Book reviews

ANTIBIOTICS. Editors: D. Gottlieb and P. D. Shaw.

I. MECHANISM OF ACTION. Pp. xii + 785 + Ill. (1967). DM 156. $39.

II. BIOSYNTHESIS. Pp. xi + 466 + Ill. (1967). DM 96. $24.

Springer-Verlag, Berlin.

In this encyclopaedic work the editors have called on the services of many experts in the writing of sections on many individual antibiotics or groups thereof. They have attempted to "include any and all antibiotics about which some pertinent information had been published".

The work is the outcome of the editors' attempt to keep abreast of the literature and maintain a bibliography on antibiotics. As the subject was enlarging so rapidly, this soon became impracticable, and they have attempted to ensure that the present volumes are as up-to-date as possible by including 'addenda' for many of the sections where new information has become available shortly before going to press. This has added greatly to their value.

There is little of the clinical aspects, except of the penicillins, but the details of mechanism of action and biosynthesis are so complete that there is much to interest both the clinician and laboratory scientist. The many tables of sensitivity of organisms is but one example of the way in which these books will serve as valuable reference works to all who use these materials. There is a useful list of antibiotics according to their sites of action at the end of Volume I.

There is much variation in mode of presentation of the material, as one would expect where the authors (58 in Vol. I and 34 in Vol. 11) are from all parts of the world, from both academic units and industrial laboratories, but this adds to the interest of the volumes and the editors have achieved a high standard of integration of the various sections.

In a work of this kind, the references and index are all important and one is not disappointed. The references are full and extensive and in each volume there is both a 'Subject index' and 'Index of organisms'.

Although knowledge in this field is advancing rapidly, the present volumes will serve as encyclopaedic references for a long time, and indeed will prove of permanent value as a record of the early years in the history of antibiotics. M. A. COOKE.

ORGANOMETALLIC COMPOUNDS. Vol. II. 2nd Edn.

Editor: R. W. Weiss. Pp. xix + 697. (1967). *Springer-Verlag, Berlin/Heidelberg/New York.* DM 98. $24.50

Volume II of this series follows closely the pattern of the first volume in the series [reviewed *J.* **19** 262 (1968)]. The preparation and reactions of organic compounds

of germanium, tin, and lead are admirably covered for the period 1937-1964. Although an addition to the title "Including biological activity and commercial application" not present in Volume I implies an extension of the coverage of the subject there is the most meagre list of references in this area. In 155 pages devoted to germanium compounds there are only two biological references, both to toxicity. As previously, the information on applications is that gleaned from the patent literature.

This is a book for synthetic chemists. The field of applications has been neglected by comparison and would seem to offer great scope for the future.

J. M. BLAKEWAY.

PRACTICAL EMULSIONS. Vol. 1. Materials and equipment. H. Bennett, J. L. Bishop and M. F. Wulfinghoff. Pp. vii + 181 + Ill. (1968). *Chemical Publishing Co., New York.* $12.

Mr. Bennett's original text has now been brought up-to-date in a third edition and, as in the original, sets out to provide a comprehensive review of emulsion technology.

This book will be of most use to a recent graduate becoming involved for the first time in emulsion technology and the references to the "laboratory neophyte" show the authors had this much in mind. The title "Practical" emulsions is perhaps slightly misleading since the main value of the book will be to provide a broad picture of the types of materials, equipment, processing and methods of testing which are used. The book is full of lists describing in brief, but concise terms, the scope available in each of these areas. However, should one wish to engage in practical emulsion technology one would need to go further than this book, and one would question whether the references provided are perhaps as full as might be desirable for somebody seeking to gain practical experience in specific aspects. Whilst most of the references are reasonably recent, there is one on the emulsification of mineral oil dated 1909 and another from 1920 on optimum foaming with a number of compounds, and one does wonder if this is still very relevant in view of the speed of development in the chemical industry.

The book concludes with an up-to-date list of emulsifying agents and their composition which is satisfactorily comprehensive and a good Glossary of technical terms. For the new emulsion chemist this should be a very useful survey of the field; however, English readers might find the price of £5 a little high for this purpose.

C. PUGH.

DISCUSSIONS OF THE FARADAY SOCIETY, No. 42 1966: COLLOID STABILITY IN AQUEOUS AND NON-AQUEOUS MEDIA. Pp. 322 + Ill. (1967). *The Faraday Society, London.* £5.

Research into colloid stability is of fundamental importance to anybody interested in cosmetics, and the current report of this 1966 discussion of the Faraday Society is, therefore, of potential interest to all the readers of this *Journal.* The papers tend to reflect the predictable balance between fundamental and applied research in

that those from universities and research institutions outnumber those from industry by over 4 to 1. Of the 42 authors most have names that are household words amongst cosmetic chemists and so are the names of many of the 247 attending the discussion. Many industrial cosmetic chemists rely on practical methods which have stood the test of time for developing and proving the stability of their emulsions, rather than on theoretical arguments in their development. It therefore would be of considerable benefit to all such practical chemists to study this volume which brings up-to-date our knowledge of the theoretical developments, and of the recent experimentation into many of the theories of emulsion stability. The initial part of the volume deals with interface problems studied by work on the rupture of films, on the influence of the electrical double layer on stability, and the influence of boundary films on stability. This naturally leads into studies of stability in model systems of uniform particle size dispersion and to the influence of water at the boundary in both aqueous and non-aqueous dispersions, and finally, to the study of the influence of polymers at the interface.

It is clear that an immense amount of clarification and support of the theoretical basis of emulsion chemistry has been achieved since the papers were published in 1940 for the first discussion on the electrical double layer which had to be cancelled by the outbreak of war in 1939. However, as with so many research discussions this very clarification has shown a number of areas where further investigation is needed to explain the anomalies which have emerged and to fill in the still evident gaps in our knowledge.

This is a collection of papers which can well be recommended to all cosmetic chemists for study. C. PUGH

ADVANCES IN ORGANIC CHEMISTRY: METHODS AND RESULTS. Vol. 5. Editors: R. A. Raphael, E. C. Taylor, H. Wynberg. Pp. vii + 337 + Ill. (1965). *John Wiley & Sons, New York/London/Sydney.* 105s.

Contributions in previous volumes of this series have presented a critical appraisal of a synthetic method (nine), or of intermediates and reagents (six), or diagnostic techniques (four) or degradation (one); in addition one account described the novel chemistry of a specific natural product (muscarine). The fifth volume appears to have moved away somewhat from this ambit: while nearly two thirds of the book is allocated to a comprehensive review by M. Tichy (Prague) of the ir spectrometric investigation of the stereochemistry of intramolecular hydrogen bonds, the remainder comprises a discussion by A. J. Parker (Western Australia) of the use of aprotic solvents in organic chemistry, and a characteristically concise but remarkably readable survey of polycyclic diterpenoids contributed by the former Barton collaborators Karl Overton and R. McCrindle.

Parker's criteria for dipole forming aprotic solvents are a high dielectric constant (above 15) and the absence of labile hydrogen atoms capable of forming strong hydrogen bonds. Although he describes many others, most of his discussion is concerned with three such solvents: DMF, dimethylacetamide and DMSO. Properties

reviewed include solubility, effect on reaction kinetics and acid/base strength, their use as media for a variety of organic syntheses, and a brief account of their function as reactants *per se*.

The survey of polycyclic diterpene chemistry by McCrindle and Overton is particularly timely; notable advances in authenticated stereochemical elucidation, and the elegant correlation of terpene taxonomy effected particularly by the biosynthetic studies of the Manchester and Zurich schools, have advanced our understanding of this branch of natural product chemistry a long way beyond the historical resin acids. This review neatly catalogues di-, tri-, tetra-, and penta-carbocyclic diterpenes into eight skeletal families, and for each is nominated a consistent and memorable numbering scheme appropriately modified from the now generally accepted steroid notation.

Dr. Tichy's contribution is not quite as monumental as the pagination at first implies. In fact, the review proper is confined to some 50 pages describing typical stereochemical interpretations of H-bonded ir spectra, with the emphasis shifting from configurational assignment to quantitative applications. The balance of his article comprises a tabulation of OH stretching data for 1600 compounds. To this extent his survey is less specialised than the other two, but all three are to be commended as most useful and comprehensive reviews of our present knowledge in their respective areas. G. F. PHILLIPS.

INDUSTRIAL RESEARCH IN BRITAIN. 6th Edn. Pp. 923. (1968). *Harrap Research Publications, London.* 168s.

This new edition provides a wealth of information for those engaged in industrial research. This ranges from a useful list of abbreviations in the first few pages, through sections dealing with the various Ministries concerned with the administration of research laboratories; trade associations; independent research laboratories; universities and technical colleges; professional and learned societies; international and overseas industrial research associations; embassies and scientific attaches; computer services; libraries; British periodicals and abstracts covering industrial research, to superb indexes of names of organisations and titles, and of subjects. Whereas all the chapters contain useful information, there would appear to be little justification for that on "Patent Agents" which contains nothing but the address of the relevant Institute.

This volume, with I. D. L. Ball as able advisory editor, can be thoroughly recommended to every person in contact with scientific organisations of any kind. A.H.