escent paints, aluminium oxide layers, textiles and papers with special gloss effects, display a marked dependence of the brightness and the colour hue on the illumination and observation angles. Carl Zeiss has developed the **GK 311/M all-round goniospectrometer** to measure this dependence.

The new unit measures the reflectance indicatrix, *i.e.* the spectral reflectance as a function of the illumination and observation angles at small angular intervals and with high repeatability. The main features of this measuring system are the processor-controlled measurement run including 100 different measuring geometries and the short measurement time (approx. 2 s/measuring geometry).

The GK 311/M all-round goniospectrometer

The versatile high-precision angle adjustment and the high angular resolution due to small aperture angles (repeatability of 0.01°) make the GK 311/M ideal for use as a reference unit in research and development. All angle settings are motorized and microprocessor controlled at intervals of 5°. The illumination angle covers a range of 25 to 135° from the sample plane, with an observation angle of 45 to 155°.

The light reflected back from the sample is analysed in a high-resolution dual-beam diode array spectrometer. The evaluation is performed by a PC and includes the spectral reflectance with a pixel spacing of 5 nm, tristimulus values and colour differences.

Carl Zeiss, Postfach 1380, 7082 *Oberkochen, Germany*

Crystallographers

This section is intended to be a series of short paragraphs dealing with the activities of crystallographers, such as their changes of position, promotions, assumption of significant new duties, honours, etc. Items for inclusion, subject to the approval of the Editorial Board, should be sent to the Executive Secretary, International Union of Crystallography, 5 Abbey Square, Chester CH1 2HU, England.

J. Appl. Cryst. (1993). **26**, 499

Professor John William White, CMG, Professor of Physical and Theoretical Chemistry in the Australian National University, Canberra, was elected a Fellow of the Royal Society on 11 March 1993. He was distinguished for his contributions to the use of neutron-scattering methods for the study of the structure of crystals and liquids. He combined great theoretical understanding of the properties of atoms when irradiated by beams of neutrons with imaginative use and sophisticated development of the technique to obtain new understanding of the structure of molecular crystals and the structure and dynamics of adsorbed monolayers.

International Union of Crystallography

J. Appl. Cryst. (1993). **26**, 499

Executive Secretary
It is with deep regret that the death of J. N. King is announced. Jim joined the Union as the first Executive Secretary in 1969 and gave loyal service until his untimely death on April 12. He had known about his illness for about fifteen months but had continued working with remarkable fortitude almost until the end. A full obituary will appear in *Acta Crystallographica* Section A in due course.

Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (R. F. Bryan, Department of Chemistry, University of Virginia, McCormick Road, Charlottesville, Virginia 22901, USA). As far as practicable, books will be reviewed in a country different from that of publication.

J. Appl. Cryst. (1993). **26**, 499–500

Synchrotron radiation crystallography. By *Philip Coppens*, with contributions by *David Cox*, *Elias Vlieg* and *Ian K. Robinson*. Pp. x + 316. London: Academic Press, 1992. Price £45.00. ISBN 0-12-188080-X.

Crystallography in general, and X-ray crystallography in particular, have been with us for a very long time. Indeed, determination of the structures of crystals with small and medium-sized unit cells has become a widespread and almost routine technique. Why then synchrotron-radiation crystallography – and what is it? The special characteristics of synchrotron radiation are its high intensity, narrow collimation, polarization, wide spectral range and time-pulsed structure. The use of these special features in applications that either cannot be done as well, or cannot be done at all, with conventional sources, is what constitutes the relatively new subject of synchrotron-radiation crystallography. This book aims to collect together up-to-date descriptions of many of these special applications. It is not meant to be comprehensive, nor is it an introductory text. The intended audience is not specified but the book is aimed, in essence, at the research scientist with a working knowledge of crystallography who wishes to learn in depth what synchrotron radiation can contribute to conventional crystallography and how it may be used to extend the subject into new areas. It is densely packed with useful information but the presentation and the typography are clear – at least to readers with a significant background knowledge of the subject. Well chosen references to the original work are given and in my judgement the book is both very successful and timely in bringing together a coherent account of an exciting and rapidly developing subject or, more accurately, collection of subjects. In reality, this is not one book but three, each of which I will comment on in turn. The first, comprising the *Introduction* and seven chapters, is by Philip Coppens. The *Introduction* (14 pp.) outlines the reasons for choosing the topics of the book in relation to the properties of synchrotron radiation. It also includes brief descriptions of X-ray diffraction from single crystals of very small size (*e.g.* linear dimensions of 10 μm or less) and the importance of the measurement of very weak and high-order reflections. Chapter 2 (17 pp.) deals with the properties of synchrotron radiation, including insertion devices, and Chapter 3 (25 pp.) deals with optical elements of diffraction beam lines, with discussion of various kinds of monochromators and mirrors. Chapter 4 (24 pp.) is devoted to synchrotron data measurement and is a brief practical guide to incident-beam monitoring, counter dead time, polarization, different diffractometer scans and area detectors.

Chapters 5 to 7 each deal with a specific scientific application. Chapter 5 (22 pp.) is concerned with the importance of accurate data and how this is characterized, followed by discussion of the determination of experimental charge densities, where the improvements now becoming possible through the ability to measure accurately weak and high-order reflections using synchrotron radiation are illustrated by recent data. Chapter 6 (31 pp.) is about anomalous scattering; its origin, experimental determination and use – now made easily possible by the continuous nature of the synchrotron-radiation