group of rocks to have the information brought together in one volume.

A. HALL

Tertian, R., and Claisse, F. *Principles of Quantitative X-ray Fluorescence Analysis.* London and New York (Wiley-Heyden), 1982. xviii + 386 pp., 149 figs. Price: Hardback £30·00.

With a great many combined years of experience in X-ray spectrometry these authors have produced a text that is both useful and timely. Useful because it combines together details of a wider range of quantitative techniques than older texts, and timely because it emphasizes those fundamental and theoretically based methods of analysis which are gradually, and rightfully, becoming of major importance.

The text is divided into five parts (and 19 chapters) the first part being an introduction to X-ray physics. Part 2 (18% of the text) is an exellent account of the theory of X-ray fluorescence emission, first for monochromatic and then polychromatic excitation. The account is up to date and gradually develops the mathematical relationships which are required later for application to quantitative analysis. Most of the specific examples in this section relate to alloys or stainless steels but Fe/Ca and Fe/Si systems are discussed and the principles apply equally well to 'geological' matrices. Part 3 (54% of the text) is concerned with methods of quantitative analysis for homogeneous specimens. Here a great number of (usually multicomponent) models are derived and discussed based upon the background established in Part 2. Useful chapters within Part 3 include 'Dilution methods' which discuss fused samples so widely used in geochemistry, and the 'Double Dilution Method' which is not particulary well known to geochemists but is simple and extremely useful for 'unusual' samples. Part 4 (2% of the text) is on the effects of heterogeneity; heterogeneous specimens, the particle size effect, the mineralogical effect. That is: powdered samples. Part 5 which is provided to round off the book discusses sample preparation in one chapter and 'intensity measurement techniques' (counting statistics) in another.

This is a theoretical text, its strength lying in the lucid and well presented Parts 2 and 3 which together make up the bulk of the work. There is no doubt that some of the methods discussed, particulaly those based upon the theory of XRF emission, will become very important during the next few years, and this book will provide an excellent background. For the geochemist, however, often working with powdered samples, and frequently determining trace rather than major concentrations, it will represent something more desirable than practical. The chapter on heterogeneity, while a difficult and usually qualitative subject, is particularly weak in this respect. The text was not, however, written for geochemists. It was, to use the authors own words 'intended to be especially helpful to X-ray spectroscopists and analytical chemists, not only in recognizing pitfalls in analytical procedures but in becoming sensitive to the great potential that exists in the X-ray fluorescence field'. It is an advanced text, potentially of great value to geologists and geochemists, and should certainly be available as a reference work in libraries and all XRF laboratories.

P. K. HARVEY

Forty volumes of *Meteoritika*

The arrival of volume 40 of the Soviet Academy of Science publication Метеоритика serves to remind us that this, the longest established serial publication devoted expressly to meteoritic matters, commenced publication in 1941, the time of the Nazi invasion of Russia. The last three decades have seen approximately annual publication, although there was an understandable interruption between the first two volumes of 1941 and volume 3 of 1946, with some catching-up in the 1950s, until the current volume 40 which is dated 1982. Surprisingly there was no volume dated 1981 and there is no editorial recognition of a significant jubilee. However volume 38 (1979) did commence with a review 'The path of progress and attainment of Soviet meteoritics' by the senior editorial adviser E. L. Krinov.

On that occasion Dr Krinov wrote 'in pre-revolutionary Tsarist Russia meteorite studies were sporadic, from event to event, and represented only a small amount of scientific endeavour, according to the interest of the investigator. The systematic collection of meteorites, as also the observation of their infall, was not organised . . . . [However] A sharp break in the development of native meteorite studies came after the revolution. [Indeed] In 1981 the Russian Academy of Sciences organised, under the direction of L. A. Kulik, ... a small expedition to study the circumstances of fall of the reasonably large stony meteorite Kashin, which fell 27 February 1918 near the Glasatov estate, Kashin district, Tver government.' [The Catalogue of the British Museum (Nat. Hist.) records this meteorite as Glasatovo, a stone of over 150 kg of which the main mass 121.23 kg and 364 g of fragments are in Moscow and 122 g in London.]

Krinov's review notes the fall of another large stony meteorite at Saratov, in the autumn of 1918 and records that the Physico-mathematical division