Notes and News

Announcements and other items of crystallographic interest will be published under this heading at the discretion of the Editorial Board. The notes (in duplicate) should be sent to the Executive Secretary of the International Union of Crystallography (J. N. King, International Union of Crystallography, 13 White Friars, Chester CH1 1NZ, England).

Hamilton Scholarships in Crystallography

The Walter C. Hamilton Memorial Fund, established under the auspices of Associated Universities, Inc., will be used to provide financial assistance each year to one or more graduate or advanced undergraduate students for work on crystallographic problems at Brookhaven National Laboratory, particularly with neutron diffraction techniques. Students will be selected for these awards on the basis of the scientific merits and feasibility of their research proposals, educational background and experience, and letters of reference. U.S. citizenship is not a requirement. It is expected that each student will spend one to two months at Brookhaven collecting and analysing neutron diffraction data under the guidance of a BNL crystallographer. Computational and other facilities of the Laboratory will be made fully available. The individual stipends, intended to cover travel and housing expenses, will generally be in the range of 300 to 600 dollars. The students selected will be designated as Walter C. Hamilton Scholars.

It is anticipated that the first award will be for the academic year 1974–75. The deadline for applications will be March 1, 1974. Applicants should submit the following material to the Chairman, Chemistry Department, Brookhaven National Laboratory, Upton, NY 11973, U.S.A.

(1) Description of the proposed problem (not to exceed 5 double-spaced pages).

(2) Educational background and experience (which must include some acquaintance with diffraction techniques).

(3) Three letters of reference, including one from the sponsoring professor.

Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (M. M. Woolfson, Physics Department, University of York, Heslington, York YO1 5DD, England). As far as practicable books will be reviewed in a contry different from that of publication.

Vibrational spectra and structure of silicates. By A. N. LAZAREV, translated by G. D. ARCHARD. Pp. x + 302. New York and London: Consultants Bureau, 1972. Price $37.50.

This is the English edition of a Soviet version published in 1968. A number of changes have been made and new references added. In particular Chapter V has been completely rewritten. The book also includes material on organosilicon compounds, germanates and other relevant compounds.

The scope of the work can be indicated by the Chapter titles: I. Introduction to the theory of the vibrational spectra of molecules and complex ions in crystals; II. Vibrational spectra and structure of complex anions in silicates. Island structures; III. Relations between the vibrational spectrum and structure of the complex anions in silicates. Highly condensed structures; IV. Use of spectroscopy in the crystal-chemical study of silicates; V. Spectra and crystal chemistry of the silicates of the rare-earth elements; VI. Spectra and flexibility of the Si–O–Si and P–O–P bonds.

The English edition is to be warmly welcomed as a considerable synthesis of vibrational spectroscopy and structure analysis, and as a combination of experiment, description and theory. Much ground is covered and extensive references are given to Soviet and foreign literature. The translation reads well, the printing is acceptable, and the whole work conveys an air of authority.

As an example of the new material in Chapter V one may cite the study of structures of the thortveitite $Sc_2Si_2O_7$ type. First, infrared spectra are given for $Sc_2Si_2O_7$, $Sc_2Ge_2O_7$, and intermediate solid solutions. These are analysed with force constants for an isolated X_2O_7 model. Despite certain satisfactory features, it is concluded that the quasimolecular approximation is inapplicable for the lower-frequency vibrations of the anion. Molecular-vibrational-theory methods are described for use with crystals at $\mathbf{k}=0$, and then applied in calculations of the spectra of $Sc_2Si_2O_7$, $Yb_2Si_2O_7$, and $Sc_2Ge_2O_7$. The derived force field shows Sc–O force constants about one quarter those for Si–O; the mixing between lattice vibrations and the low-frequency deformation vibrations of the X_2O_7 groups is clearly shown.

Other such sections discuss such topics as the use of symmetry in the interpretation of crystal vibrational spectra; the variation of force constants for Si–O bonds; the correlation between mode frequencies and Si–O–Si angles; vibrations in rings, chains, ribbons and layers; phase transformations; and the study of the coordination of cations with respect to oxygen.

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Polarons in ionic crystals and polar semiconductors. Edited by JOZEF T. DEVREESE. Pp. 809. Figs. 166, Tables 5. Amsterdam: North Holland 1972. Price *f* 140.00 (*ca.* U S. $43.75).

This book is the proceedings of the Advanced Study Institute on Fröhlich Polarons and Electron-Phonon Interaction in Polar Crystals' held at the University of Antwerp