excessive indolence or modesty, the most likely and honourable explanation for their reticence would be their belief that their contributions were not worth publishing. It might have been wiser again to let the authors assess the individual worth of their papers rather than to publish the complete proceedings.

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Standard stereograms for materials science. By *P. T. Clarke*. London: HMSO, 1977. Price £40.00.

Standard stereographic projections, in some form or other, are an essential aid in the analysis of electron and X-ray diffraction patterns obtained in the study of materials. This volume contains 223 such diagrams, each of which displays some 300 plane normals. There are 23 projections of the cubic system, 28 of the hexagonal, and so on. To provide a distribution of axial ratios, *c/a*, for the hexagonal and tetragonal systems, specific materials have been used, usually with three projections of each; if a particular material is not itself represented, there should be one in the book having an axial ratio sufficiently close.

However, to be honest, it is difficult to find many good words for this book. Why publish a bound book of printed stereograms at all? Instead, if stereograms were published in a binder, printed on transparent film, they could be used directly. Most laboratories doing crystallographic work have adequate computing facilities, and programs galore have been published so are readily available; people consequently do compute their own projections as needed. A complete printed library would be enormous and, of course, terribly expensive.

As a guide to students it is not worth much, since no instructions or exercises are given. Hence it is no competition for existing books.

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X-ray diffraction topography. By *B. K. Tanner*. Pp. xiv + 174, Figs. 80, Tables 6. Oxford: Pergamon Press, 1976. Price $12.50, £6.25.

A review of this book by G. Hildebrandt has been published in the September 1977 issue of *Acta Crystallographica*, Section A, page 861.

Electron microscopy in the study of materials. By *P. J. Grundy* & *G. A. Jones*. Pp. 175. London: Edward Arnold, 1976. Price (cloth) £8.00, (paper) £3.75.

This seventh volume from a series of student texts edited by Professor Bryan R. Coles, general editor, under the title: *The Structure and Properties of Solids* is devoted to electron microscopy and its application to the study of the properties of solids. Without aiming at an exhaustive review of that modern scientific and technical field, which is growing more and more important with the progress in the complex study of solids, the authors preferred instead to give a selection from the vast amount of existing information about electron microscopy and its applications, with special emphasis on the problems in solid-state physics. The resulting book contains fundamental information about the principles on which electron microscopy is based, the design and construction of electron microscopes, including the latest equipment, the phenomenon of the interaction of electrons with matter, and the applications of electron microscopy.

According to the announcement on the cover, the book is intended particularly for undergraduate and postgraduate physicists, metallurgists and materials scientists. Throughout the explanation, therefore, only the indispensable mathematical tools are used; the requisite formulae are given without derivation and illustrated by means of diagrams, tables, or photographs.

The contents of the book are divided into six chapters. The first deals with the explanation of the resolving power of the light microscope, the properties of electron waves, and a brief history of the construction of electron microscopes.

Chapter 2 is devoted to the problem of the interaction of electrons with solids from the viewpoint of utilizing the various phenomena for imaging or analysing materials. There is a comparatively detailed account of the phenomena occurring on the transmission of electrons through a solid: in particular of incoherent elastic scattering by amorphous materials, coherent elastic scattering and electron-energy losses. An independent part of this chapter is focused on the scattering of electrons from bulk material and on concomitant phenomena, such as emission and reflection effects, recombination and cathodoluminiscence, and emission of X-rays and Auger electrons. The chapter is closed by a brief account of the electric current arising in the samples from the interaction of electrons with the solid.

The construction of the electron microscope, source of electrons, and magnetic lenses is described in the next chapter, whose main part is also devoted to a concise physical description of both the so-called conventional electron microscope and the scanning electron microscope. The last part of this chapter deals with the resolution attained by both types of electron microscopes.

In Chapter 4 the authors of the book first discuss the problems of using conventional transmission electron microscopy in the study of the surface morphology of solids by means of replica and extraction replica techniques in particular. In the second part of this chapter, attention is paid to electron diffraction and to a simplified theory of contrast formation on transmission of the electrons through materials and, especially, through imperfect crystals. The chapter is closed by a brief description of the special techniques of transmission electron microscopy, with particular attention to Lorentz microscopy.

Chapter 5 is devoted to scanning electron microscopy and its applications. The possibilities of using various operation modes of a scanning electron microscope are summarized in a table, briefly characterized in the accompanying text and illustrated by examples of their application, including a relatively detailed account of electron-channelling effects.

The last chapter, Chapter 6, deals with some new techniques in electron microscopy, such as high-voltage electron microscopy, the so-called analytic transmission electron microscopy, high-resolution scanning transmission microscopy and, finally, energy-analysing microscopy. Individual techniques are illustrated by examples of their use and of results obtained.

The chapters are followed by an Appendix which gives a brief summary of some fundamental concepts and relations from structural crystallography, required for