The objectives of this Russian conference were the same as those of the International Conference on Crystal Growth held in Boston, U.S.A., during 1966. In spite of the three-year interval separating them the Russian work foreshadows the interests of the later conference, no doubt because of similar convictions regarding the importance of crystals for basic research and technological devices. The Russian papers, with few exceptions, make little reference to Western work, but an inspection of the proceedings of the Boston conference shows the converse to be equally true. These translations (which incidentally read very well as far as language is concerned), although appearing long after the original papers, should help to remedy this situation.

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Growth and imperfections of metallic crystals. Edited by D. E. OVSIENKO. Translated from Russian. Pp. 260. New York: Consultants Bureau, 1968.

If metals receive little attention in the above conference proceedings then the present collection of papers, first published in 1966, affords compensation. Roughly one half is devoted to growth mechanisms and growth procedures, the latter involving growth from the melt or *via* recrystallization. Apart from one paper on the rare earth metals the work described concerns non-transition metals with low melting points. Little reference is made to the preparation of single crystals of alloys. The latter half of the book treats dislocations in crystals, their occurrence, and dependence upon growth conditions; reference is made not only to metals but also to diamond, silicon and graphite.

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Plasticity of crystals with special reference to metals. By E. SCHMID and W. BOAS. Pp. xiv+353. London: Chapman & Hall, 1968. Price 50*s*.

This book is a re-issue of the well-known classic German work first published in 1935 and translated into English in 1950. Since it has been out of print for some considerable time, it is appropriate to question the purpose to be served in republishing it at this time, particularly as the field of plasticity of crystals is now well catered for by many excellent books on dislocations and plastic flow. The first four chapters deal with the fundamentals of crystallography, elasticity, single-crystal preparation and the determination of crystal orientation, respectively, and are as useful today as they were 30 years ago. The fifth chapter treats the geometry of the mechanisms of crystal deformation, *i.e.* glide and twinning, and the analysis also remains valid today.

The latter two-thirds of the book (Chapters VI to IX) describe the results of special investigations carried out at the Berlin Technical High School during the 1920s and 1930s by the research group which included Schmid, Polanyi, Masing, Wassermann and others. Intense activity since 1950 in the field of plastic deformation has replaced much, if not all, of the work described, but it is easy to see that this outstanding school played a very great part in laying the foundations of our present day understanding of the deformation behaviour of metals and alloys. Moreover, there are many topics discussed such as (i) the intersection of twins to nucleate cracks (Rose's channels, 1922), (ii) deformation twinning in face-centred cubic metals (1924) and (iii) 'amorphous' plasticity accompanying recrystallization or phase transformation (1926–31), which were more or less forgotten for 30 years until rediscovered during the 1950s.

It is difficult to recommend the book to students because of its limited usefulness as a text book covering the modern aspects of crystal plasticity. Its main worth is in providing an account, now somewhat historical, of the ideas and results developed by the German school. The re-issue will however delight many research workers who were previously unable to obtain a copy of this classic book for themselves and hence get a feeling for the atmosphere of this exciting period of metal science.

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The graphic work of M. C. Escher. Second impression. Oldborne, 1967. Price 42 *s*.

This is a revised and expanded edition of a book, originally published in 1961, presenting reproductions of the work of the graphic artist Maurits Escher. There are now eighty-four prints, four of them in colour, and a dozen or so pages of text in which the author explains his aims and describes individual reproductions.

Many crystallographers will be familiar with Escher's periodic drawings through the monograph prepared by Professor MacGillavry for teaching crystallographic symmetry. Anyone who finds delight in the artistry of the periodic drawings and in the ingenuity with which Escher manages to fill completely periodic space with animals and birds will surely be fascinated by this wider range of examples of his work.

Each picture incorporates some specific idea and more often than not this is closely analogous to one of the intrinsically beautiful forms or laws of mathematics and physics. One finds, for example, visual expression of convergent series, topology, projections, gravity, relativity, and optical phenomena in addition to, and often in combination with, the author's more familiar expressions of periodicity and symmetry.

Escher is particularly interested in the presentation of three-dimensional objects in a two-dimensional print. He exploits various devices which suggest the third dimension and he sometimes combines several viewpoints in one print with the inventiveness of a Picasso. But he also makes fun

of the limitations of two-dimensional projections by drawing objects which are susceptible to visual reversal and by using projections which are not self-consistent over the whole print. These ideas are developed in his drawings of impossible buildings which incorporate such features as an endless rising stairway in a finite space and an interesting demonstration of a perpetual-motion machine.

Some of the pictures are very beautiful, some approach the horrific; nearly all of them have a vivid and original impact on the viewer. Altogether this is a fascinating and attractively produced book. It will occupy a proud place on many home bookshelves.

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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 (G. Boom, Laboratorium voor Fysische Metaalkunde der Rijksuniversiteit, Universiteitscomplex Paddepoel, Groningen 8002, 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.

The Warren Award

The *Bertram Eugene Warren Diffraction Physics Award* will be presented for the first time at the meeting of the American Crystallographic Association in Ottawa, Canada, in August, 1970.

This award was established by students and friends of Prof. Warren on the occasion of his retirement from the Massachusetts Institute of Technology. It is to be given for an important recent contribution to the physics of solids or liquids using X-ray, neutron, or electron diffraction techniques. This includes work such as elastic or inelastic scattering studies of imperfections in crystals, or studies of liquids or amorphous materials, or developments in diffraction theory appropriate to such problems, to give a few examples; it does not include crystal structure determinations. Work that is to be eligible for this first award must have been published between 1 July 1963 and 30 June 1969. There are no restrictions as to age, experience or nationality of recipients. The award consists of a certificate and $1000 and is to be given every three years.

The following committee has been appointed to select the 1970 award recipient: R.D. Deslattes, A. Guinier, D.P. Shoemaker, A.J.C. Wilson, and C.B. Walker, Chairman.

The selection committee will welcome suggestions for possible recipients from any interested persons. Suggestions should be addressed to Prof. D.P. Shoemaker, Department of Chemistry, Massachusetts Institute of Technology, Cambridge, Mass. 02139, U.S.A.