which hydrogen bonding and other forms of intermolecular interaction keep cropping up in a volume which is largely devoted to intramolecular geometry. Exciting developments are reported in the globular protein section where the high-resolution structures of a fragment of an immunoglobulin and a Bence–Jones protein are briefly described. The reporter comments that these results might represent the most significant contribution of crystallography to medicine. Readers who found Vol. 1 interesting will certainly be rewarded by continuing their studies in Vol. 2. Besides being a must for every scientific library, many individual scientists concerned with structural chemistry will want to have their own copies.

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Experiments on simple magnetic model systems. By L. J. DE JONGH and A. R. MIEDEMA. Pp. 269, Figs. 95, Tables 19. London: Taylor & Francis, 1974. Price £4.00.

The original aim of theoretical physicists in devising the various magnetic model systems was to get a better understanding of experimental observations. These models are often made apparently too simple owing to otherwise insurmountable mathematical problems, and sometimes simplifications have produced gross features in the results. However, by careful choice of magnetic substances from the immense range provided by chemistry and metallurgy experimentalists have been able to find materials whose properties resemble quite closely those predicted from various theoretical models. Moreover, in recent years experiment has provided theory with data which may be compared with models that are superficially most unorthodox.

This book deals with non-metallic magnetic systems. After an introductory survey on the effects of lattice dimensionality and type of interaction, it is shown how general rules may be given for finding compounds which approximate a particular model system. Next, the experimental magnetic properties of many examples of actual materials are compared with theory for chain structures, layered structures and for three-dimensional magnetic systems. Among special topics discussed are neutron diffraction, spin wave theory, critical behaviour and field-dependent behaviour.

As the authors point out, the survey cannot be comprehensive. But it does offer to the theoretician a very useful guide to the available data and to the experimentalist a good survey of the existing theoretical work and of the extensive range of compounds already discovered. There are very many references (fourteen pages) and a valuable index of substances.

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Thermal vibrations in crystallography. By B. T. M. WILLIS & A. W. PRYOR. Pp. xv + 280, Figs. 82, Tables 24. Cambridge Univ. Press, 1975. Price £9.50.

This book consists of a quite extensive treatment of the nature of thermal vibrations in solids and their effect on X-ray and neutron scattering. I can think of no other book that covers the same field and its appearance fills an existing gap. The question should then be asked how well and how comprehensively the field is covered.

The book consists of three parts, the first of which treats the theory of lattice dynamics. This part is well written and admirably clear and detailed in its derivations. Noteworthy is also an attractive extension of the Born–von Karman theory to molecular crystals. Here and in the other two parts the simplifications of matrix notation are used extensively. The second part deals with the influence of thermal motion on the Bragg intensities and incorporates the useful tables of Peterse and Palm describing symmetry restrictions on β_{ij} for all existing special positions. On the same subject there is a rather puzzling statement (on page 103) that mirror planes and glide planes cause the same symmetry restriction (on the β tensor) as a two-fold axis. While this is, of course, true for macroscopic second-rank tensor properties, the β_{ij} of atoms in glide planes are obviously not restricted. The problem of the interaction between static disorder and apparent thermal motion is not treated, though it should have been mentioned in the discussion of the myoglobin Wilson plot. The examples given here include diamond, fluorite-type structures, alkali halides, face-centered cubic metals and some molecular crystals. Anhármonicity is discussed quite extensively. The third part of the book which deals with thermal diffuse scattering is much less detailed and also less well written than the preceding chapters. A brief discussion of X-ray TDS is followed by a treatment of inelastic scattering of slow neutrons, limited because 'it is unlikely that many crystallographers will use the technique itself'. The book ends with a discussion of the correction of Bragg intensities for thermal diffuse scattering and an appendix summarizing matrix algebra.

The book contains much that is useful, but is not quite a comprehensive treatment. Missing is a detailed discussion of thermal motion in molecular crystals as can be found, for example, in some of the chapters of the 1967 National Bureau of Standards Symposium on Molecular Dynamics and the Structure of Solids. One finds no evaluation of the relative merits of expressions for large librational motion and a description of only one, even though comparisons are available in the literature [*Acta Cryst.* (1972). B**28**, 1649]. Surprisingly absent is also a discussion of segmented rigid-body models applied by several crystallographers.

Nevertheless, this is a book that will find use in advanced teaching and as a reference in the research laboratory.

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