

Magnetochemistry; by R.L. Carlin, Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1986, xi + 328 pages, DM 108. ISBN 3-540-15816-2.

The importance of magnetism has never been more clearly stated than by Francis Bacon in his theory of the scientific method, as expressed in *Novum Organum* (1620): "It is well to observe the force and virtue and consequence of discoveries, and these are to be seen nowhere more conspicuously than in those three which were unknown to the ancients, and of which the origin, though recent, is obscure and inglorious; namely printing, gunpowder and the magnet [i.e. Mariner's Needle]. For these three things have changed the whole face and state of things throughout the world." The first and the last of these three discoveries are combined to great effect in Prof. Carlin's latest book: the origins of magnetism may still be somewhat obscure but they are certainly not inglorious. Books on magnetism are rare, good books on magnetism are very rare; this book is unique. It combines a rigorous approach to the subject with a readily readable text, making it useful both to researchers active in the field and to graduate students alike.

This book is very much a personal view of the subject of magnetochemistry. In the preface the author states, "This is a book about things in magnetism that interest me. I think that these are important things which will interest a number of other chemists. The restriction is important, because it is difficult to write well about those things which are less familiar to an author. In general, the chemistry and physics of coordination compounds are what this book is about." It is this special approach that makes this volume so particularly useful to the coordination and organometallic chemist. Apart from the expected (and lucid) accounts of the phenomena of diamagnetism, paramagnetism, thermodynamics, magnetic exchange in dimers and clusters, ferromagnetism, antiferromagnetism, and lower dimensional magnetism, the book is superbly illustrated with a wide range of fascinating and relevant examples and case studies (including copper(II) ethanoate, tris(dithiocarbamate)iron(III), and the biomagnetochemistry of cobalt(II)), as well as containing an excellent chapter describing modern experimental techniques. The separate formula and subject indexes, combined with a logical order to the text (individual chapters deal with the first row transition metal complexes, the second and third row transition metal complexes, and the lanthanide complexes), make it particularly easy to access data on specific complexes or complex types.

The power and utility of magnetochemistry is often ignored by the practising organometallic chemist (indeed, it is perhaps not the most fashionable aspect of coordination chemistry, either), but this volume both brings alive the excitement of the subject and emphasizes the remarkable insights which it provides into the electronic structure of transition metal compounds. At the bargain price of less than £0.10 per page, this is a book which should be on private bookshelves, and available as multiple copies in all chemistry libraries (large and small): it is indeed a *tour de force*.

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