Criteria Recommended for the Acceptance of Such Papers are:

1. No detailed program and no detailed descriptions written solely for a specific computer should normally be published in crystallographic journals.

2. Novel computational or programming techniques of general application in crystallography should be considered for publication as short communications or normal length papers. They should be written in general descriptive language applicable to any computer. This general description should, wherever possible, be accompanied by an algorithm or a flow diagram, which may be published with the paper (by photographic off-print) or deposited in a public depository, as deemed appropriate by the authors, referees and editors; (i.e. as for tables of F_o and F_c).

3. Descriptions of existing tested programs on particular commercial machines that are generally available to crystallographers should be considered for publication as short communications or notes. Brief descriptions such as given in the Report of the Pittsburgh Computer Conference (*Acta Cryst.* (1957), **10**, 384), are often too condensed to be useful as standard references (synoptic descriptions of this type will be provided by the *World List of Crystallographic Programs*).

The paper should contain such information as is required to make it useful as a point of reference in crystallographic papers in which the program is subsequently used. When such a brief communication is submitted for publication it should be accompanied by a separate full description such as would permit a user in another laboratory to operate the program. The paper should contain instructions for obtaining copies of this full description and of the program itself. The author should provide the referee with satisfactory evidence that the program has been adequately tested and that the description is adequate, e.g. an instance of its successful use in an independent laboratory.

4. The use of general reference languages such as ALGOL gives promise of relieving crystallographers of the recurring need to reprogram computations for new machines. Programmers should, therefore, be encouraged to make available algorithms of their computing procedures so that experience can be gained of the effectiveness with which they can be converted into machine language. In the absence of this experience, no general recommendations could be made in regard to the publication of such algorithms in crystallographic journals.

5. Papers on novel systems or devices for computing, data processing, or instrument-controlling, whether analogue or digital, should be considered for publication.

1962 Summer Schools on Crystallography

In addition to the previous notes on 1962 Summer Schools (see *Acta Cryst.* (1962), **15**, 300, ...), the I.U.Cr. Commission on Crystallographic Teaching has submitted the following information:

Brooklyn (U.S.A.): 4-15 June

Summer School on X-ray Diffraction. The lectures and laboratory work of this two-week session cover the equivalent of a six-credit lecture and laboratory graduate course. No previous X-ray experience is assumed but those with prior experience may make arrangements to undertake advanced work. At the completion of the course, registrants should be able to do most routine X-ray powder and single-crystal work.

Attendance limited to twenty-five registrants. Fee: $ 275.

Information: Mrs Doris Cattell, Special Courses, Polytechnic Institute of Brooklyn, Brooklyn 1, N.Y., U.S.A.

Gent (Belgium): 23 July–4 August

The international summer course on solid-state physics is devoted to *the optical properties of semiconductors.*

Information: Laboratorium voor Kristallografie en Studie van vaste Stoffen, Rozier 6, Gent, Belgium.

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, Cathays Park, Cardiff, Great Britain). As far as practicable books will be reviewed in a country different from that of publication.

The Theory of Crystal Structure Analysis.

By A. I. Kitaigorodskii [А. И. Китайгородский]. Translated by David and Katherine Harker. Pp. xi+275. New York: Consultants Bureau, 1961. Price $12·50.

The Russian original of this book was published in 1957. The appearance of this fluent and authoritative English translation is very welcome, and makes available to non-readers of Russian Professor Kitajgorodskij's own contributions to the problem of structure analysis, as well as his critical survey of developments originating elsewhere. In a number of places (pp. 69, 88, *etc.*) the translators have added footnotes correcting Kitajgorodskij's arguments, or expressing disagreement with his critical remarks (pp. 252, 261, *etc.*). The Russian edition has already been extensively reviewed (*Acta Cryst.* (1959), **12**, 482), and a reading of the Englich version fully confirms the great value claimed for the book by the former reviewer (who is, in fact, one of the translators). The rest of this review will, therefore, be confined to the manner of presentation rather than the matter presented.

The English edition is reproduced photographically from unjustified typescript, with the equations taken directly from the Russian original, thus excluding the possibility of new printing errors. The notation is, therefore, that familiar in continental texts: scalar product of vectors **ab**, vector product [**ab**], tg for tan, *etc.* [One usage was not familiar to the reviewer; $n!!$ is $1.3.5...n$ for n odd and $2.4.6...n$ for n even.] In general the effect of the reproduction is quite pleasant, but in some places (for example, p. 79 of the review

copy) the printing is so faint that some symbols have to be supplied by guesswork or by rederiving the equations. One might also wish for greater care in the treatment of proper names. Some errors (Rodgers for Rogers on p. 97, or Howels for Howells on p. 274) go back to the Russian original, but are so easily rectified that one wonders why the translators did not spot them. Veilem on p. 69 is more subtle; double transcription and the retention of a Russian case-ending have effectively disguised Weyl. Struchkon (Стручков) on p. 275 is probably simply a typing error. In fairness it ought to be mentioned that some errors in the Russian original have been corrected (Lucesh to Lukesh). It is a pity that the publishers did not take advantage of their opportunity to provide an index.

The earlier reviewer summed up his review in the words '[this book] is another one in the growing number of reasons why every professional scientist should acquire at least a reading knowledge of the Russian language'. The publishers of the translation have provided an economic one: the price of the original was $3·00 at the official rate of exchange, or $1·06 at the tourist rate. As the cheapest possible methods of reproduction have been used for the translation, it is hard to see why its price need be so high.

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X-ray Microscopy and Microanalysis. Edited by A. Engström, V. Cosslett and H. Pattee. Pp. x+542. Amsterdam: Elsevier, 1960. Price 52·50 guilders. £5·0·0.

This book is the published proceedings of the Second International Symposium on X-ray Microscopy and Microanalysis, which was held in Stockholm in 1959 (not 1960, as the title page states). A comparison of the 72 papers presented here with the proceedings of the first Symposium (1956) demonstrates the vigorous development in these fields, especially in the electron-probe techniques. More heartening still, however, is the rapidity with which the techniques are being exploited in other disciplines; they form a substantial and beautifully illustrated part of the book which crystallographers may occasionally find rather far removed from their speciality, but most fascinating reading none the less.

There are three main sections, each prefaced by a summary. X-ray microabsorption studies occupy 318 pages, of which 132 are devoted to points of technique, such as new methods of high-definition recording, new microfocus generators and methods of scanning, theoretical discussions of principles of fine-focus operation and of resolution in both the radiographic and microscopic techniques. Although mainly concerned with very soft X-rays, these articles contain much of interest to the general X-ray analyst. The remainder of the section concentrates on applications, 36 pages on metallurgy and no less than 150 on biological topics.

X-ray emission techniques occupy 110 pages, 74 of which relate to matters of instrumentation and discussions of topics such as the intensity of the emitted X-ray beam and the limiting sensitivity of detection of minor constituents. The remaining pages of the section present details of newly developed (and often very ambitious) instruments together with typical results.

It is in the last section of 107 pages on microdiffraction techniques that the crystallographer will feel most at home. There are three papers describing cameras specially devised for microbeam studies, one describing a monochromator and camera for small-angle scattering, one describing a sensitive automatic-recording diffractometer specially designed for microbeam studies, one describing a generator of variable focal width, and one paper discussing the factors governing the detection of low concentrations in X-ray diffractometry. The remaining papers in the section as well as several of the above give an interesting assortment of applications.

Although there must have been some urgency to publish this book before its contents became too dated, there is no sign of it. The editing has been careful, both in detail and in the merging of papers. All authors have been given adequate space to make their material fully comprehensible and have been allowed an unusually generous number of illustrations; the publishers are especially to be commended on the quality of reproduction of the high-resolution radiographs.

There is a rather restricted index of topics and an index of contributors, but, although all articles quote references, these are not indexed. The weakness of the indexes is the only criticism one can offer of a well produced and most stimulating book.

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Gesammelte Schriften und Vorträge. By Max von Laue, edited by M. Kohler. Three volumes, pp. ix+548; 513; and xliv+265. Braunschweig: Vieweg. 1961. Price DM 145.

The discovery of X-ray diffraction in 1912 was only *one* of Max von Laue's important pieces of research; if the experiments of Friedrich and Knipping had resulted in a failure, Laue would still stand in the first rank of the great German physicists, although many of his chief papers would perforce deal with other subjects. It is with this sentiment that Laue, in preparing a preface to his collected works in 1960 writes of the interference experiment: 'The underlying idea appeared to me, once I had found it, so self-evident that I could never understand the astonishment it caused among the professionals—nor, for that, the doubts that lingered on for a few years.' Laue's interest in the further development of his brilliant experiment, here documented in 29 papers on the theory of X-ray and electron diffraction, always stressed the physical side of diffraction, not its connexion with chemistry. His early papers on this subject deal with the influence of temperature motion, of random substitution in solid solutions, of particle size and shape; and the later ones with the dynamical theory of X-ray and electron diffraction, the influence of absorption, including the Borrmann effect, and the mode of energy flow. Laue not only felt no urge to determine crystal structures, he never even became involved in any of the intriguing mathematical problems connected with the methods of structure analysis. Although it was he who first introduced the reciprocal