

## Short Notices

### Tools and Techniques in Physical Metallurgy

*Ed F. Weinberg*

(Marcel Dekker) Volume 1 400 pages £11.65;  
Volume 2 359 pages £11.20

These two volumes written by a group of specialist authors offer both the practising metallurgist and the non specialist an extensive handbook, which describes the techniques now available.

The text is presented with numerous illustrations so that the reader may be able to appreciate quickly both the fundamental basis of, and also the application and limitation of each technique. The emphasis on this latter aspect is very welcome as it is important to realise not only the types of problems that may be tackled by a particular technique but also the amount of effort required to produce the results.

In volume one there are separate chapters on each of the following topics: temperature measurement, X-ray diffraction, crystal growth and alloy preparation, quantitative metallography and optical metallography.

Each chapter presents a fairly exhaustive review of the subject and for a book of this type the treatment is relatively up to date on the type of equipment referred to. It is only in the chapter on quantitative metallography that the text is a little dated, but this is not a serious drawback as the theoretical and practical basis of the subject have been well dealt with, and the advances in the subject are mainly concerned with the versatility of information presentation.

Volume two is devoted to the more recent techniques such as electron microscopy, scanning electron microscopy, field ion microscopy, thermionic emission microscopy, electron probe microanalysis, spectrographic analysis and atomic absorption spectroscopy.

Once again each chapter gives a broad coverage of the subject and this volume in particular gives large numbers of practical applications. In comparison with other published texts which cover a similar subject area as this second volume, this present one will appeal to the non-

specialist who has had very little contact with the techniques.

Unfortunately the prices of these two volumes and the fact that the index is only bound into volume 2 will mean that they will not be found on many personal bookshelves.

R.A.F.

### Thermal Neutron Diffraction

(Proceedings of the International Summer School at Harwell, 1-5 July 1968 on The Accurate Determination of Neutron Intensities and Structure Factors)

*Ed B. T. M. Willis*

Harwell Postgraduate Series (Oxford University Press 1970) 220 pp, £3.25

This book is a collection of lectures given at an International Summer School at Harwell in 1968. Each of the 14 chapters is by a separate author and forms a self-contained unit. Thus the book can be used as an up-to-date reference on particular aspects of neutron diffraction. Three broad areas are covered, namely Experimental Techniques, Nuclear Scattering and Magnetic Scattering. The experimental section covers all the currently used techniques with particular attention paid to accuracy and corrections to be applied to the data. Nuclear scattering has found its most important applications in studying compounds containing hydrogen to which X-rays are insensitive. This area is well covered in a chapter by C. A. Coulson and subsequent chapters treat organic materials and anharmonic and other corrections. The magnetic moment of the neutron makes it a useful tool in magnetic structure studies and the book ends with four chapters devoted to the determination of magnetic moment distributions and covalency.

The book is not particularly aimed at beginners to neutron diffraction since in some areas it begins where the standard texts end. It is however an invaluable volume for anyone who wants to involve himself in actually carrying out accurate neutron diffraction experiments.

D.M.