

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 Howells 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.

A. J. C. WILSON

*University College  
Cardiff, Great Britain*

**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.

D. ROGERS

*University College  
Cardiff  
Great Britain*

**Gesammelte Schriften und Vorträge.** By MAX VON LAUE, edited by M. KOHLER. Three volumes, pp. ix+548; 513; and xlv+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