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Book review

Structure and Bonding, Vol. 44: Metal Complexes; edited by M.J. Clarke et al., Springer-Verlag, Berlin, 202 pages, DM 98.

This volume contains two articles. The first, by R.G. Teller and R. Bau, is entitled "Crystallographic Studies of Transition Metal Hydride Complexes". This starts with a description of the techniques for the location of hydride atoms by X-ray and neutron diffraction. It continues with a summary of the information available in the literature about the various structural types together with more extensive discussion of representative examples of each. In addition the authors have tabulated individual M—H distances and average values for each element, and have listed compounds with M—H—X bonds and suspected M···H—X interactions, compounds with M—H—M bonds, face bridging H atoms, and interstitial H atoms. This timely review is a mine of information and will be very useful to anyone needing a guide to the current state of the art and readily accessible comparisons for new results. It will also be of more general interest in showing exactly how the hydride ligand can interact with one or more atoms.

The second article by P. Gütlich is entitled "Spin Crossover in Iron(II) Complexes". The investigation of the relative populations of high-spin and low-spin states is discussed with examples given of the use of magnetism, vibrational properties, ^{57}Fe Mössbauer effect, electronic spectra, X-ray diffraction, heat capacity measurements, and magnetic resonance studies. The spin crossover effects in complexes of iron(II) with particular types of ligands are then systematically covered, correlating the results from the various techniques.

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