

## BOOK REVIEW

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*Methoden der Organischen Chemie (Houben–Weyl). Vol. XIII/4. Metallorganische Verbindungen Al, Ga, In, Tl.* Georg Thieme Verlag, Stuttgart, 1970, xxviii + 430 pages, D.M. 155.

The last twenty years have seen the development of organoaluminium compounds from laboratory curiosities to important reagents, both in general organic syntheses and as components of catalyst systems. This development has received its greatest stimulus from the work of Professor Ziegler and his colleagues at the Max-Planck-Institut für Kohlenforschung at Mülheim. In this volume of *Methoden der Organischen Chemie*, the detailed account of the first part of the Mülheim work, published in volume 629 (1960) of *Annalen*, has been brought up to date and vastly expanded to include results from other laboratories. This book presents the most complete critical account of organoaluminium chemistry at present available (314 pages by H. Lehmkuhl and K. Ziegler), together with shorter sections by G. Bähr and P. Burba on gallium (22 pages), indium (14 pages), thallium (23 pages) and scandium, yttrium and lanthanide (1 page) compounds. Literature has been covered up to 1968 and some work published in 1969 has been included. There are many references to patent literature and some to unpublished results from the Mülheim Institute.

The layout of the book follows the usual Houben–Weyl pattern. Thus about half the organoaluminium section describes preparative methods in general terms, and illustrates them with experimental details for specific examples and with extensive tabulated data. The other half describes the reactions of organoaluminium compounds with a wide variety of organic and inorganic substrates, and illustrates the versatility of these reagents and the stereochemical control which can be maintained in many of their reactions. Although the book does not set out to discuss structural results, some crystallographic and calorimetric data are given and there are references to results from vibrational and NMR spectra. A useful section describes experimental techniques for analysis and there are extensive bibliographies. The indexes seem to be fairly full and accurate, but, as is inevitable with the Houben–Weyl arrangement, a research worker wishing to make a particular compound must look in several places to compare possible procedures. The authors have performed an important service in collecting so much material in one volume.

The organometallic chemistry of the Group III elements continues to expand rapidly: in the next edition, for example, there will have to be more than one page on organolanthanide compounds. Meanwhile, this book will be invaluable, not only to organometallic specialists, but also to many others working on problems of organic syntheses.

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