

The descriptive approach involves an exposition of the main features of the absorption spectra of the principal classes of organic chromophoric structures, together with examples of the effects on these parent spectra of substitution, ionization, and the consequences of geometric isomerization and of steric factors. As in the first edition, this material is supplemented by chapters, mainly by co-authors, on such special subjects as far-ultraviolet spectra, fluorescence, charge-transfer spectra and a group of miscellaneous topics. Both the main part of the book and the supplementary chapters contain additional material which has expanded the book from about 150 to 200 pages. The literature references have also been brought up to date and include several valuable new entries dealing with new books, specialist monographs and review articles.

As in the first edition, the best chapter is still the one on conjugated molecules, and the weakest is that on aromatic compounds. Monocyclic aromatics are considered in fair detail, but the many important classes of polycyclic aromatics get very brief mention. In the chapters on special topics, some attempt has been made to outline the relevant theory in rather more detail than in the remainder of the book. As a result these chapters give an impression of being more concise and up to date than the general chapters. Each of the special chapters is in fact a very good introduction to its particular subject.

Apart from the particular inadequacy noted above, this second edition of Professor Rao's book can still be recommended as an excellent textbook which will provide the organic chemist with a useful background knowledge of the well established relations between electronic absorption spectra and chemical structure. G. H. BEAVEN

## BORANE CHEMISTRY

### Polyhedral Boranes

By Carl L. Muetterties and Walter H. Knoth. Pp. viii+197. (Dekker: New York; Arnold: London, 1968.) 125s.

In recent years the field of polyhedral borane chemistry has made rapid advancement—in proof of this fact one has only to note that of the 255 references quoted in this volume only thirty or so refer to work published before 1960. The publication of this book has come at a time when there is great interest in the subject and it is written by two outstanding research workers from the Du Pont group, both of whom have been in the forefront of polyhedron boron chemistry for some years.

A short introductory chapter on polyhedra as structural elements in chemistry is followed by an excellent chapter on the structure and bonding of all types of polyhedral boranes. Comparison is made between the theoretical assessment and the experimental results regarding the bonding and electron delocalization in polyhedral boranes and there is some discussion of multicentre bonding, with respect to diborane, including the recent analysis of diborane by the SCF method.

A chapter on the syntheses of polyhedral boranes includes polyhedral ions, carboranes, thiaboranes and the interesting metallocarboranes and, following this, the section dealing with the chemistry of polyhedral boranes gives valuable tables of infrared stretching frequencies for substituents on  $B_{10}H_{10}^{2-}$  and  $B_{12}H_{12}^{2-}$  and some reactions of substituted carboranes. The published data concerning intramolecular rearrangements of polyhedral boranes are discussed and classified and on the basis of this exercise the authors tentatively postulate a useful order of ease of polyhedral isomerization.

There is a chapter dealing with structure-reactivity correlations of polyhedral boranes in which thermal and hydrolytic stability and also substitution reactions are

discussed. Nomenclature and numbering conventions are discussed in a short chapter and the book closes with a review of the recent developments of polyhedral borane chemistry.

Perhaps the best feature of the book is its thorough up-to-dateness. It is well illustrated with diagrams and contains classified author, formula and subject indices as well as many useful tables of physical data of polyhedral boranes. This is an extremely well presented book and must, to a large extent, fulfil its aim in stimulating non-boron chemists. R. H. CRAGG

## LETTERS FOR ANALYSTS

### Analytical Letters

Edited by G. G. Guilbault and L. G. Hargis. Vol. 1, No. 1, October 1967. (Dekker: New York.) Subscription (Vol. 1, 1967-68, 15 numbers) \$10 (individuals); \$40 (institutions).

THE appearance of yet another scientific journal must make the bravest heart quail. This one claims, in the editorial introduction, to alleviate the serious deterioration that has occurred in communication between researchers in this particular area. It is problematic that the addition of yet one more magazine to be consulted every month may alleviate the burden, but a means of rapid communication is certainly laudable in objective. It must be confessed, however, that the recent torrent of the "letter" type of journal tends to stimulate the production of hastily written up "instant papers" which subsequently have to be published more fully in a conventional journal or which are so trivial that no further communication is necessary. In both cases it is doubtful whether the letter serves any purpose other than the staking of a claim. There is a problem of over-communication and of over-rapid communication.

Be that as it may, the subject matter defined in the introduction as analytical "chemistry", but which might more appropriately be termed analytical "science", is one of the most turbulently developing topics of the present time. It would obviously be invidious to comment here on individual research papers, but the topics vary from ion-selective membrane electrodes, polarography, electroluminescence, fluorescence, potentiometry, chromatography, end-point detection and atomic spectroscopy. Several of these papers, particularly those on the latter topic, could conceivably have equally well appeared in the sister journal *Spectroscopy Letters* from the same publishing house.

This first issue is attractively produced and is interesting. It sets no records for urgency of communication, however, and with due respect to the editors and contributors, one remembers the adage that only trivial things are urgent and that there is plenty of time for those that are important. T. S. WEST

## GEOLOGISTS AND POLITICIANS

### Government in Science

The US Geological Survey 1867-1894. By Thomas G. Manning. Pp. xiv+257. (University of Kentucky Press: Lexington, 1967.) \$7.

*Government in Science* records the relations between geologists and politicians in the period immediately preceding and following the establishment of the Federal Geological Survey of the United States on a permanent basis in 1879. Most, if not all, official geological surveys have originated after geologists have succeeded in convincing government officials or politicians that the results of such a survey were likely to be of practical value through the discovery of deposits of minerals,