latively long wavelengths to be chosen in order to reduce exposure times to a minimum, owing to the wavelength dependence of the intensity incident on the sample. For example, the exposure time for data collection to a given resolution at the instrument X11/DORIS decreases by a factor of about five in going from $\lambda = 1{\cdot}0$ to 1·5 Å.

Fig. 1 shows schematically the cassette mounted on a modified computer-controlled Arndt–Wonacott camera (Bartunik, Clout & Robrahn, 1981; Bartunik, Gehrmann & Robrahn, 1984) and the components of the cassette. The radius of curvature is 85 mm. X-ray films of size 13×18 cm (5×7 in) are used. Up to three films may be loaded in the cassette together with (thin metallic) attenuation foils required in short-wavelength studies in order to provide a sufficiently broad dynamical range. Eight cylindrical cassettes may be mounted on a commercially available film carousel.

For film processing, three fiducial marks are exposed with X-rays. On X11/DORIS, the direct beam is also exposed for defining the center of the diffraction pattern. This is done automatically with an electromagnetically driven moving beam stop in combination with a rapid shutter. Computer processing of rotation data collected with cylindrical cassettes is feasible with a number of film evaluation programs such as, for example, the *MUNICH* program.

H. D. BARTUNIK
T. GEHRMANN

European Molecular Biology Laboratory
c/o DESY
Notkestrasse 85
2000 *Hamburg* 52
Federal Republic of Germany

References

Bartunik, H. D., Clout, P. & Robrahn, B. (1981). *J. Appl. Cryst.* **14**, 134–136.
Bartunik, H. D., Gehrmann, T. & Robrahn, B. (1984). *J. Appl. Cryst.* **17**, 120.

(*Received* 7 *June* 1984;
accepted 5 *September* 1984)

J. Appl. Cryst. (1984). **17**, 486

Bearings for rotating-anode X-ray generators

High-precision bearings (size KLNJ 3/4) are recommended for Marconi–Elliott GX6 rotating-anode generators but we have found that standard bearings of the same size provide a satisfactory and inexpensive alternative. In the GX6 generator (Marconi–Elliott Avionics, Borehamwood, Herts, England), the anode (diameter 89 mm) rotates at either 3000 or 6000 rev min^{-1}. Oil seals need frequent replacement and bearings also need to be replaced occasionally. The recommended bearings are not generally available from bearings suppliers and are expensive. We have used standard bearings of the same size (from FAG Bearings, Salford, England) and have found that they are equally satisfactory. They do not appear to have any adverse effects on the oil seals. A considerable reduction in maintenance costs results from using these alternatives. We have always used a rotation of 3000 rev min^{-1} with both standard and high-precision bearings. Users of GX6, and other rotating-anode generators, should consider using standard bearings as an inexpensive alternative when replacing high-precision bearings in their equipment.

KAREN E. DAVIES
D. W. L. HUKINS

Department of Medical Biophysics
University of Manchester
Stopford Building
*Manchester M*13 9*PT*
England

(*Received* 11 *June* 1984;
accepted 16 *July* 1984)

Crystallographers

J. Appl. Cryst. (1984). **17**, 486

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 of the International Union of Crystallography (J. N. King, International Union of Crystallography, 5 Abbey Square, Chester CH1 2HU, England).

Dr **William Alfred Wooster** (**Peter** to his friends) was born in Peterborough on 18 August 1903, and died in Cambridge on 12 April 1984. His whole scientific life was spent in Cambridge; he graduated as a physicist in 1924 and in 1927 he joined the Department of Mineralogy and Petrology as a demonstrator, becoming a lecturer in 1935.

Professor H. Lipson writes that Wooster took both his teaching and his research very seriously, and with Drs Henry and Evans became renowned amongst the natural science students for the care and effort put into his lectures. In some ways, Wooster rather overdid this; he claimed that lectures should be completely objective, whereas some of us believe that the personality and the philosophy of the lecturer should also be apparent.

His research work was also meticulous: he would not indulge in a subject unless he felt that he had a complete grasp of it. Crystal physics fascinated him since it gave him opportunities to exercise his talents without the uncertainty that permeates much of modern physics. He wrote, or cooperated in writing, several books–*Crystal Physics* in 1938, *Interpretation of X-Ray Diffraction Photographs* in 1951, *Experimental Crystal Physics* in 1957, with a revised version in 1970, and *Tensors and Group Theory* in 1973. All these subjects suited admirably his clear and lucid mind.

His research work was essentially individualistic; he was in no way a bandwagoner. He became particularly interested in the phenomenon of diffuse X-ray reflexions and the relation of the thermal motions of the atoms to the elastic properties, and he published several papers on this theme.

As a person, he could be described as being just what the public expects a scientist to be – careful, precise, and speaking only when he has something of importance to say. His logical mind led him to accept communism, but he was not aggressive and would listen patiently to those who disagreed with him.

But there was one occasion when his scientific approach let him down. In 1951, with Ramachandran he wrote a paper in which he introduced some 'portmanteaux' words – 'relp' for 'reciprocal-lattice point', for example. Shortly after, *Acta* received a paper from an author, A. L. Pon, which the Editor sent to Wooster to referee. It completely bewildered him: he could neither understand it nor recognize many of the words in it. The author was, in fact, A. L. Patterson, and he had 'portmanteauxed' many of the words in the crystallographers' vocabulary! The paper was, in the end, accepted, but was, alas, not published.

In 1960 he resigned his lectureship at Cambridge to concentrate upon a company that he had formed – Crystal Structures Ltd –, which made apparatus for X-ray diffraction studies and models of crystal structures. In this work he had the loyal support of his wife Nora and his two sons.

His death leaves a gap in the crystallographic world.

Professor **E. S. Clark**, Department of Chemical, Metallurgical and Polymer Engineering, University of Tennessee, USA, has been elected a Fellow of the (US) Society of Plastics Engineers and a Fellow of the American Institute of Chemical Engineers. Noted for bridging the gap between basic knowledge and industrial technology, Dr Clark's publications on the relationships between polymer structure and plastics technology are among the first of these pioneering efforts.

0021-8898/84/060486-01$01.50