schen Auslöschungen mit den entsprechenden Daten des Ammonium–Mangan–Doppelsulfates zeigte, dass beide Verbindungen isotyp sind. $(NH_4)_2Mn_2(SeO_4)_3$ hat also Langbeinitstruktur.

Tabelle 1. *d-Werte und relative Intensitäten von* $(NH_4)_2Mn_2(SeO_4)_3$

d	I/I_0	hkl	d	I/I_0	hkl
6,12	38	111	1,954	9	520
4,71	6	210	1,924	5	521
4,30	81	211	1.834	16	522
3,72	10	220	1,807	4	530
3,51	13	221	1,782	5	531
3,33	100	310	1,733	4	610
3,17	17	311	1,709	19	611
2,922	14	320	1,665	3	620
2,817	53	321	1,645	5	621
2,635	1	400	1,626	7	541
2,556	7	410	1,570	11	630
2,357	9	420	1,553	6	631
2,299	6	421	1,505	5	632
2,150	7	422	1,461	1	640
2,110	2	430	1,448	6	720/641
2,067	14	510	1,433	5	721/633
2,028	2	511	1,371	6	731/553

Die Verbindung bildet eine lückenlose Reihe von Mischkristallen mit $(NH_4)_2Mn_2(SO_4)_3$, die Gitterkonstan-

Tabelle 2. *Gitterkonstanten von* $(NH_4)_2Mn_2(SeO_4, SO_4)_3$ *in Abhängigkeit vom* SeO_4-*Gehalt*

a_0	SeO_4
$10,19_2$ Å	0,0 mol.%
$10,26_5$	23,5
$10,35_3$	46,3
$10,46_5$	82,0
$10,53_3$	100,0

ten der Mischkristalle entsprechen der Vegardschen Regel, wie anhand von Tabelle 2 überprüft werden kann.

Die Mischkristalle Doppelsulfat–Doppelselenat wurden nach dem oben angegebenen Verfahren, thermischer Abbau mit nachfolgender Extraktion mit Alkohol, aus entsprechenden Mischkristallen von $(NH_4)_2Mn(SeO_4)_2 \cdot 6H_2O$ mit $(NH_4)_2Mn(SO_4)_2 \cdot 6H_2O$ hergestellt.

Die Mischkristalle der Hexahydrate sind kongruent löslich, auch durch Entwässerung und Extraktion wird das Verhältnis SeO_4/SO_4 nicht geändert.

Literatur

GATTOW, G. & ZEMANN, J. (1958). *Z. anorg. Chem.* **293**, 233.
ZEMANN, A. & ZEMANN, J. (1957). *Acta Cryst.* **10**, 409.

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 (D. W. Smits, Rekencentrum der Rijksuniversiteit, Grote Appelstraat 11, Groningen, 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.

International Union of Crystallography

Professor I. Fankuchen

The Executive Committee of the Union and the Editorial Board of *Acta Crystallographica* have learned with sorrow of the death on 28 June of Professor I. Fankuchen, for many years Co-editor of the journal. His health had not been good for some years, but he continued his full scientific and editorial activity till a few days before his death.

An obituary notice will appear in a later issue of *Acta Crystallographica*.

Pittsburgh Diffraction Conference

The annual Pittsburgh Diffraction Conference will be held at Mellon Institute, Pittsburgh, Pennsylvania, from 4 to 6 November 1964. Sessions will be devoted to instrumentation, metals and alloys, and structures, with special sessions on extinction, low-energy electron diffraction and small-angle scattering. Professor W. H. Zachariasen of the University of Chicago will be the guest speaker for the Thursday evening meeting. A placement service will be available. Further information can be obtained from Dr W. M. Biagas, Crucible Steel Company, P. O. Box 7257, Pittsburgh, Pennsylvania 15213, U.S.A.

Fifty Years of X-ray Diffraction

A second, final printing of this book has been completed by the publishers, N.V. A. Oosthoek's Uitgevers Mij., Domstraat 11–13, Utrecht, The Netherlands. It is available directly from the publishers, or through Polycrystal Book Service, G.P.O. Box 620, Brooklyn 1, N.Y., U.S.A., or from any bookseller, at the price of 40 Netherlands Guilders (at present rate of exchange £ 4 or $ 11·25). The text of this second printing is the same as that of the first, but a name index and a sheet of the principal errata have been added. Owners of the original printing can obtain the name index and the errata sheet (together 16 pages, format 16 × 24 cm) free of charge by sending their request, which should be accompanied by an international reply coupon (DFl. 0·50, 1 s. or $ 0·15), to either the publishers or Polycrystal Book Service.

Accuracy in X-ray Analysis

The X-ray Analysis Group of The Institute of Physics and The Physical Society announces that it is arranging

a Conference on Accuracy in X-ray Analysis, to be held in London on 12 and 13 November 1964. There will be sessions on accuracy of structure-factor determination, accuracy requirements in structure analysis, and accuracy in powder techniques. In addition to invited papers, there will be an opportunity for presenting short contributed papers.

Further details and application forms may be obtained from the Administration Assistant, The Institute of Physics and The Physical Society, 47 Belgrave Square, London, S.W. 1, England.

Quadratic Functions for Copper and Iron Radiations

G. V. Gibbs and R. M. Lewis have prepared tables of $4 \sin^2 \theta/\lambda^2$ for Cu $K\alpha$, Cu $K\alpha_1$, Fe $K\alpha$, and Fe $K\alpha_1$ radiations at intervals of $0.01° 2\theta$. These tables are available free of charge from the United States Bureau of Mines, 4800 Forbes Avenue, Pittsburgh, Pennsylvania 15231, U.S.A., under reference numbers IC8071 and IC8072. The tables give six decimal places, and are reproduced photographically from the computer output.

Books Received

The undermentioned works have been received by the Editors. Mention here does not preclude review at a later date.

Recovery and recrystallization of metals.
Edited by L. HIMMEL. Pp. x+389. New York: Wiley, 1963. Price 150/-.

This book contains eight papers presented at a Conference on the Recovery and Recrystallization of Metals held in New York on 20 and 21 February 1962. The papers deal with point defects in deformed face-centred cubic metals; internal energy associated with recovery and recrystallization; grain-boundary migration (two papers); recovery, recrystallization and grain growth in aluminum (two papers); annealing of high-purity iron; and annealing of silicon-iron single crystals. There are many micrographs (both light and electron), and some use is made of X-ray diffraction and X-ray reflexion microscopy.

The book is published under the sponsorship of the American Institute of Mining, Metallurgical and Petroleum Engineers. It is well printed, well illustrated, and contains an extensive subject index. The discussion following the papers is reported for seven of them, and the whole book forms a valuable review of recent progress in its field. This is particularly true of the papers on the first three topics mentioned.

Précis de métallographie appliquée. By A. Roos.
Pp. xx+456. Paris: Dunod, 1963. Price 68 F.

The object of this book, now in its second edition, is to provide an essential understanding of the properties of metals in terms of the simpler concepts of crystal structure, chemistry and physics, as well as providing a practical manual for the study of metals. The first chapter progresses rapidly through the typical metal structures; glide, cold-work, recovery and recrystallization, deformations; and ionic, covalent, and metallic bonding; to end with discussions of solid solutions, electronic theory of metals, interstitial structures, and atomic radii. The second chapter applies the notions of entropy, free energy, dislocations, and activation energy to problems of precipitation and ageing. These two chapters would appear to be useful to students preparing for an examination, but contain little of fundamental importance.

The remaining ten chapters are concerned with more practical metallurgical properties, including micrography and mechanical testing, non-destructive testing, and the use of radioisotopes. The treatment of iron-carbon alloys is particularly extensive.

Einführung in die Kristalloptik. By EBERHARD
BUCHWALD. Pp. 128. Berlin: Walter de Gruyter, 1963. (Sammlung Göschen, volume 619/619a.) Price DM 5.80.

The fifth edition of a very useful book for students. The four parts deal respectively with double refraction and polarization; interference phenomena in polarized light; crystals exhibiting optical activity and absorption; and lattice optics of the visible spectrum.

Stratigraphy and sedimentation. By W. C.
KRUMBEIN and L. L. SLOSS. Pp. xvi+660. San Francisco and London: Freeman, 1963. Price 65/-.

The first edition of this book was published in 1951. The structure and emphasis of the first edition have been retained, but many of the chapters are completely rewritten, and two have been added. The topics include stratigraphic procedures, paleontology, relationships, maps, and analysis; and sedimentary rocks, processes, environments, and tectonics. The application of automatic data processing by electronic computer is touched on in Chapter 12.

The book will be of interest to geologists rather than to crystallographers.