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Book reviews

Activation of Saturated Hydrocarbons by Transition Metal Complexes, by A.E. Shilov. Reidel, Dordrecht, 1984, Dfl. 105 (ca. U.S. $39.00), pp. 203.

This is part of the series "Catalysis of Metal Complexes" edited by R. Ugo and B.R. James. The activation of saturated hydrocarbons is a process which has considerable potential importance. Developments in the area have been rapid in recent years. This is a timely book written by a major contributor to the field. After a useful Introduction which discusses some of the basic principles involved in designing an activation process, Chapter 1 deals with reactions of metal complexes containing 'activated' C–H bonds. This chapter summarises the many systems where a metal complex will insert into a C–H bond (52 refs.). Chapter 2 discusses reactions with carbenes, free radicals etc. (15 refs.). Chapter 3 discusses the very important area of the activation of hydrocarbons on a metal-oxide surface (29 refs.), while an extensive Chapter 4 considers the oxidation of alkanes in the presence of metal compounds (131 refs.). The final chapter is rather general, dealing with activation by medium and low oxidation state metal species (57 refs.). This book is very readable, presented in good English, and makes a most useful contribution to the field.

Topics in Current Chemistry No. 124, Inorganic Chemistry, by F.L. Boschke (Editor), Springer-Verlag, Berlin, 1984, DM 68 (ca. U.S. $26.70), pp. 138.

Articles by Christian Klixbull Jørgensen can be relied upon to be interesting and written in a characteristic way with much attention to history as well as science. The first article in this book, by CKJ, is 'The Problems for the Two-electron Bond in Inorganic Compounds; Analysis of the Coordination Number *N*'. This fascinating article begins with an historical survey of the development of our understanding of the chemical bond and of coordination number. It continues with a detailed discussion of ambiguities in coordination number and its relevance to bonding, e.g. CH_5^+, $CRu_6(CO)_{17}$, CuL_5^{2+} and questions related to rare earth crystals where there may be many near neighbours at varying distances (32 pp., 125 refs.). The second chapter deals with 'Cationic and Anionic Complexes of the Noble Gases' and is written by H. Selig and J.H. Holloway, and has obvious connections to the first chapter. The now very extensive chemistry of xenon and krypton is thor-