

*Journal of Organometallic Chemistry*, 166 (1979) C39-C40  
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Book review

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ADVANCES IN ORGANOMETALLIC CHEMISTRY, Volume 16, F.G.A. Stone and R. West, ed., Academic Press, New York/San Francisco/London, 1977, xiv + 362 pages, \$ 36.00

The latest volume of this now well-established series breaks precedent in that it is devoted entirely to a single subject: molecular rearrangements which occur in organometallic systems. In ten chapters are provided reviews of the following topics: 1,2-anionic rearrangements of organosilicon and organogermanium compounds (R. West); dyotropic rearrangements and related  $\sigma$ - $\sigma$  exchange processes (M.T. Reetz); rearrangements of unsaturated organoboron and organoaluminum compounds and their Group III analogs (J.P. Oliver); organomagnesium rearrangements (E.A. Hill); aryl migrations in organometallic compounds of the alkali metals (E. Grovenstein, Jr.); fluxional and nonrigid behavior of transition metal organometallic  $\pi$ -complexes (J.W. Faller);  $\sigma$ - $\pi$  rearrangements of organotransition metal compounds (M. Tsutsui and A. Courtney); the olefin metathesis reaction (T.J. Katz); molecular rearrangements in polynuclear transition metal complexes (J. Evans). As pointed out in the preface, the concept of the present volume derived from the symposium on the subject of "Organometallic Rearrangements in the Main Group and Transition Metals" which was held at a meeting of the American Chemical Society in September 1976. Most of the participants in that symposium are authors in the present volume and J.J. Eisch, one of the conference organizers, has provided the introduction to this book.

Molecular arrangements have held great fascination for chemists ever since the development of the modern structural theory has made it possible to recognize their occurrence and to understand their structural basis. It is clear, after one has looked through this book, that molecular rearrangements play an as important a role in organometallic chemistry as they do in organic chemistry. This book brings an excellent survey of this intriguing topic. It is much more than the usual

volume of symposium proceedings. Most chapters provide useful reviews of their topics in addition to the latest research results from the author's laboratory.

Inevitably, with ten chapters by different authors, some chapters will be better than others. Which of the better chapters the reader will like best will depend in large part on his own research interests. Some chapters, in the opinion of this reviewer, are a bit overly speculative in their discussions of mechanism. The chapter on  $\sigma$ - $\pi$  rearrangements attempts to bring too much diverse chemistry within this mechanistic concept and doesn't manage to pull it off. Furthermore, one should note that the  $\sigma$ - $\pi$  (end-on/side-on) approach to  $N_2$  bonding to permethyltitanocene which this chapter appears to favor does not obtain (Bercaw *et al.*, JACS 1978).

The present book, like its fifteen predecessors, is well produced and provides a subject index, as well as cumulative author and title indexes for all volumes of the series. It can be recommended as worthwhile reading to the organometallic chemist.

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