudite and the beginner.

After a brief historical introduction, the author proceeds to discuss at length the methods of purification of materials and estimation of micronutrients and the diagnosis of deficiencies are very informative to the investigator. A full chapter is set apart for the diseases of various economically important plants caused by the deficiencies of Mn, Zn, B, Cu and Mo. The difficulties encountered in diagnosis and treatment are well discussed. The chapter on the function of trace elements in plants critically reviews the entire work done in this field. The comparatively meagre progress achieved in the case of animals is dealt with in a separate chapter. The function of trace elements in general in the metabolism of animals are still obscure and the discovery that Cu and Zn are associated with proteins and enzymes as prosthetic groups may help to throw light on the role of other elements also.

The book, giving all the available facts and outlining ways for future research, will be very useful to one and all interested in the subject.

S. R. ASWATHA NARAYANA RAO.

An Introduction to Textile Finishing. By J. T. Marsh. (Chapman and Hall, London). Pp. 552. Price 35sh. net.

Finishing of textile goods has been in the vanguard of post-war developments in Textile Technology as revealed by the numerous processes and patents recorded in current technical literature, and Mr. Marsh set himself a

formidable task in attempting "to survey finishing as a whole" (p. 393), but has successfully accomplished it in this publication. He has rendered signal service to the science and practice of textile finishing by bringing under one cover the widely scattered literature on the subject, including his own valuable contribution. The book running to XXI chapters covering 535 pages is indeed much more than an introduction—it is a veritable compendium or digest with a wealth of information embracing a variety of finishes, both traditional and modern, applicable principally to cotton, wool, silk and rayon, the chemical and physico-chemical methods being dealt with in greater detail than the purely mechanical finishes.

The general nature of the finishes applied to woven and knitted fabrics of various raw materials is covered by the Introductory chapter, while the finishing machines and mechanical finishes are completed in the Second, and crepe finishes in the Third. The next two chapters deal with the dispersion processes like mercerising, and the applications of Formaldehyde. Three chapters thereafter are devoted to the various finishes for woollen goods like permanent setting, milling and non-felting, the latest developments being referred to. The next three chapters deal with the very useful anti-shrink processes for cotton, softening and starch finishes. The discounted practice of weighting, and delustering, chiefly applicable to rayon claim a chapter each. The chapter on cellulose derivatives explains the interesting process of coating fabrics with cellulose ethers and esters. The next two chapters deal with the remarkable modern finishes, the application, both external and internal (thermo-plastic and thermo-setting) or synthetic resins, particularly urea-formaldehyde and their effect on fabric properties. The application of latex and synthetic rubber is covered by the next chapter. The last four chapters deal with the principal utility finishes, much perfected by the Quartermaster-General Corps, like water-proofing, moth-proofing, mildew-proofing and fire-proofing for which legislation is contemplated in the United States of America. The book ends with an excellent bibliography and a name and a subject index.

The exposition which is clear, concise and direct is mainly practical with a commendable restraint on mere theoretical intricacies. The author has drawn freely on the published patent and current technical literature, which makes the book at once authoritative and informative, references to English Journals being more frequent than to American or German Journals. The author has done well in citing references to original literature in the text itself. The book is fully illustrated, particularly the earlier section, with a number of helpful photographs, line diagrams, tables of results and graphical representations.

The book is neatly printed and elegantly got up. Except for a few minor 'devils' like "ofl oose" for "of loose" (p. 345), "methylenure as" for "methylene ureas" (p. 397), "So° C" (p. 401), it is remarkably free from printing mistakes. The letter 'I' in the diagram on p. 245 is obscured.

While it is not clear why the author some-

times prefers the obsolete "artificial silk" to the modern "rayon", or "native" to "natural" cellulose or fibres, many would hesitate to accept his verdict that "textile English is not noted for its elegance" (p. 260). To a votary of science, the apology, "these tests and other methods of control, still form a valuable commercial asset and cannot be disclosed as yet" (p. 400), comes as a shocking anticlimax in a book written but to disclose.

Comprehensive as the volume undoubtedly is, a few items like use of tamarind size, test methods for evaluation of finishes on fabrics with test results and a few more nylon finishes would be welcome additions.

Aptly dedicated to the memory of John Mercer, the pioneer in textile finishing, this indeed is an up-to-date volume which every textile technologist should possess and could consult with great profit, useful alike to the teacher and the student, the mill supervisor and the research worker.

S. N. B.

Poisons. Their Isolation and Identification.

By F. Bamford. Revised by C. P. Stewart.

(J. & A. Churchill, London), 1947. Pp. 304.

Price 21s.

This book on Poisons was reviewed in 1940 when it made its debut as a first edition. There have not been many changes since then. It is to be regretted that though it has been written by an author who has worked in Egypt, it cannot be used extensively in India where the poisons and alkaloids used are not the ones which are emphasised in his book. That Poropyroxine colour reaction is not specific for Indian opium, has been drawn attention to, and it may be stated that given a sample of pure opium it would be impossible to dogmatise on its origin, i.e., whether it is Levantine, Turkish or Indian. It is rather unfortunate that the very fashionable Barbiturates have been discussed within two pages. A good index is appended. The book costs a Guinea—rather expensive from the Indian point of view.

C. V. NATARAJAN.

Elementary Analytical Chemistry. By Lyons and Appleyard. 14th Edition. (Churchill Ltd., London), 1947. Pp. 279. Price 9s.

The volume under review is a classical textbook of qualitative and quantitative analysis that has served students of chemistry for generations in their preliminary university courses. In India the book is useful for Intermediate and Pass-course B.Sc. candidates. This edition, coming after the 1938 edition, has been thoroughly revised and brought up to date. A number of additional qualitative tests for the metals have been added, and the section on volumetric analysis has been extended by the inclusion of further exercises, including the use of potassium iodate and bromine as reagents. The usefulness of the volume could perhaps have been very much enhanced if a simple introduction to colorimetric methods of analysis had also been included. This section would be very welcome to students of general degree examinations, from whose ranks many a laboratory assistant and industrial analyst is drawn.

K. S. R.