Volume 39A, covering the literature for metals and inorganic compounds for 1973 (viii + 392 pages). Price: 115 Netherlands guilders.

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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).

Temperature Factors

A number of recent X-ray and neutron diffraction studies have shown small systematic discrepancies between X-ray and neutron temperature factors which are not readily understood and which do not appear related to errors in experimental measurements. In particular the ratio $(U_{ii})_X/(U_{ii})_N$ seems frequently dependent on the value of i. To gain understanding of the source of such discrepancies and their possible significance the Commission on Neutron Diffraction of the IUCr decided, at the Amsterdam Congress, to gather information on X-ray and neutron diffraction temperature factor of crystals which have been studied accurately by both methods at identical temperatures.

Interested scientists are requested to send U_{ij} values together with information on the crystal symmetry and cell dimensions, the orientation of the specimen on the diffractometer, scattering factors used in the refinement, experimental temperature and experimental reproducibility as estimated by comparison of symmetry-related reflexions, and (for the neutron experiment only) the type of beam collimation and/or Soller slits, type of analyser crystal used if any, and estimate of second-order contamination of the beam, to either Dr P. Coppens, Chemistry Department, State University of New York at Buffalo, Buffalo, New York 14214, U.S.A., or Dr T. Koetzle, Chemistry Department, Brookhaven National Laboratory, Upton, Long Island, New York 11973, U.S.A. Results will be analysed at regular intervals depending on the available volume of the data and communicated to participating laboratories.

Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (J. H. Robertson, School of Chemistry, University of Leeds, Leeds LS2 9JT, England). As far as practicable books will be reviewed in a country different from that of publication.

Electron microprobe analysis. By S. J. B. Reed. Pp.xvi + 400, Figs. 167, Tables 25, Plates 8. Cambridge Univ. Press, 1975. Price £12.00.

After a decade of intense development in theory, instrumentation and practice, electron-probe microanalysis has now become a routine analytical procedure and, insofar as future events can be predicted, no major developments seem to be around the corner. The appearance of an authoritative, up-to-date and fairly extensive treatise on the subject is therefore well timed.

Reed's book is not the first one on this subject. Among those still of general usefulness are the ones by Birks (1971) and Andersen (1973). Birks's book is a concise and mainly descriptive introduction to the subject, recommendable to the beginner or the scientist or student seeking an overview of electron-probe microanalysis. *Microprobe Analysis*, edited by Andersen, is a compilation of chapters written by various authors who are experts in their respective fields. Such a format provides a selection of topics rather than complete coverage. Other publications (Heinrich, 1968; Salter, 1970; Hall, Echlin & Kaufmann, 1974) deal with partial aspects of electron probe microanalysis.

S. J. B. Reed has apported valuable and widely used contributions to the art of microanalysis. His book reflects his long experience in the field, and it will serve very satisfactorily as a textbook for the analyst performing electron-probe microanalysis or using the lithium-drifted detector in conjunction with scanning electron microscopy. The principles of instrumentation and operation, the theory of quantification and the analysis of thin films are extensively and rigorously treated. The level of the text is uniformly high and eminently readable. In the application section, the author discusses a small but representative sampling of practical analyses.

The disagreements I may have with the author are mostly of detail – such as to his doubts on the efficacy of the hyperbolic iteration for multielement specimens (p. 294), or concerning the use of an atomic number effect in the absorption correction (p. 252). A more serious objection is that the computer programming, though 'practically essential for matrix corrections . . .' (p. 296) is not discussed in sufficient detail. Manual correction calculations are impractical for all but the most casual users of the microanalyzer, and the problems arising from the use of a program which is not fully understood by the analyst are obvious.

Overall, Reed's book is a valuable source of information to the microanalyst, and it deserves a place on the shelf of all scientists who make use, directly or indirectly, of electron probe microanalysis.

K. F. J. Heinrich

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References

Andersen, C. A. (1973). Editor, *Microprobe Analysis*. New York: Wiley–Interscience.