

Book reviews

Landolt-Börnstein, Numerical Data and Functional Relationships in Science and Technology, New Series (Editor in Chief K.-H. Hellwege), *Group III. Crystal and Solid State Physics. Vol. 8. Epitaxy Data of Inorganic and Organic Crystals*; by M. Gebhardt and A. Neuhaus. Springer-Verlag, Berlin/Heidelberg/New York, 1972, vii + 186 pages, DM. 118; US\$37.50.

This volume presents epitaxy data for inorganic, organic and organometallic crystals as an extension to information presented in the volumes of crystal structural data, and covers the literature from 1836 to the end of 1970. All those who purchased Vol. V, which was reviewed earlier in this Journal [see *J. Organometal. Chem.*, 32 (1971) C51], will certainly wish to acquire this volume also, and the whole set of volumes on crystal structural data is indispensable in the library of any organization in which there is an interest in structural details.

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Practical Inorganic Chemistry; by G. Marr and B.W. Rockett, Van Nostrand-Reinhold Company, London, 1972, xx + 444 pages, £6.00 (paperback £3.50).

The authors of this textbook have aimed "to provide a comprehensive and balanced course on modern practical inorganic chemistry for university undergraduates". It is certainly impressively comprehensive for its size, and well balanced, and the only question must concern the extent to which the contents can be realistically regarded as a "course", since probably few degree programmes these days would provide sufficient time to cover even a substantial fraction of the experiments described. (The authors recognise this to some extent, since they envisage many of the experiments as involving a group activity, in which each member of the group contributes the synthesis of one or a set of compounds and then participates in the investigation of the physico-chemical properties of the whole set.) But there is no doubt that whatever time is available for laboratory study of inorganic chemistry could be very well used on an appropriate selection of the experiments described in the book, and it is strongly recommended.

All aspects of practical inorganic chemistry, including analysis, are covered, and the use of modern methods is well illustrated, including chromatography, spectroscopy, electroanalytical procedures, X-ray crystallography, and magneto- and thermo-chemical

techniques. An excellent feature is that the student is expected to investigate, by physico-chemical methods and chemical analysis, the compounds he has prepared.

The justification for the inclusion of a review of the book in this Journal is that there is a good 36 page section on organometallic compounds, including preparation of a range of main group and transition metal compounds [e.g. PhLi , Ph_3P , PhB(OH)_2 , Ph_4Si , Ph_4Ge , $n\text{-Bu}_2\text{Sn(O}_2\text{CPh)}_2$, $(\text{C}_5\text{H}_5)_2\text{Fe}$, $(\text{C}_5\text{H}_5)\text{Fe(C}_6\text{H}_4\text{CHO)}$, $(\pi\text{-C}_5\text{H}_5)_2\text{TiCl}_2$, and $\text{PhCO}_2\text{MeCr(CO)}_3$] and the use of transition metal complexes as catalysts.

The book is very well produced, and has an excellent index. It may well be adopted at many universities as a class text, but even at the other universities everyone concerned with providing laboratory courses in inorganic or organometallic chemistry should have it available.

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Organometallic Reactions, Volume 4, edited by E.I. Becker and M. Tsutsui, Wiley-Interscience, New York, 1972, 460 pages, US\$27.50.

This book contains three chapters on topics of interest to the preparative organometallic chemist. The practical importance of each chapter is increased by the presence of numerous detailed experimental procedures taken from the literature. In general, much interesting chemistry is discussed. The two longest chapters are by groups of Soviet authors and provide useful English language reviews of areas of organometallic chemistry which have received considerable attention in the Soviet Union.

The first chapter, by Hancock, Levy, and Tsutsui, entitled " σ - π Rearrangements of Organotransition Metals", is the weakest of the three for the following two reasons:

(1) An organizational plan which has no clear chemical significance; (2) Numerous misleading errors in nomenclature and related items. For example, on page 5 the authors talk about σ -alkyl compounds when they mean σ -allyl compounds and about π -allene complexes when they mean π -allyl complexes. Despite such shortcomings, even this chapter contains much interesting information and many useful experimental procedures.

The second chapter, by Reutov and Ptitsyna, entitled "*Onium Compounds in the Synthesis of Organometallic Compounds*", provides a well-organized summary of the use of aryldiazonium and diarylhalonium salts for the synthesis of main group organometallic compounds. No transition metal organometallic chemistry is discussed in this chapter even though aryldiazonium salts have been used for the preparation of arylazo derivatives of cyclopentadienyl molybdenum and tungsten carbonyl systems and arylazo and diaryliodonium salts have been used for the preparation of aryliron derivatives. As might be expected, the authors seem to overemphasize the importance of onium salts in organometallic synthesis relative to other very useful synthetic reagents, notably organomagnesium and organolithium compounds. Despite

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