

Metal Carbonyl Spectra; by P.S. Braterman, Academic Press, London/New York/San Francisco, 1975, vii + 286 pages, \$22.25.

Braterman has put together a text which is addressed to organometallic chemists who make frequent use of spectroscopic data but who do not necessarily consider themselves spectroscopists. Seven of the eight chapters are devoted to vibrational spectra of metal carbonyl derivatives with the remaining chapter dealing with other forms of spectroscopy. These deal with (1) an introduction involving bonding concepts of transition metal-carbon monoxide bonds, (2) principles of vibrational spectroscopy, (3) the CO stretching modes of metal carbonyls (includes a discussion of energy factored force fields for a variety of species), (4) experimental methods in metal carbonyl vibrational spectroscopy, (5) interpreting a spectrum in the $\nu(\text{CO})$ region, (6) topics related to the chemical interpretation of vibrational data (includes discussions of anharmonicity, intensity, and force constants of $\nu(\text{CO})$ vibrations), (7) selected vibrational data for a variety of mono- and poly-nuclear metal carbonyl derivatives, and (8) non-vibrational spectroscopy of carbonyls (includes very brief discussions of photoelectron, electronic, and ^{13}C NMR spectroscopies).

In this reviewer's opinion some additional features would have been highly desirable in this book. These would include a description of exactly how one goes about determining the $\nu(\text{CO})$ symmetry coordinates for a specific molecule in Chapter 3, organization of the tables of $\nu(\text{CO})$ frequencies in Chapter 7 in terms of metal groups (and further by stereochemistry within a group), and most importantly, more examples of observed $\nu(\text{CO})$ spectra for all the various encountered stereochemistries clearly indicating intensity patterns as well as the number of expected bands.

The section on experimental methods (Chapter 4) is extremely well done and contains all the necessary information that would allow even a novice to use an infrared spectrometer intelligently. I will certainly make it mandatory reading for my research students. The text in general is well produced and clearly written, and suffers only slightly from typographical errors. Although this book is only referenced through early 1972 and is, indeed, not a complete review of the literature up to that date, it should be a useful reference for metal carbonyl chemists.

The book at \$22.25 is not inexpensive. Nevertheless it does not appear to be grossly out of line with the current market prices for comparable selected works.

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