average, $\langle \rho(\mathbf{x}) \rangle$. Stewart (1979) found that, for systems with a small number of particles, his (1977) equations (17) and (21) indeed lead to different intensities. Thus for small systems other configurations than the thermodynamic average can also contribute to elastic scattering. Hence, for small systems, Bragg scattering may thus not be an observable quantity. VH also refers to the case of small systems: the asymptotic convergence for $|t| \rightarrow \infty$, our equation (4), may then hold only in the mean. In the meantime Stewart (1979) has been able to convince himself that, for large systems, his (1977) equations (17) and (21) lead to the same intensity. Thus, for a crystal where the number of particles is very large, Bragg scattering and elastic scattering always coincide.

References

BÄRNIGHAUSEN, E. (1975). *J. Appl. Cryst.* **8**, 477–487.

BÄRNIGHAUSEN, E. (1978). *J. Appl. Cryst.* **11**, 221–228.

COCHRAN, W. (1964). *Phonons and Phonon Interactions*, pp. 102–118. New York: Benjamin.

COCHRAN, W. & COWLEY, R. A. (1967). *Handbuch der Physik*, **25, 2a**, pp. 59–156. Berlin, Heidelberg, New York: Springer.

GLAUBER, R. J. (1955). *Phys. Rev.* **98**, 1692–1698.

JAMES, R. W. (1948). *The Optical Principles of the Diffraction of X-Rays*. London: Bell.

LAUE, M. VON (1948). *Röntgenstrahlinterferenzen*. Leipzig: Akad. Verlagsgesellschaft.

LAVAL, J. (1941). *Bull. Soc. Fr. Minéral.* **64**, 1–138.

MARADUDIN, A. A., MONTROLL, E. W., WEISS, G. H. & IPATOVA, I. P. (1971). *Theory of Lattice Dynamics in the Harmonic Approximation. Solid State Phys. Suppl.* 3. New York and London: Academic Press.

MARSHALL, W. & LOVESEY, S. W. (1971). *Theory of Thermal Neutron Scattering*. Oxford: Clarendon Press.

SCHERINGER, C. (1979). *Acta Cryst.* A**35**, 340–342.

SJÖLANDER, A. (1964). *Phonons and Phonon Interactions*, pp. 76–101. New York: Benjamin.

STEWART, R. F. (1977). *Isr. J. Chem.* **16**, 137–143.

STEWART, R. F. (1979). Private communication.

VAN HOVE, L. (1953). *Phys. Rev.* **89**, 1189–1193.

VAN HOVE, L. (1954). *Phys. Rev.* **95**, 249–262.

WILLIS, B. T. M. & PRYOR, A. W. (1975). *Thermal Vibrations in Crystallography*. Cambridge Univ. Press.

International Union of Crystallography

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Commission on Crystallographic Apparatus

IUCr X-ray Attenuation Project

At the International Union of Crystallography Congress which was held in Warsaw in 1978, the Commission on Crystallographic Apparatus decided that there was a need to evaluate the techniques for the measurement of X-ray attenuation coefficients. A committee was set up to organize the project, and planning for the project is now well advanced.

It is the aim of the organizing committee to encourage the participation in the project of laboratories using a diverse range of techniques of measurement. For example, sources of incident X-ray beams which are to be used range from synchrotron radiation sources to radio-isotope sources. A diverse range of detection systems are also to be used.

All laboratories participating in the project will receive standard specimens from the project organizers and will be required to answer detailed questions about their equipment, techniques of measurement and their analysis of the experimental results. The first specimen will be silicon. Later specimen sets will include germanium, magnesium and pyrolytic graphite.

Any laboratory interested in participating in the project should contact: Dr D. C. Creagh, Chairman, IUCr X-ray Attenuation Project, Physics Department, Royal Military College, Duntroon, ACT 2600, Australia.

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President's Fund

Members of the crystallographic community are reminded that a President's Fund was established by the International Union of Crystallography in 1977, as suggested by Professor Hodgkin at the 1975 General Assembly. The fund is intended for use in emergency and in special or difficult circumstances, to help crystallographers to take part in the activities of the Union, and is operated by the President and the General Secretary and Treasurer of the Union.

The Executive Committee is most grateful to those crystallographers who have already made donations to the fund. Any further donations may be sent to the Executive Secretary, International Union of Crystallography, 5 Abbey Square, Chester CH1 2HU, England.

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Structure Reports

Volume 44A of *Structure Reports* has recently been published. It covers the literature for metals and inorganic compounds for 1978 (vi + 387 pages), and costs 102 Dutch guilders for subscribers with standing orders. The full price for individual copies is 120 guilders but personal subscribers may buy a copy for their own use at 60 guilders. Volume 43B will be published in mid 1980 and Volume 45A towards the end of the year.

As from 1 January 1980, D. Reidel Publishing Company, PO Box 17, 3300 AA Dordrecht, The Netherlands, took over the publication and sales of *Structure Reports* and the other publications of the Union previously handled by Bohn, Scheltema and Holkema. At the same time it was decided to treat *Structure Reports* and *Molecular Structures and Dimensions* as journal publications. Subscribers will therefore be invoiced prior to the publication of each new volume.

Orders should be placed direct with D. Reidel Publishing Company, or with Polycrystal Book Service, PO Box 11567, Pittsburgh, PA 15238, USA, or with any bookseller. Trade orders should be sent to Reidel.

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.

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Spectroscopy, luminescence and radiation centers in minerals. By A. S. MARFUNIN. Translated from the Russian by V. V. SCHIFFER. Pp. xii + 352. Berlin, Heidelberg, New York: Springer-Verlag, 1979. Price DM 108.00, US $ 59.40.

This book is a review of the different techniques used for spectroscopy of minerals in the solid state: Mössbauer spectra, X-rays and electron spectroscopy, EPR, luminescence and thermoluminescence, and the effects of radiation on solids. Numerous examples are described.

The author has in fact given a splendid performance in producing a reasonably up to date and comprehensive account of all these items. Each of these chapters looks like one of the papers published in a well -known series of review papers, such as *Solid State Physics* – except for the fact that, in the latter, all the chapters are written by different people and not by the same author.

However, it is clear that no one can be truly a specialist in so many different topics and therefore, while reading this book, the specialist is never perfectly happy within his own field of research. For instance, in Fig. 5, in the chapter on Mössbauer spectroscopy, it is not quite clear whether the old Walker scale or the modified Danon scale has been used for the isometric shift calibrations. In addition, since 1975 (the year of the original publication of the book in Russian) many new results have of course been found. In the chapter on luminescence, the Tanabe–Sugano diagrams for Mn^{2+} are correctly given, but without any reference to the basic papers of Orgel or Tanabe and Sugano; indeed, these names are not found in the bibliography. The spectra of Mn^{4+} are not described. In Chapter VII, this reviewer would not have introduced *F* centers into a chapter entitled *Free radicals* – but perhaps this is merely a matter of terminology.

Some difficulties come also from the translation of names which have been found in Occidental papers, then translated into Russian and finally translated again into English. Thus, on p. 143, Cascariolo has been transformed into Cashporolo; on pp. 178 and 181, Lambe and Klick (*Lambe et Klick* in French) has become Lambet and Klick. Luminescence is also written as luminiscence, and cyanite as kyanite.

In spite of these drawbacks, this book can be recommended to any scientist, at the graduate level, who wishes to have an idea of current problems in the field of the spectroscopy of minerals without, for instance, reading the 35 volumes of a series such as the *Solid State Physics* publications. But of course, for a more detailed acquaintance with his own field of research, he will require more extensive review papers.

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Patterns in crystals. By N. F. KENNON. Pp. X + 197, Figs. 101. Chichester: John Wiley, 1978. Price £10·00 (cloth), £4·95 (paper).

Chapters 1–7 analyse plane patterns and two-dimensional lattices in terms of 'concepts' and 'definitions' that are then applied in Chapters 8–20 to three-dimensional patterns. The *d* spacing is discussed in Chapter 21 but its significance can hardly be appreciated, if at all, until the final Chapter 22 where, in fifteen pages, an attempt is made to cover the interaction of X-rays with solids and its application to the determination of crystal structure.

The style is didactic in the extreme, and the repetition of the two-dimensional 'concepts' and 'definitions' whenever they are applied in three dimensions becomes boring. Indeed, although some of the seventy-nine 'concepts' and fifty-four 'definitions' – printed in eye-catching capitals – are useful (*e.g.* Definition No. 8 'A symmetry operation is any operation that can be performed on a body to transform it to self coincidence'), others are trivial (*e.g.* Definition No. 51 'The normal to a plane is that line which is perpendicular to the plane'; Concept No. 68 'A crystal and the associated space lattice contains an infinite number of directions') or are uninformative (*e.g.* Definition No. 20 'The indices of a plane are those integers in round brackets that identify that plane and distinguish it from all others').

The concept that a pattern is made up of two ingredients, a basic unit called the 'motif' and a 'scheme of repetition', can be misleading. The motif is here described and drawn as some arbitrary figure separated from identical figures according to the scheme of repetition. It is stated (p. 5) that the motif is the unit of pattern but, of course, this is not true because the pattern includes the 'empty' space between the motifs. At this teaching level, the reproduction of some of