

lines clearly delineated by continuous radiation streaks. In this respect the 'axes' do not differ from other central lines of reciprocal-lattice points. In general, however, the text is remarkably free from slips of this sort.

In spite of its many good features, this reader found the book disappointing. It offers virtually nothing new to the professional crystallographer or diffractionist. Nor does it, despite the author's prefatory remarks, present '... an explanation of X-ray diffraction in elementary physical terms', unless one is willing, as Professor Lipson apparently is, to equate X-ray diffraction with X-ray crystallography or, more specifically, with X-ray crystal structure analysis.

This is a book which, except for a few paragraphs, could have been written thirty years ago. There is little in it to indicate that any real progress has occurred in the theory and techniques of X-ray diffraction in the intervening years. No serious mention is made of the large and rapidly growing fields of X-ray topography, of dynamical interactions in perfect and nearly perfect crystals, or exciting developments like the Bonse-Hart X-ray interferometer. The fundamental work of Warren, Guinier and of many others in diffraction physics is ignored.

This book, as noted above, will probably appeal to some general readers. It cannot be recommended to X-ray diffractionists (or crystallographers).

B. POST

Polytechnic Institute of Brooklyn
333 Jay Street
Brooklyn
New York 11201
U.S.A.

Crystal geometry. A set of transparencies for an overhead projector with notes for lecturers. London: I.T.L. Vufoils Ltd., 1970. Price Unit H1: 5 foils £2.75; Unit C1: 9 foils £3.90; Unit 2: 3 foils £1.65; Unit 3: 3 foils £1.60; Unit 4: 5 foils £2.25; Units 5: 9 foils £3.63.

I.T.L. Vufoils are diagrams related to a variety of topics, produced on transparent plastic, which can be used with an overhead projector. Several complete sets are available from the manufacturers or individual frame units may be purchased if so desired. Only the set of diagrams on crystal geometry will be reviewed here.

The diagrams are well produced on flexible, transparent plastic sheets, set in a more rigid frame for easy handling. There are several diagrams in each frame, arranged in such a way that only one may be viewed or any combination of them used as overlays and projected simultaneously as a

composite diagram. The location of each overlay is quite positive and the plastic sheets are sufficiently robust to stand up to rather more than normal usage. Very brief though useful lecture notes are supplied with the Vufoils.

There are two frame units illustrating close-packed structures – one each for hexagonal and cubic, consisting of five and nine overlays respectively. The diagrams relating to cubic close packing are particularly good. They clearly illustrate the form of packing by using different colours for the atoms of different layers and quite convincingly show that the cubic close-packed structure is identical with the face-centred cubic structure. This is where the Vufoils will be found to be most useful as such diagrams never quite 'come off' when drawn hastily on a blackboard and ping-pong ball models are much too small to show to a large audience.

Three frame units cover the topic of unit cells in which the features of the fourteen Bravais lattices are illustrated and the unit-cell parameters defined. Primitive lattices are converted into centred lattices by the use of overlays, though the positioning of the lettering on the overlays is not always accurate. However, this is a minor blemish easily allowed for. The lecture notes define a lattice point as '... a point within a group of atoms such as the centre of symmetry or centre of gravity ...'. So long as this information is not passed on to the students it does not matter, but if the notes are to be useful they should be accurate. To be fair, they give a more correct definition in the next paragraph. The reviewer would have liked to have seen diagrams illustrating the reasons why there are only 14 Bravais lattices, for example why we don't have a body-centred monoclinic lattice and why the face-centred and body-centred tetragonal cells are equivalent. This is only a personal preference, however, and their absence does not detract from the usefulness of the set of diagrams.

To complete the set on crystal geometry, there is one frame unit on Miller indices consisting of nine overlays. These diagrams are always difficult to draw so that their meaning is obvious and the Vufoils are quite successful in this respect. However, the diagrams are oriented solely towards the use of Miller indices for the description of crystal morphology and may have had a wider appeal if they also illustrated the diffraction planes which give rise to Bragg reflexions.

For lecturers whose artistic talents do not quite match their scientific abilities, these Vufoils should prove to be a valuable teaching aid.

PETER MAIN

Department of Physics
University of York
Heslington
York YO1 5DD
England