

Book review

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"Vibrational Spectra and Structure", Vol. 5, J. R. Durig, Ed., Elsevier, Amsterdam, 1976, xiv + 298 pages, \$38.50.

Four topics are chosen for treatment in Volume 5 of the well-known series on Vibrational Spectra and Structure: the shapes of inorganic molecules as inferred from vibrational infrared and Raman spectra, solid-state Raman spectra, biochemical applications of the resonance Raman effect, and gas-phase Raman spectroscopy of anharmonic vibrations.

Most readers of this journal would have their primary interest in the first topic. It comprises a survey of inorganic vibrational spectroscopy as applied to high-temperature gases and species trapped in matrices at low temperature. The survey is not intended to be comprehensive but consists mainly of examples from the researches of the authors, Professor I. R. Beattie and two of his associates at the University of Southampton, England, Drs. C. Barraclough and D. Everett. Among the systems considered are some metal pentafluorides, aluminum trichloride, tin oxides, and iron tricarbonyl. A concluding section not related to the foregoing contains a brief phenomenological description of Raman scattering in intense laser beams; stimulated Raman scattering and the hyper Raman effect are treated. The entire chapter covers 60 pages with 85 references.

Both Chapter 2 on the Raman spectra of crystals (J. F. Scott, University of Colorado) and Chapter 3 on the resonance Raman effect in biomolecules (T. G. Spiro, Princeton University) are brief and devoted to a narrow range of examples from the authors' own laboratories. Better reviews of the same topics by the same authors as well as by others have appeared elsewhere.

The final chapter treats the subject of the Raman spectroscopy of anharmonic vibration in gaseous molecules. This is the most comprehensive

chapter in Volume 5, consisting of 155 pages plus 150 references. It covers much the same ground as the three chapters on the far-infrared spectroscopy of anharmonic vibrations in Volume 1, but shows the advantages of Raman spectroscopy (particularly the presence of strong sharp Q branches) for this kind of study. The authors are the editor and two of his associates at the University of South Carolina, Drs. L. A. Carreira and C. J. Wurrey.

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