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.

International Union of Crystallography

Seventh General Assembly and International Congress and Symposium on Crystal Growth

An announcement for the above meetings has already been given in the previous issue of this journal [*Acta Cryst.* (1965), **19**, 291]. In this announcement no mention was made, however, that Saturday 16 July has been reserved for meetings of Commissions and Committees of the Union. These bodies may use this day at their own discretion for business meetings or for open sessions. Some Commissions have already made preliminary plans for such open sessions.

Attention should further be drawn to the decision made by the Programme Committee, and approved by the Executive Committee of the Union, that each author will be allowed only one contributed paper in the programme of the Congress. By this rule joint authors whose names are attached to a contributed paper may not offer another paper to the contributed programme nor may they be joint author for another contributed paper. Invited papers and papers offered for the Symposium are not considered for the application of the rule.

International Conference on Crystal Growth

Boston, Massachusetts, U.S.A., 20 – 24 June 1966

An International Conference on Crystal Growth will be held in Boston, Mass., from 20 to 24 June 1966. The purpose of the conference is to further basic understanding of the science of crystal growth The scope of the meeting will include (1) molecular mechanisms of crystallization, (2) growth of metals and semiconductors, (3) growth of nonmetals, (4) techniques, and (5) properties associated with growth parameters.

Only refereed contributions will be admitted for presentation. The proceedings will be published as a special issue of *The International Journal of the Physics and Chemistry of Solids*.

Those interested in submitting a paper to the Conference are requested to write as soon as possible to the Conference Secretary, International Conference on Crystal Growth, 40 Acorn Park, Cambridge, Mass., U.S.A., to whom also any other enquiries about the meeting should be adressed.

Book Reviews

Works intended for notice in this column should be sent direct to the Editor (A. J. C. Wilson, Department of Physics, University College, Cardiff, Great Britain). As far as practicable books will be reviewed in a country different from that of publication.

Handbook of X-ray analysis of polycrystalline materials. By LEV IOSIFOVICH MIRKIN, translated from Russian by J. E. S. BRADLEY. Pp. xx+731 with 200 figs. and many tables. New York: Consultants Bureau, 1964. Price $ 35·00.

This volume is a translation into English of a quite remarkable Russian book. The Russian edition was published originally in 1961. It attempted to provide, mainly in the form of tables, diagrams and charts, a comprehensive collection of those data used in X-ray analysis of polycrystalline materials. The translation can be regarded as eminently successful, with the result that a reference book of considerable practical value, deserving wide circulation in the Western world and elsewhere, has been made available.

In the foreword by the Russian editor Professor Umanskii, it is stressed that it was not the intention to present the type of material to be found in the ordinary textbook. Thus, only relatively brief statements about the use of the tabulated data, graphs, and other devices, are included, and descriptions of techniques, derivations of formulae, and so on, are kept to a minimum. Perusal of the table of contents on pages xiii to xx leaves one with the conviction that the subject has been very adequately covered, and it is indeed difficult to find any very serious gaps in this admirable compilation.

The material is divided broadly into two parts. In the first part, comprising four chapters, basic data and physical constants, required at the start of an X-ray analysis, are tabulated. The second part containing six chapters provides the kind of information needed in the various applications of X-ray powder methods, for example, qualitative and quantitative analysis, determination of orientation textures, and crystallite size evaluation.

The basic data include tables of wavelengths, scattering coefficients, absorption coefficients, aids to measurements of diffraction patterns, indexing, and line intensity calculations. As an example of the length to which the tabulated data go to enable the user to avoid the simplest arithmetic, the factor for conversion between kX and Å is briefly discussed, but, in addition, a table is provided listing in parallel columns spacing values in the two units and the numerical difference between them. The range covered is from 2·2525 to 9·9258 kX. It appears rather doubtful whether reference to the table is any quicker than a mental computation. The chapter on indexing includes reference to almost every possible type of chart, though the Hull–Davey charts receive perhaps the chief attention. It is interesting to note that the Hull–Davey charts for indexing orthorhombic structures have been reproduced, since so far as the reviewer is aware, these disappeared from the available literature after publication in 1928 in a rather obscure book on ore mineralogy. Another notable item in this chapter is the set of diagrams illustrating the use of the theory of homology in indexing: the diagrams depict the different line splittings consequent upon progressive lowering of crystal symmetry as a result of displacive deformation from cubic through tetragonal and hexagonal to orthorhombic, monoclinic and triclinic.

The chapter on phase analysis includes tables of data on the crystal structures of elements and a wide range of compounds. The data are presented in several different ways, one in terms of isostructural families. The coverage is obviously limited, and other much more complete compilations can be found elsewhere in the literature. There is also an interesting range of diagrammatic representations of powder patterns of substances of different structure types, which could justifiably be regarded as aids to structure identification. Data taken from the *ASTM Powder Data File* which were included in the Russian edition have been deliberately omitted from the English translation.

The later chapters cover the subjects of accurate lattice parameter measurements, stress determination, crystallite size and lattice distortion evaluation, preferred orientation textures, and small-angle scattering. Graphical aids and tables are used liberally, for example for selecting the radiation in lattice parameter work or for analysing the width and shape of broadened line profiles.

At the end of the book there are two short chapters, one of which gives some formulae and tables appropriate to calculations on electron diffraction patterns, whilst the other claims to provide some information about neutron diffraction. It is very doubtful whether these chapters do anything to enhance the value of the book as a whole. At best they may give some hints to the practising X-ray technologist of the possibilities of the methods, but those more intimately concerned with the methods will probably not be very impressed.

There is a relatively unambitious, but nevertheless good, subject index. This, in combination with the table of contents already mentioned, makes it possible to find particular items quickly and satisfactorily. Before the subject index, literature referred to in the text is listed in numbered order. There are 464 of these references, and the cover is wide, not by any means confined to Russian literature. The accuracy with which authors' names and initials have been quoted, however, leaves a lot to be desired. The book is stoutly bound and the printing clear. It can be recommended as a worthwhile work of reference to all those in practice in X-ray analysis of polycrystalline materials.

H. P. ROOKSBY

General Electric Company Ltd
Hirst Research Centre
Wembley
Middlesex
England

Point defects in metals. Par A.C. DAMASK et G.J. DIENES. Pp. 314. New-York: Gordon and Breach, 1964. Prix $ 9·50.

Voilà un excellent livre comme on aimerait en avoir à sa disposition sur beaucoup de sujets, aussi bien pour y trouver un renseignement précis que pour en retenir une vue générale d'un domaine peu familier.

Le livre est de dimensions modestes, ce qui implique que les auteurs ont fixé des limites étroites à leur sujet et que, même sur ce sujet restreint, ils ont choisi de ne pas tout dire. Ce qui fait la qualité du livre, c'est le caractère judicieux de ces choix ainsi que la manière élégante dont les auteurs remplissent la tâche qu'ils se sont fixés: c'est un livre clair, à la fois par le style et la présentation typographique.

Les auteurs traitent presque uniquement des défauts ponctuels dans les métaux (lacunes, groupe de quelques lacunes, interstitiels). Ces défauts sont assez simples pour se prêter à des calculs élémentaires. Les équations thermodynamiques sont exposées très complètement mais à partir des bases, ce qui élargit considérablement le nombre de lecteurs qui se serviront avec profit du livre. Notons avec satisfaction que l'on insiste sur le sens physique des équations et sur l'ordre de grandeur de toutes les quantités importantes. Ensuite est traitée dans le même esprit la théorie du recuit des défauts dans les diverses conditions qui se rencontrent réellement, puis les moyens de calculer à partir de l'expérience leur énergie d'activation sont discutés en détail.

Un chapitre est consacré aux relations entre les défauts élémentaires et les propriétés physiques macroscopiques (calorifiques, électriques, mécaniques).

Enfin, dans le dernier chapitre sont passées en revue *quelques* expériences fondamentales, choisies parce qu'elles illustrent un principe et parce qu'elles conduisent à des résultats faciles à interpréter. C'est dire qu'un tri très sévère a été fait. Certes l'impression du lecteur serait très différente s'il se plongeait dans l'abondante littérature qui est souvent loin d'être clarifiée. D'ailleurs, les auteurs ne cachent pas les points sur lesquels nos connaissances sont incertaines mais ils négligent de s'apesantir sur des travaux dont les conclusions pourront être rapidement modifiées.

Si les articles originaux sont fort abondants en la matière, un livre d'ensemble manquait et celui que nous apportent Damask et Dienes rendra beaucoup de services, en particulier il pourra initier des cristallographes purs à des notions qui leur sont encore peu familières et qui pourront éclairer leurs problèmes d'un jour nouveau.

A. GUINIER

Service de Physique des Solides
Université de Paris
Orsay (S.-et-O.)
France

Crystal structures. Vol. 2. By R.W.G. WYCKOFF. Pp. viii + 588. New York, London, Sydney: Interscience Publishers. 2nd ed., 1964. Price 180*s*.

In der zweiten Auflage des bekannten Nachschlagewerkes über Kristallstrukturen von R.W.G. Wyckoff ist der zweite Band erfreulich rasch auf den ersten gefolgt. Gegenüber der ersten Auflage ist, abgesehen von der Rückkehr zur konventionellen Buchform, die grösste organisatorische Änderung, dass nun dieser Band nur mehr die Verbindungstypen R_nX_m, $R(MX_2)_n$ und $R_n(MX_3)_p$ enthält, während früher auch die $R_n(MX_4)_p$ – Typen behandelt wurden.

Der Feststellung im Vorwort, dass für viele Zwecke vollständigere Angaben über interatomare Abstände und eine explizitere Beurteilung der Genauigkeit jeder Strukturbestimmung wünschenswert wären, kann der Referent nur zustimmen. Leider muss der Autor dafür auf die nächste Auflage vertrösten – kein Wunder bei der grossen Menge der zu bearbeitenden Literatur.

Der entscheidende Vorteil von Wyckoff's *Crystal Structures* gegenüber den *Structure Reports* liegt wieder in der Berücksichtigung von sehr viel mehr neuer Literatur, nämlich bis 1962. Wohl unvermeidliche kleine Mängel erscheinen dagegen als unwesentlich.

JOSEF ZEMANN

Mineralogisch-Kristallographisches Institut
Universität Göttingen
Deutschland