International Union of Crystallography

IUCr–UNESCO Project on the Teaching of Crystallography

Under this project jointly sponsored by the International Union of Crystallography and UNESCO, funds were provided by the latter organization to assist in the development of some new learning materials in the field of crystallography [see *Acta Crystallographica* (1969), A**25**, 724].

Arrangements have been made with the authors and/or publishers for having a certain number of copies of each item made available to UNESCO for free distribution to teachers of crystallography in developing countries (except for item 5 where this was clearly impossible in view of the cost and for item 11). This distribution will be done by the IUCr Commision on the Teaching of Crystallography, and persons interested in receiving a free sample may write to Professor A. Authier (Laboratoire Minéralogie Cristallographie, Université Paris VI, 9 quai Saint Bernard, Tour 26, Paris Vème, France) who may also provide more detailed information on each of the eleven items. Preference will be given to crystallographers interested in new approaches to teaching and who are willing to report on the results of the new techniques that they may be using. Please, indicate clearly which items are requested.

Apart from the above free distribution (which obviously will have to be very limited), those interested in purchasing one or more copies of any of the items may do so by contacting the authors and/or publishers as indicated below.

The materials that have been produced (or are being produced) as part of this Project, or with partial support from it, are:

1. *Atlas of optical transforms*

By C. A. Taylor (Cardiff, England). It will contain halftone printed sheets with a few optical transforms on each, and facing these there will be sheets with line drawings representing the mask that corresponds to each optical transform. Altogether there will be about 400 optical transforms. At the bottom of each page there will be printed an explanatory text in several languages. This book will be published by G. Bell and Son, Ltd.

2. *Symmetry in two-dimensional periodic patterns*

By H. Schenk (Amsterdam, Netherlands). This is a programmed-instruction textbook, and the technique used by the author is to give three answers for each question: if the reader chooses the right answer, he is given the address of the next question; should he choose a wrong one, he is sent to an address where the nature of the error is explained to him. Versions in Dutch and in English were printed by the author. For as long as copies remain available, they can be obtained from him at Laboratorium voor Kristallografie der Universiteit van Amsterdam, Nieuwe Prinsengracht 126, Amsterdam, The Netherlands (Price: £ 1·50).

3. *Fourier methods in X-ray crystallography*

By H. Schenk (Amsterdam, Netherlands). This is also a programmed-instruction textbook, and it is expected to be ready in 1972. Further details can be obtained from the author (see item 2).

4. *A two-circle ball driller for making crystal structure models*

This is a brochure, containing working drawings and general instructions for building a two-circle ball driller for making crystal structure models, which was produced under the direction of the late Professor Dame Kathleen Lonsdale (London, England). Copies can be obtained from Mr E. Nave, Department of Chemistry, University College, Gower St. London WC 1.

5. *Propriétés optiques des cristaux liquides (optical properties of liquid crystals)*

16 mm film in colour, 20 min duration, produced by the Service du Film de Recherche Scientifique (Paris, France) under the scientific direction of P. Chatelain (University of Montpellier). The SFRS has produced versions in French, English and Spanish. Copies can be obtained either to purchase or on loan, either from the SFRS (96, boulevard Raspail, Paris Vème, France) or through the French Embassy in any country of the world.

6. *Tables for the interpretation of electron diffraction spot patterns from single-parameter crystals of chemical elements*

A 40-page book, by J. Komrska and D. Penaz (Brno, Czechoslovakia). Copies can be obtained from: Academia, Publishing House of the Czechoslovak Academy of Sciences, Vodickova 40, Prague, Czechoslovakia.

7. *Application of the Mössbauer effect in crystallography*

A 47-page text illustrated with 50 diagrams, by T. Zemcik (Brno, Czechoslovakia). The author also prepared the 50 diagrams in the form of projection slides, so that the material can be used both for individual study and for working with large groups. Copies can be obtained from: Institute of Physical Metallurgy of the Czechoslovak Academy of Sciences, Zizkova 22, Brno Czechoslovakia (Price: $3 for each full set of text, diagrams and slides).

8. *Laboratory manual on crystal growth*

By a group of Hungarian scientists under the direction of I. Tarjan (Budapest, Hungary). The purpose of this book is to help students (at a wide range of levels, from introductory to advanced) in performing experiments on crystal growth and understanding the mechanisms of crystal growth. It will also contain suggestions for demonstration experiments to be done by teachers. Most of the experiments selected do not require expensive equipment. This book will be published in English by the Publishing House of the Hungarian Academy of Sciences, and will become available in late 1972 from: Kultura, Hungarian Trading Company for Books, POB 149, Budapest 62, Hungary.

9. *Crystallographic computing*

Edited by F. R. Ahmed (Ottawa, Canada). This book is the Proceedings of the International Summer School on Crystallographic Computing which was held in Ottawa (August 1969) under the auspices of IUCr. It was published by Munksgaard, International Publishers Ltd., Copenhagen, Denmark.

10. *Early papers on diffraction of X-rays by crystals*

Edited by J. M. Bijvoet (Utrecht), W. G. Burgers (Delft) and G. Hägg (Uppsala) The book was published for the IUCr by Oosthoek, Domstraat 11, Utrecht, Netherlands.

11. *Travaux pratiques de cristallographie*

By P. Perio, Université de Paris XI, France. A series of experiments, each requiring about eight hours and making use of standard equipment, has been set up for students in X-ray crystallography and throughly tried. All enquiries should be sent to Professor P. Perio, Cristallographie et Physique Matériaux, Bât. 493, Université Paris XI, 91 Orsay, France.

Supplement to *Acta Crystallographica*, Section A

The Abstracts of the Communications to the Ninth International Congress of Crystallography to be held in Japan in August/September 1972 were published as part S3 of *Acta Crystallographica*, Section A in May 1972, and are being distributed free of charge not only to subscribers to Section A, but also to those subscribers to Section B and to the *Journal of Applied Crystallography* who do not subscribe to Section A.

Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (M. M. Woolfson, Physics Department, University of York, Heslington, York YO1 5DD, England). As far as practicable books will be reviewed in a country different from that of publication.

Preparation and properties of solid state material. Vol. 1. Edited by Robert A. Lefever. Pp.v+284. New York: Marcel Dekker, 1971 Price $18.50

This book is intended to be the first of a series of volumes about different aspects of solid state materials, such as ceramics, metals, composites both in single crystal and polycrystalline form. It is not a general handbook but treats only three very special aspects of crystal growth each written by a specialist. These chapters are:

1. *A Review of the Preparation of Single Crystals by Fused Melt Electrolysis and Some General Properties.* By W. Kunnmann. Pp. 32.

After an introduction about the experimental methods, a review of the preparation of sodium and potassium tungsten bronzes, of vanadium spinels, some metal borides, carbides and silicides, phosphides, sulphides and arsenides is given. 72 references are listed.

2. *The Role of Mass Transfer in Crystallization Processes.* By W. R. Wilcox. Pp. 99.

This is a more general chapter dealing with the mechanism and theory of different processes under the subject: growth from solution and vapour. The diffusion coefficients of many substances in solution are given as well as the surface diffusion coefficients of metals on different substrates. Phenomena such as constitutional undercooling and dendritic growth are briefly treated. (516 references).

3. *Exploratory Flux Crystal Growth.* By A. B. Chase. Pp. 79.

This section deals with growing techniques in fluxes melting between 500 and 800°C. Detailed data of *e.g.* an Al_2O_3 crystal growth are given. Again some growth phenomena are mentioned, *e.g.* spiral growth from screw dislocations, striations and habit modifications. It is emphasized that the theory is far from complete. (46 references.)

The book is intended for both beginners and experienced crystal growers. material scientists and solid state physicists. The beginner in general would do better to read a textbook; this book will only be useful to him and his experienced colleague if he is interested in the specific methods and materials mentioned. Especially in the last two chapters, most of the theories on crystal growth are assumed known. One should take the volume for what it is: a collection of three good review papers of rather specific nature.

G. D. Rieck
Technische Hogeschool Eindhoven
Postbus 513
Eindhoven
Netherlands

Physics of thin films. Volume 6. Edited by M. H. Francombe and R. W. Hoffmann. Pp. xiv+370. London: Academic Press, 1971. Price £9.10, $19.50.

This is the sixth volume of a set of reviews of various aspects and applications of thin solid films. It contains reviews on Anodic Oxide Films by C. J. Dell'Oca, D. L. Pulfrey and L. Young; Size Dependent Electrical Conduction in Thin Metal Films and Wires by D. C. Larsen; Optical Properties of Metallic Films by F. Abelès; Interactions in Multilayer Magnetic Films by A. Yelon and Diffusion in Metallic Films by C. Weaver. This is a mixture of subjects so distributed that any particular reader is unlikely to be interested in more than one or two. Thus, this book is more likely to be found on the shelf of a large library than in a private collection.

The longest review is that by Yelon who describes the theory and experimental study of various forms of coup-