eters. This is a very thorough survey, dealing with every possible contribution to the background and the effect of various techniques on the errors deriving from background measurement. T. C. Furnas, in the fifth paper, takes the matter further in a general discussion of single-crystal diffractometer techniques, although he begins by wondering whether the attempt to make actual measurements of intensity correct to 1 % has any meaning in the light of absorption errors which may be much greater.

The final paper, by J. Ladell, is an elaborate analysis of systematic errors in the determination of structure factors, directed once again to single-crystal diffractometers. He arrives at the conclusion that crystal-monochromatized radiation is the most important single experimental factor in leading to improved structure-factor accuracy.

It is a pity that the discussion on this and the previous paper could not be recovered from the tape, so that the pros and cons of crystal-monochromatized *versus* balanced-filter radiation are not debated.

This first volume of the A.C.A. *Transactions* is an undoubted success and must be on the bookshelves of all those interested in accurate structure determination, for the references it provides as well as for the papers themselves.

The general impression left is of tremendous theoretical and experimental complication in the search to reduce the 2 % accuracy available by photographic means to the 1 % which counters can provide, with very little effort spent in working out under what circumstances this is necessary or justifiable. Also, while errors due to extinction are admitted to be considerable, no work is reported on the measurement of extinction in single crystals. It would appear that the 0·1 % errors are being relentlessly pursued, while the 2–3 % errors are largely ignored. Theoretically, until we know the effect of the peaking of thermal diffuse scattering under the Bragg peaks, for structures other than simple cubic, we shall have to admit the possibility of large errors, especially in high-angle reflexions.

However, it is precisely the value of symposia such as this, that they highlight the problems which require attention, and the A.C.A. has put the world community of crystallographers in its debt by producing this first volume of its *Transactions*.

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Electron Microscopy of Thin Crystals. Par P. B. Hirsch, A. Howie, R. B. Nicholson, D. W. Pashley et M. J. Whelan. Pp. 549, 381 figures. Londres: Butterworths, 1965. £7.10*s*.

Les auteurs de cet excellent ouvrage, se sont attachés à la description des techniques modernes de microscopie électronique, directement applicables à la cristallographie et plus particulièrement à l'étude des défauts cristallins (fond noir, microdiffraction électronique, diffraction électronique à haute résolution avec préparation perpendiculaire ou oblique par rapport au faisceau d'électrons). Ils ont en outre, accordé une place très importante à l'exposé et à la discussion des théories cinématique de la diffraction électronique. Il est regrettable toutefois, que les auteurs n'aient pas traité le cas des cristaux bipériodiques et du désordre turbostratique d'empilement, très fréquemment rencontrés dans les cristaux minces autres que les métaux ou les alliages. Les appendices relatifs aux problèmes typiques de microscopie électronique et aux données physiques d'un usage courant dans ce domaine sont très utiles. Enfin, les index sont remarquablement bien faits.

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The growth of crystals from the melt. Vol. 5. By J. C. Brice. Pp. x + 192. Amsterdam: North Holland Publishing Co. 1965. Price *f.* 25·00.

The author writes 'crystal growth is slowly changing from an art to a science. At the present time it is probably best described as a craft. The aim of this monograph is to give a simple account of the scientific principles which underlie the various processes associated with growth from the melt'.

Mr Brice is well able to judge the present situation since he has had considerable experience in crystal growth and solute incorporation whilst working at the Mullard Research Laboratories. However, it is perhaps worthy of note that this experience has been almost exclusively concerned with non-metals.

The book divides conveniently into two halves, theoretical considerations and practical applications. Chapters 1–3 are entitled *Gases, solids and liquids*, *The kinetics of growth from the melt*, and *Distribution of impurities* respectively, whilst chapters 4–7 involve *General experimental considerations*, *Growth in crucibles*, *Crystal pulling* and *Growth without crucibles*. The whole is preceded by a *List of most important symbols*, and in this connection Mr Brice has rendered a valuable service for he has adopted a standard formalism throughout. Thus the reader is not caused to flounder through the ill-described k_0, k^*, or k, as used by the original workers and directly transposed into many other books on crystal growth. The bibliography is comprehensive.

The book is well supplied with useful line-drawings and the tabular information is clearly displayed. This has allowed a considerable volume of experimental work to be condensed into an almost pocket-sized volume and with only occasional breaks in clarity.

In covering such a wide field, the author has occasionally not been fully critical, and because of this the reader is urged to be cautious. An example of this concerns the formation of dislocations in melt grown crystals (p. 15). Mr Brice concludes his summary of the possible mechanism by which dislocations can form with: 'of these mechanisms the most probable appears to be the collapse of vacancy discs'. The reviewer considers that a more critical analysis of the work on this topic would point to this being one of the *least* probable mechanisms.

In conclusion, I consider that Mr Brice has made a most readable contribution to the (flood-like) flow of literature on crystal growth. In particular, my research students have found it most useful!

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