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Notes for authors: anisotropic parameters. By D. W. J. CRUICKSHANK, *Chemistry Department, University of Glasgow, Glasgow, W. 2, Scotland*

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The January 1965 issue of *Acta Crystallographica* contains an admirable list of *Notes for Authors* (p. 134), but nothing is said about the tabulation of the parameters occurring in the anisotropic exponential. Many structure analyses are still being reported with tables of the β_{ij} occurring in the term

$$\exp(-\beta_{11}h^2+2\beta_{12}hk+\cdots).$$

There are two quantities which are much more informative than the β_{ij}; either the B_{ij} analogous to the isotropic Debye B, or preferably the mean-square-amplitude tensor U_{ij}. The relations are

$$\beta_{12}=2\pi^2U_{12}a^*b^*=B_{12}a^*b^*/4\,.$$

A table of the β_{ij} gives no immediate idea either of the magnitude of the motion (and/or disorder) or of the degree of anisotropy.

It is no defence of the practice of publishing the β_{ij} to say that they may be meaningless because of the possibility of gross systematic errors in the $|F_o|$. If the β_{ij} really are meaningless they should not be published at all. Of course, it is not uncommon for there to be some proper doubt about their precise values and in such a case a cautionary remark will be needed in the text of a paper. Such a remark will serve equally well with a table of the U_{ij}. Indeed, indications of any unreliability in the anisotropic parameters are more likely to be given by the U_{ij} than by the β_{ij}.

Care is also needed about the factor of 2 in the cross-terms. Sometimes it is not clear in the sense of the above definitions whether tables contain β_{12} or $2\beta_{12}$, or U_{12} or $2U_{12}$.

Notes and News

Announcements and other items of crystallographic interest will be published under this heading at the discretion of the Editorial Board. The notes (in duplicate) should be sent to the General Secretary of the International Union of Crystallography (D. W. Smits, Rekencentrum der Rijksuniversiteit, Grote Appelstraat 11, Groningen, The Netherlands). Publication of an item in a particular issue cannot be guaranteed unless the draft is received 8 weeks before the date of publication.

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Book Reviews

Works intended for notice in this column should be sent direct to the Editor (A. J. C. Wilson, Department of Physics, Georgia Institute of Technology, Atlanta, Georgia 30332, *U.S.A.). As far as practicable books will be reviewed in a country different from that of publication.*

Snow crystals. By W. A. BENTLEY and W. J. HUMPHREYS. New York, Dover Publications Inc. 1962. $3.00.

The original edition of this book was published by McGraw-Hill Book Co. in 1931 and has long been out of print. It consists largely of reproductions of photographs of snow crystals taken by W. A. Bentley, an enthusiastic amateur observer, at his home in Jericho, Vermont. The selection of the crystals to be included was made by W. J. Humphreys, the meteorologist and author of the book *Physics of the Air*, who also wrote a short introduction explaining how the photographs were taken and discussing what was then known about the crystallography of ice. This is now out of date, though many of the problems raised that were thought to have been solved somewhat later have now been re-opened by more recent work, but the main value of the book clearly lies in the large number of beautiful photographs of snow crystals, well over 2,000 of them, and the

smaller number of pictures of allied forms such as frost, rime and graupel. These are truly magnificent; the enormous variability of snow-crystal shapes should delight any crystallographer – and intrigue him as well when he turns to the pages of crystals showing apparently trigonal symmetry!

This Dover edition is an unaltered republication of the original edition, and although the covers are paper, the quality of the photographic reproductions is extremely high. Although not so scientifically rewarding as U. Nakaya's *Snow Crystals: Natural and Artificial* (Cambridge, Mass., Harvard University Press, 1954), the quality of reproduction of the photographs is finer, and the number much greater; Dover Publications are to be congratulated for making this book available at such a reasonable price.

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Theoretische Festkörperphysik. Band I. Par le Dr ALBERT HAUG. Pp. xii + 519. Vienne: Franz Deutike, 1964.

Dans l'introduction de son cours de physique théorique des solides, l'auteur se propose de faire le point de l'évolution très rapide de la physique des solides durant ces dernières années. Nous nous attendons donc à trouver un exposé moderne venant compléter les ouvrages anciens et plus élémentaires comme le 'Mott et Jones', le 'Seitz' ou le 'Kittel'. C'est peut-être ce que nous apportera le tome II de ce cours. Pour l'instant nous ne pouvons juger que le tome I qui contient une introduction générale à la théorie des solides parfaits: structure cristalline, potentiels cristallins, théorie à un électron, modèle des bandes, problème à N électrons, liaison cristalline, magnétisme et dynamique des réseaux. Rien de tout ceci n'appartient spécifiquement à la physique de ces dernières années et la dimension limitée de l'ouvrage empêche l'auteur de s'étendre sur les aspects actuels de ces théories. La présentation elle-même est très classique et n'utilise pas les techniques mathématiques plus élégantes et concises de la seconde quantification et des fonctions de Green.

En outre, c'est un ouvrage extrêmement abstrait et de présentation compacte: aucun exemple physique n'est donné, très peu d'applications numériques, de représentations graphiques, rien de ce à quoi les méthodes pédagogiques américaines nous ont habitués. Nous préférons donc attendre le tome II pour porter un jugement sur ce cours.

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