Transition Metal Chemistry. Vol. 7; Ed. by R.L. Carlin, Marcel Dekker, Inc., New York, 1972, 12 + 366 pages, $19.75.

There is very little of interest to the organometallic chemist in the latest addition to the series on 'Transition Metal Chemistry'. The three articles deal with Magnetic Phase Transitions at low temperatures (Rives), The Preparation and Properties of first-row Transition Metal Oxides and Halides (Rosenblum and Holt), and Magnetic Anisotropy (Mitra). Much of the material has a déjà vu look for anyone who spends some time reading physics journals, and this is nowhere more evident than in Mitra's article. This is badly out of date. The organometallic chemist will hardly take kindly to the interpretation provided for the electron distribution in the metallocenes, and the crystal physics introduction is available in standard texts and doctoral theses.

The Rosenblum and Holt article concentrates a good deal of diverse information on the synthesis and structures of oxide and halides of metal ions in high oxidation states; it is a pity that some of the discussions of energy levels in a number of oxyanions are based on old semi-empirical calculations, which are wrong. If the reader's catholicity of interest extends to magnetic phase transitions and exchange phenomena, he will find Rive's article a very useful summary.

Attitudes are hardening towards series publications; this volume is not one which will be able to claim a high priority in the library budget of any Chemistry Department.

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Advances in Linear Free Energy Relationships; Ed. by N.B. Chapman and J. Shorter, Plenum Press, London and New York, 1972, xiv + 486 pages. £10.00 ($28.00).

It was in 1937 that L.P. Hammett put forward the relationship which bears his name, and in view of the vast quantity of publications on linear free energy relationships which have since appeared it is surprising that this is the first major work devoted to the topic. (A very useful, but rather brief monograph by P.R. Wells appeared in 1968.) It should be noted that the title is not meant to imply that this is the first of a regularly appearing series of volumes.

There is a foreword by Hammett himself, and the subsequent chapters are as follows: The Hammett Equation — the present position (O. Exner); The separation of polar, steric and resonance effects by the use of linear free energy relationships (J. Shorter); Linear free energy relationships and optical spectroscopy (A.R. Katritzky and R.D. Topsom); Linear correlations of substituent effects in ^{1}H, ^{19}F and ^{13}C NMR spectroscopy (M T. Tribble and J.G. Traynham); The influence of the solvent on organic reactivity

(I.A. Koppel and V.A. Palm); The influence of the reagent on organic reactivity (R.G. Pearson); Linear free energy relationships in inorganic chemistry (J.R. Chipperfield); Linear free energy relationships in enzymology (J.F. Kirsch); The interpretation of drug action through linear free energy relationships (A. Cammarata and K.S. Rogers); Interpretation of mass spectrometry data through linear free energy relationships (M.M. Bursey). The chapter by Chipperfield and, to a lesser extent, that by Pearson, are of special interest to organometallic chemists.

I was disappointed not to find definitions of the various types of sigma constants or comprehensive (as distinct from selected) lists of values of the main types, since such compilations available in a single source would be very convenient. There is an author and a subject index, but the latter does not do full justice to the range of contents; for example, I was unable to find from the index a discussion of the use of ^{19}F resonances of fluorophenyl groups in studies of bonding to transition metals, although the subject is, in fact, discussed on pages 348–350.

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