

quantitative analysis and 'performance criteria' of the method, referring to the usual criteria of any analytical method; special reference is made to some specific problems of X-ray spectrometric analysis such as 'matrix effects'. The next two chapters deal with basic methods leading to actual quantitative results, standards and calibration and special emphasis is given to corrections for absorption enhancement effects.

Useful practical, though not exhaustive, information about the choice of specimen, preparation methods and their consequences will be found in the next two chapters; attention is often drawn to certain problems of fundamental importance like surface state and granulometry which, unfortunately, cannot be given their full importance in the framework of such a chapter. The remaining chapters describe what the

author terms 'unconventional modes of operation' of the spectrometer and 'related X-ray methods' of analysis. In fact one chapter deals with the analysis of films and platings, the next with small specimens and X-ray probe techniques, while some information is provided on X-ray absorption spectrometry with mention of scattering techniques, in so far as these methods can be taken care of by means of commercial equipment.

Photo- and Auger electron spectroscopy is also described.

Incidentally, this text-book, once more, raises implicitly the practical problems of notation and of systematic and numerical values in X-ray spectroscopy and diffraction.

Unfortunately physico-chemical effects on X-ray spectra are hardly mentioned; the old view of 'inner orbitals substantially unaffected by valence' is

taken for granted and solid-state physics implications practically discarded.

The bibliography for such a broad domain connected with fundamental aspects of radiation and matter and covering so many fields of application cannot be exhaustive; in particular, references to some important European publications and to modern books of fundamental interest are lacking.

Such as it is, well printed with clear figures and tables, this rather big book represents an important contribution to the field and will be very helpful to users of X-ray spectrometry which has become a wide-spread and competitive analytical method.

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Books Received

The following books have been received by the Editor. Brief and generally uncritical notices are given of works of marginal crystallographic interest; occasionally a book of fundamental interest is included under this heading because of difficulty in finding a suitable reviewer without great delay.

Optical microscopy for the materials sciences. By JAMES H. RICHARDSON. Pp. x + 692. New York: Marcel Dekker, 1971. Price \$29.50.

This book brings together in one volume a comprehensive discussion of modern optical microscopy and photomicroscopy necessary to prepare and examine specimens of a broad range of materials.

The methods for preparing specimens of material for optical microscopes that use transmitted or incident light are described. Also included here are extensive tables that give specific solutions for

chemical and electrolytic polishing and etching of incident-light specimens for a large number of materials. A subsequent chapter is devoted to the techniques used in the qualitative and quantitative measurements of a specimen under microscopic examination. Other topics explored in this volume include: photomicrography and photomacrography, laboratory safety, and microscope accessories.

The book is prepared by lithography directly from typed material and the effect is very clear and quite pleasing to the eye. There are numerous figures of very high quality.

Handbook of electronic materials. Vol. 6. Silicon nitride for microelectronic applications, Part 2. By JOHN T. MILEK. Pp. vii + 117. New York: Plenum Press, 1972. Price \$14.00.

Contents: Introduction; Diffusion mask applications; Glass-to-Metal seals; Passivation applications; Isolation; Memory devices; Capacitors; Radiation hardening applications; Miscellaneous devices and applications; References.