Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (M. M. Woolfson, Physics Department, University of York, Heslington, York YO1 5DD, England). As far as practicable books will be reviewed in a country different from that of publication.

Liquid crystals. Proceedings of the International Conference on Liquid Crystals held at Kent State University, August 16–20, 1965. Coordinated by GLENN H. BROWN, G. J. DIENES and M. M. LABES. Pp. viii + 486. New York: Gordon & Breach, 1967. Price £15.5*s*.

In the years following the publication of *Molecular Structure and the Properties of Liquid Crystals* (G. W. Gray, 1962, Academic Press), much important work has been done in this field. There has been a need for an up-to-date, coherent presentation of the properties of liquid crystals, and it was to be hoped that the book under review would do something to meet this need. Although this book does indeed give a wealth of information, it does not give the coherent and evaluative presentation that is required. The book is a collection of 30 papers presented at a conference on liquid crystals in 1965, which were subsequently published as articles in the journal *Molecular Crystals*, mainly reporting on original research. Any individual or library subscribing to this journal would therefore have virtually the entire contents of this book already available. There is a lot of good material scattered throughout this book, but it is difficult to extract, as the articles vary considerably in level of detail, and often employ different terminologies. The arrangement of articles is apparently random, with no evident grouping according to topic, technique or viewpoint. Most of the articles are highly specialized and unrelated to the other articles. It is all the more necessary, therefore, to have a reliable index but there is, unfortunately, no index whatever. And since there is no editorial guidance either, it is difficult to understand why it was thought valuable to publish these articles in book form for, in their present form, they clearly remain more suitable as journal articles than as chapters in a book. Furthermore, editorial attention to some articles would have been welcome.

The articles report the following types of investigation into the properties of certain liquid crystal systems: optical analysis of texture, colour, polarization, dichroism, and of the effects of varying electric fields; nuclear magnetic resonance; dielectric relaxation; infrared spectroscopy; heat capacity and enthalpy; surface tension; ultrasonic absorption and dispersion; X-ray diffraction; effects of chemical variation on phase diagrams.

This is no book for the novice wanting to find out what liquid crystals and their general properties are. It is also unsuitable for use in finding out about the structures of liquid crystals in general. Though structure underlies all of the properties investigated, the basic problem of how the long-range order can co-exist with the short-range disorder is not tackled. The field of the structure of liquid crystals is still in its infancy, in what Rutherford may have called the 'stamp collecting' phase. In the four years since the conference in 1965 much research on liquid crystals has been done, but there has been no fundamental advance in the understanding of their structures. Thus, from the point of view of structure, this book suffers little from age. The clues to structure are liberally spread throughout the book, but the general reader without previous reading in the field would have considerable difficulty in interpreting them. The novice can learn more readily from Gray's book (see above). For the structures of lipid liquid crystals, where much recent activity has taken place, Luzzati's review (Chapter 3 in *Biological Membranes*, edited by D. Chapman, 1968, Academic Press) is to be preferred.

In conclusion, it may be said that this book can be recommended only to those who are already well-read in the field and conversant with the varying terminologies. For those to whom the journal *Molecular Crystals* is readily available, this book will be a luxury for browsing convenience only, and a considerable luxury at £15.5*s*.

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The monthly American journal of geology and natural science. Conducted by G. W. FEATHERSTONHAUGH. Vol.I (Facsimile of the 1831-1832 edition). New York, London: Hafner Publishing Co., 1969. Price $ 25.00.

An increasing world interest in the history of geology has been marked in recent years by the decision taken at the 22nd Session of the International Geological Congress, held at Delhi in 1964, to form an International Committee on the History of Geological Sciences. This Committee met in 1967 at Erevan, Armenia, USSR and was attended by about 150 geologists from 15 countries. Arrangements were then made to hold a session at the 23rd Congress at Prague in 1968, a session which was not held owing to the premature closure of the Congress.

The recent publication of a number of reprints or translations of early geological works also reflects this interest by geologists and historians in the history of the earth sciences. Among the reprints is the series *Contributions to the History of Geology* edited by Professor George White of Illinois and published by the Hafner Publishing Company of New York, of which the volume now reviewed is No.3.

The *Monthly American Journal of Geology and Natural Science*, edited by G.W Featherstonhaugh, was a short lived publication which lasted only twelve months. The first number appeared in July 1831 and the last in June 1832. In that brief period the editor succeeded in including a large amount of interesting material. Featherstonhaugh, born in London in 1780, had travelled in Europe before settling in the United States in 1807. In 1827 he returned to England for a business visit, and on December 7 was elected a Fellow of the Geological Society. From 1827 onwards he corresponded regularly with such leading geologists as Buckland, Murchison

and Lyell. After his return to the United States he gave lectures on geological topics in New York and Philadelphia, and it was at the urging of his friends in Philadelphia that he founded the *Monthly Journal*. Many of the articles in it were by Featherstonhaugh himself, including a series entitled 'An Epitome of the Progress of Natural Science' followed by others on 'The Crust of the Earth'. Mineralogy occupied a very minor place in the Journal but the editor took pains to publicize the claims of Andres del Rio to have been the original discoverer of vanadium, in 1802. The articles are not confined to American topics, and James Dickson, F.G.S. supplied an interesting paper 'On the Silver, Gold and Platina of Russia' and an unidentified British correspondent wrote about the vitrified forts of Scotland.

The Journal reflects a picture of American geology and geologists over a very brief time range, and the introduction and biographical sketch of Featherstonhaugh by Professor White increases its interest. The use of what is possibly a unique copy of the original Journal, with all the printed covers, to prepare this facsimile edition adds to its value.

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Optical properties of solids. Edited by S. NUDELMANN and S. S. MITRA. Pp. xi+641. New York: Plenum Press, 1969. Price $35.00.

These proceedings of the NATO Advanced Study Institute at Freiburg in 1966 provide a very readable review of the broad field of optical phenomena in solids. The first part concentrates on the electronic properties of semiconductors varying from narrow to wide gap, while the rest of the book discusses the vibrations of perfect crystals, point defects, their vibrational and electronic spectra, and electron–phonon interactions.

Twenty two lecturers at the Summer School each provide a chapter: though each contribution carries the distinctive stamp of its author, reasonable continuity has been maintained. Group theoretical terminology is developed in the first chapter and widely used: there is a welcome absence of orgies of many-body theory.

Though some of the material is already dated, this is a very valuable account of the field. Alas, at a price of thirty five dollars, most of us will consult a library copy.

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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 Executive Secretary of the International Union of Crystallography (J. N. King, 13 White Friars, Chester CH1 1NZ, England). Publication of an item in a particular issue cannot be guaranteed unless the draft is received 8 weeks before the date of publication.

The Second Symposium on the Thermal Expansion of Solids 10–12 June 1970, Santa Fe, New Mexico, U.S.A.

The Second Symposium on the Thermal Expansion of Solids will be held in Santa Fe, New Mexico, U.S.A. on 10-12 June 1970, under the joint sponsorship of the University of Illinois and Sandia Laboratories. The symposium covers recent advances in theoretical and experimental studies of thermal expansion and its relation to other properties of solids. The proceedings will be published. The deadline for receiving abstracts is 30 March 1970; further information may be obtained from Prof. Ralph O. Simmons, Physics Department, University of Illinois, Urbana, Illinois 61803, U.S.A. or Dr Duane C. Wallace, Solid State Physics, Division 5151, Sandia Laboratories, P.O.Box 5800, Albuquerque, New Mexico 87115, U.S.A.

International Union of Crystallograpy
Eight International Congress: Abstracts

The communicated abstracts of the Congress, including Topical Meetings, have already been published in May 1969 as a 295-page supplement, part S3, of *Acta Crystallographica* Volume A25. This supplement is available at a price of D.kr. 75 (U.S. $10.00, £4.4*s*.) from Munksgaard Ltd, Prags Boulevard 47, DK-2300 Copenhagen S, Denmark.

Differing only in the outer covers and title *Collected Abstracts*, as provided to all Congress participants. This volume is available at a price of U.S. $10.00 from the Polycrystal Book Service, P.O.Box 11567, Pittsburgh, Pa. 15238, U.S.A.

International Union of Crystallography
Early Papers on Diffraction of X-rays by Crystals

The Executive Committee of the International Union of Crystallography has pleasure in announcing the publication in August 1969 of *Early Papers on Diffraction of X-rays by Crystals*, edited by J. M. Bijvoet, W. G. Burgers and G. Hägg. This book contains xvi + 372 pages, 93 figures and 8 plates. It has been published for the Union by A. Oosthoek's Uitg. Mij. N.V., Domstraat 9-13, Utrecht, Netherlands, from whom it can be obtained at a price of 48 Netherlands Guilders (U.S. $13.50 or £5.14*s*. at the present rates of