

"Organometallic Reactions and Syntheses," Volume 6, E. I. Becker and M. Tsutsui, ed., Plenum Publishing Corporation., New York/London, 1977, xii + 314 pages \$47.40

What differentiates "Organometallic Reactions and Syntheses" from other collections of organometallic review articles is the emphasis on experimental procedures. The value of this series is that it should allow a reader not only to efficiently review an area but also to gain an appreciation for the experimental techniques involved without consulting primary references. The series also provides the authors with the opportunity to make general comments on experimental aspects of the subject, comments which are unfortunately seldom included in papers and communications. In previous volumes of this series, success in achieving these goals has been variable depending upon the personal preferences of the individual authors. Volume 6 is no exception. All three reviews in this volume are valuable, however, and provide useful surveys of the literature primarily through 1975.

In Chapter 1, entitled "Vinyl Polymerization of Organic Monomers Containing Transition Metals" (C.U. Pittman, Jr.), the emphasis is on ferrocenyl derivatives of vinyl monomers since these systems have been most thoroughly studied. This is an effective way to discuss the topic since there is sufficient experimental data available to solidly support a rather comprehensive analysis. Critical comments are included throughout the review as is appropriate for this series. The 29 experimental procedures include both monomer and polymer syntheses.

Chapter 2, "Reactions of Metallocarboranes" (R.N. Grimes), is really a review of the synthesis of metallocarboranes. The reaction chemistry of metallocarboranes is selectively discussed but only in the context of the synthetic outline of the chapter. The primary difference between this review and others recently published on this topic is that relatively more examples of small

carborane systems are discussed. Since nearly half of the 52 experimental procedures included in this review come from just 5 papers, many of the syntheses are quite similar. Several of these could have been eliminated and profitably replaced by additional personal comments by the author on synthesis. The extensive table of known metallocarboranes included in this review will be invaluable to all chemists in the area.

The topic of Chapter 3, "Homogeneous Catalysis by Arene Group IVB Carbonyls" (M.F. Farona), constitutes a narrow slice of both the homogeneous catalysis literature and the literature of $C_6H_6M(CO)_3$ complexes ($M = Cr, Mo, W$). The chapter begins with a brief review of the chemistry of $C_6H_6M(CO)_3$ systems, a discussion which provides some background for the subsequent sections on catalysis but which is by no means comprehensive. The remainder of the chapter consists of discussions of reactions in which $C_6H_6M(CO)_3$ species are involved as catalysts: Friedel-Crafts reactions, olefin hydrogenations and isomerizations, olefin metathesis and acetylene polymerizations. The coverage is comprehensive with respect to $C_6H_6M(CO)_3$, but unfortunately does not contain comparisons of the activity or specificity of the Group VI catalysts with other catalyst systems. This chapter is a useful compilation of data on $C_6H_6M(CO)_3$, but the self-imposed boundaries of the review limit its use as a self-contained reference.

Department of Chemistry
University of Chicago
Chicago, Illinois 60637

William J. Evans