

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

Dr **P. J. Wheatley**, Department of Physical Chemistry, University of Cambridge, England, has resigned as a Co-editor of *Acta Crystallographica* with effect from the end of 1980 and Dr **T. J. Hamor**, Department of Chemistry, University of Birmingham, England, has been appointed to succeed him, along with Dr **S. Jagner** and Dr **B. T. M. Willis**, whose appointments have been announced previously.

Dr **H. Yakel**, Metals and Ceramics Division, Oak Ridge National Laboratory, Tennessee, USA, has been appointed as a Co-editor of *Journal of Applied Crystallography* with effect from the beginning of 1981. Professor **J. B. Cohen** will continue as a Co-editor until the end of the Twelfth General Assembly and Congress of Crystallography in Ottawa, August 1981.

## Book Reviews

*Works intended for notice in this column should be sent direct to the Book-Review Editor (J. H. Robertson, School of Chemistry, University of Leeds, Leeds LS2 9JT, England). As far as practicable books will be reviewed in a country different from that of publication.*

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**Сегнетоэлектрические пленки сложных окислов металлов.** Ю. Я. Томашпольский, Г. Л. Платонов. Стр 200. Москва «Металлургия» 1978. (**Ferroelectric films of metallic complex oxides.** By Yu. Ya. Tomashpolsky and G. L. Platonov. Pp. 200. Moscow: Soviet Metallurgy, 1978). Price 1p 70k.

This book sets out to systematize the various studies carried out on ferroelectric films, at least up to about 1976, as judged from the list of references at the end.

The authors begin by explaining in the first two chapters the methods of preparation and characterization of thin films, and then go on to discuss crystallite and atomic structure. This forms a useful but not particularly extensive summary of what is known to date about the structures

of ferroelectrics, although, perhaps, undue stress is placed on the value of Fourier maps to decide whether order – disorder or displacive models of the structures are relevant. It is well known just how hard it is to make such a distinction, particularly in non-centrosymmetric materials such as BaTiO<sub>3</sub> or PbTiO<sub>3</sub>, where correlations between the positional parameters abound. Nevertheless, the structural descriptions given by the authors are welcome, as far as they go.

There follows a good exposition of the configuration of domains showing the effects of lattice mismatch, a discussion of dielectric properties, particularly in connection with BaTiO<sub>3</sub>-based materials, and the effects of crystallite size.

Finally, a very brief digest of the pertinent theory is given followed by a summary of known ferroelectric thin films with their methods of preparation and properties.

Generally it is quite a useful book for graduate students, research workers or possibly for those in the thin-film industries.

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**Current topics in materials science. Vol. 3.** Edited by E. Kaldis. Pp. ix + 691. Amsterdam: North-Holland, 1979. Price US \$ 112.25 Dfl 230.00

It is a daunting task to edit a continuing series of volumes on such an ill-defined topic as 'materials science' and to maintain a standard which makes the series useful, if not invaluable, to many workers in the materials field. The series edited by Kaldis started well, but in Volume 3 it seems to have got out of hand; the topics are very diverse (as the editor admits) and some are easily long enough to warrant publication as a separate text book. Thus Volume 3 is really three volumes in one:

- (i) 288 pages on *Basic mechanisms in the early stages of epitaxy* by Kern *et al.*;
- (ii) 197 pages on *Materials aspects of solar cells* by Bachmann;
- (iii) a selection of shorter articles completing the almost 700 pages of the book.

Instinctively one looks for up-to-date reviews which are concisely informative

on topics which are of general interest in continuing series publications. If more explicit detail is required one would prefer a specialized text book dealing with the subject. In the present case, one doesn't necessarily wish to purchase 288 irrelevant pages if one wishes to catch up on the latest situation in solar cells. It is reassuring that the editor indicates in the preface that future volumes will be shorter.

An additional feature of Volume 3 is a lack of a balance in both the length of the articles and in the depth of the subjects. One is forced to quote again the very detailed article on epitaxy by Kern (which is written in the very extensive classical mode) and to compare it with the necessarily terse and superficial 12 pages by Carruthers on *Optical fibreguides for lightwave communications*. From the practical viewpoint – which seems to be the overwhelming consideration in physical science these days – it would appear that the importance of a subject from the device viewpoint is inversely proportional to the length of the article.

It is with greater pleasure that one can comment on the review on solar-cell materials by Bachmann. Not only is this article competent and comprehensive it is also well written and readable. It contains no less than 1071 references, which should make it a useful information source for many readers. It is also topical, and in view of the current importance of alternative energy systems throughout the world, justifiably lengthy. The author is clearly *au fait* with most aspects of solar-cell theory and technology, and covers not only conventional Si homojunction cells, but heterojunction, Schottky-barrier and electrochemical cells. Although the article is stated to have been updated in 1978, no obvious omissions from its coverage can be detected.

Returning yet again to the article on epitaxy by Kern, this is clearly a major work and is a very complete coverage of a specialized area in which theory and practice have yet to amalgamate. It is perhaps unfortunate that the systems studied (predominantly metals on rock salt) do not bear much relationship to industrially important epitaxial systems. The article suffers badly from inadequate translation. The style is very terse, and coupled with grammatical inaccuracies and ambiguities arising from convoluted phraseology, one is in danger of learning a lot of new words rather than science.

The remaining articles are more of the length to be expected in a series of this kind. They are generally informative and