

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.

Ionization X-ray Equipment for Research on Crystalline Materials at Various Temperatures. By P. F. KONOVALOV, A. I. EFREMOV, B. V. VOLKONSKII, edited by Professor N. A. TOPOROV. (Translated from the Russian by Y. Shechtman). Pp. [v]+102 with 63 figures and 15 tables. Jerusalem: Israel Program for Scientific Translations, 1961. Price \$1.00.

The original of this book was issued by the Scientific Technical Society for the Production of Building Materials, Leningrad. By describing the apparatus and numerous examples of its application the authors hoped to help 'wide circles of workers in industry and in scientific research institutes'.

Details of a diffractometer capable of operation up to 1500 °C. are given which is claimed to reduce exposure time to 10–15 minutes instead of 10–100 hours required for photographic recording. If the presentation were not so confusing this ought to be a compulsory reading for young scientists. It reminds us that work can still be done with simple devices, such as an X-ray tube the focal area of which projects to no less than 0.3–0.5 mm. width, an 'ionization counter' with single-valve D.C. amplifier, and photographic drum recording (5 mm. per degree Bragg angle) of galvanometer readings. However, this image is somewhat spoiled by the description of a more complex version developed later on.

The last three-quarters of the book is devoted to examples of instrument applications. The wide range of subjects discussed includes the polymorphic transformation, thermal decomposition and expansion, hydration and dehydration of silicates, aluminates, carbonates and sulphates found in building materials. A table shows the influence of NaF, KF and CaF₂ additives on the thermal decomposition of tricalcium aluminate. Some theories are reviewed and existing divergent opinions are pinpointed, but no better solution is offered.

This book is painful reading to a stickler for detail. The translator has pointed out some difficulties in the original text, and added some warnings—two of these (on p. 90, and fig. 51) are not really necessary. A possible mix-up of figs. 38 and 39 is pointed out, but I would also query fig. 37. It appears that the legend printed as fig. 39 suits the curves on p. 64, the legend fig. 37 may fit on p. 65, and that on fig. 38 should probably be transferred to p. 63. It depends on whether there are one or several misprints in the relevant text on p. 61. The lowest curves on fig. 61, 62 and 63 are all labelled 'anhydrous compound' of 5CaO.3Al₂O₃, but they all seem different. It should be pointed out here that the expression pentacalcium trialuminate is used in this book to describe the cubic aluminate 12CaO.7Al₂O₃ (Büsem & Eitel, 1936), and not the orthorhombic compound of 5-3 formula (Aruja, 1957).

There are really too many misprints of formulae, temperature and spacings data, text references to figures *etc.*, to list here. It is also difficult to follow several arguments. There is no bibliography as such and only

a few of the authors' names have publication dates attached. The latest date given is 1950, although a 'recent' paper by Bernal dates probably from 1952. The Russian alphabet offers its usual pitfalls. The book is said to be edited by N. A. Toporov, but the foreword is signed by N. A. Toporov and the framed transcription of the Russian title page shows N. A. Toporova. Double transliteration should return to the original name, but here G. Kyul' has been printed for H. Kühl, and Khel'big for Helbig.

Judging by the circulars of the book trade, translation from the Russian has become a popular pastime. In principle anything which facilitates such exchanges should be encouraged. However, no full re-issue should be welcome to burden our desks unless it gives something new in contents or presentation, or at least gives references not otherwise obtainable; also the author's co-operation should be obtained, if necessary, to reduce the incidence of errors, confusion, inconsistency and useless repetition to a manageable level. On this test it is regretted that this book, originally published in 1958 for the encouragement of the use of X-ray technique as a research tool in Russia, is published in English in 1961, including so many faults.

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Proceedings of the Seventh Conference on Magnetism and Magnetic Materials. Edited by J. A. OSBORN. Pp. [viii]+1019–1394. New York: Plenum Press, 1962. Price \$12.50 (in the United States of America), \$14.00 (elsewhere).

This volume reports on the Proceedings of the Seventh Conference on Magnetism and Magnetic Materials held by the American I.E.E. and the American Institute of Physics. This annual conference is the forum at which the most important advances in the science of magnetism are reported. The Journal of Applied Physics usually publishes a supplement which deals with the papers presented at that conference and this book is a reprint of the supplement published in March, 1962. The Proceedings of the successive conferences on Magnetism and Magnetic Materials are probably, therefore, the most important books for a person working in the field of magnetism. Unfortunately the special volume is expensive and so the chief buyers will be the libraries. This is a pity since the book should be on individual bookshelves wherever possible.

It is not possible in a brief review to go into all the 150 papers, but some of the more important items may be mentioned. The introductory general session is of interest. The first paper by Simkins on the study of the art of magnetic memories shows how magnetic films are superseding in speed the previously used magnetic ferrite cores but also showing that large memories with capacity for over 10,000 bits are still exclusively ferrites and that