ambiguity of the sign of the H(O) isotropic coupling has been resolved (Henn & Whiffen, 1964).

This work forms part of the research programme of the Basic Physics Division, National Physical Laboratory and is published by permission of the Director of the Laboratory.

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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 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.

Summer school on OD arrangements and structure analysis

A Summer School on OD Arrangements and Structure Analysis will be arranged by the Institut für Strukturforschung, Deutsche Akademie der Wissenschaften zu Berlin, at this Institute, Berlin-Adlershof, from 30 July to 13 August 1965.

The aim of the School is to make crystallographers who are already familiar with the concepts and international nomenclature of space groups, reciprocal space, Fourier and Patterson methods, acquainted with the concepts of OD arrangements and to give them a working knowledge of methods for the determination of the OD-groupoid family and its parameters from the distribution of diffuse streaks and sharp points in reciprocal space and the symmetry of the intensity distribution. Patterson and Fourier methods specialized for OD arrangements will be discussed.

Enrolment forms and further information may be obtained from the Secretary, Institut für Strukturforschung, Berlin-Adlershof, Rudower Chaussee 5, Germany.

Book Reviews

Works intended for notice in this column should be sent direct to the Editor (A. J. C. Wilson, Department of Physics, Georgia Institute of Technology, Atlanta, Georgia 30332, *U.S.A.). As far as practicable books will be reviewed in a country different from that of publication.*

Colloques internationaux du Centre National de la Recherche Scientifique. No. 126. La diffraction et la diffusion des neutrons, Grenoble 3–5 Septembre 1963. Pp. 236. Paris: Éditions du Centre National de la Recherche Scientifique, 1964. Price 25 F.

A colloquium, attended by about 60 participants and 40 'auditeurs', was held at Grenoble from 3 to 5 September 1963, under the auspices of the Centre National de la Recherche Scientifique. The President of the committee was Professor Néel, and the Secretary, largely responsible for the organization, was Dr E. F. Bertaut. The proceedings of the colloquium were published in the *Journal de Physique* for May 1964, and are here conveniently reprinted.

The publication contains 59 papers, about equally divided between French and English. Their length varies considerably; some, intended for full publication elsewhere, are little more than extended abstracts, whereas others run to seven or eight large pages. Each paper is followed by a report of the discussion on it.

The published record of the colloquium is very impressive. Rather less than one-third of the papers are concerned with the solution of what might be called conventional structural problems by neutron diffraction, and rather more than one-third with the solution of magnetic structures. The remaining papers are concerned with instrumentation, anomalous dispersion, and scattering. Neutron crystallographers, and perhaps even more non-neutron crystallographers interested in learning something of the scope and power of neutron methods, will find this reprint of the papers extremely useful.

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Practical optical crystallography. By N. H. HARTSHORNE and A. STUART. Pp. vii+326 with 1 folding chart, 2 pl.+253 figs. London: Arnold. Price 40*s*.

This book represents a new approach to the problem of teaching optics to students working in the fields of geology, ceramics, crystallography, and chemistry who need to use a polarizing microscope. It is intended to bridge the long felt gap between optical theory and the practical manipulation of crystalline material upon the microscope stage and as such is to be welcomed.

After introductory chapters on elementary crystallography and crystal optics there follows a comprehensive account of the polarizing microscope and its use with both orthoscopic and conoscopic observation. Three later chapters describe the stereographic projection, the preparation and handling of specimens, and practical examples. Appendices follow that list a selected bibliography, tables and collections of optical crystallographic data, and sources of materials mentioned in the text.

The treatment of the optical chapters generally follows the authors' earlier work *Crystals and the Polarizing Microscope* and fully maintains their reputation for clarity. The long chapter on the microscope contains an admirable section on correct illumination and its variation to meet differing needs, a topic of prime importance, sadly overlooked by students, and by writers of optical textbooks in the past. The later chapters contain much valuable advice and give a clear account of the operation of a simple stage goniometer for changing the orientation of a crystal. This section describes and illustrates the universal stage but does not say how to use it, an omission which is the more surprising in view of the inclusion of a whole chapter on the stereographic projection whose relevance otherwise is not immediately obvious. The least satisfactory section is the opening chapter which requires to be greatly supplemented if it is to provide a really adequate crystallographic foundation for the optics that follow.

The book retains the good qualities of its predecessor in its clear exposition of elementary optics and at a price that makes it attractive as an undergraduate textbook. To this extent it is undoubtedly a success but one is left with the feeling that with the same approach its appeal could be greatly increased by a drastic shortening of the less relevant sections and such further development of the practical aspects of the later chapters as would leave its total size and price unchanged.

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Statistics in physical science. Estimation, hypothesis testing and least squares. BY WALTER CLARK HAMILTON. Pp. [xii]+230. New York: The Ronald Press Company, 1964. Price $10.00.

This comparatively short book treats a wide range of subjects. The first chapter, which occupies about a quarter of the total volume, is devoted to basic concepts and mathematical preliminaries. The second chapter is concerned with estimation of a single variable, including goodness-of-fit tests. Further chapters deal with analysis of variance in a thorough fashion, with the method of least squares and tests of linear hypotheses, and miscellaneous topics. Each chapter ends with exercises for the reader. The book ends with sixteen pages of tables, a bibliography, and a subject index. A bibliography cannot contain everything, but I missed my own favourite reference book, Cramér's *Mathematical Methods of Statistics.*

An unusual feature of the book is the space devoted to crystallographic problems, in which the author became interested while working with Dr Verner Schomaker. The longest crystallographic section is a discussion of significance of the value of the agreement factor R, a matter not often mentioned in papers on structure determination. A seven-page table has been compiled by the author for use in such tests. There is, however, nothing on statistical methods for the determination of symmetry and structure (other than least-squares refinement).

A crystallographer seeking to increase his knowledge of statistical methods in general will find this book a good introduction because of the many examples drawn from his own field. There is rather extensive use of matrix methods, which some may find a disadvantage.

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Applications of neutron diffraction in chemistry. By G. E. BACON. The international encyclopedia of physical chemistry and chemical physics. Topic 11, Vol. 1. 141 pp. Oxford, London, New York, Paris: Pergamon Press, 1963. Price 42*s*.

Most crystallographers will by now be familiar with the ambitious project launched by Pergamon Press which envisages a hundred volumes devoted to 'a comprehensive and modern account of all aspects of the domain of science between chemistry and physics'. The present volume is the first devoted to topic 11, *The ideal crystalline state.* None of the volumes will be encyclopedic in the sense that the contents in them are arranged alphabetically; merely that the individual volumes of the project as a whole will be classified systematically.

Professor Bacon's book is somewhat shorter than the 200 pages which most of the volumes are expected to be. It is divided into eight chapters: principles and methods, hydrogen bonds in inorganic compounds, organic compounds, heavy-element compounds of carbon, nitrogen and oxygen, metal hydrides and ammonium compounds, compounds which include neighbouring elements, magnetic materials, liquids and gases. The author strikes a good balance throughout. He gives just sufficient background material to make the principles clear and his treatment of individual crystal structure is, on the whole, excellent. (The reader has to have a substantial grounding in the jargon of X-ray analysis. He is expected to know an F_o when he sees one. In this respect it is rather surprising to find Bragg's *The Crystalline State,* 1949, recommended as background reading rather than, say, Bunn's *Chemical Crystallography,* 2nd ed., 1961.)

The book is good and so eminently readable one hesitates to suggest improvements. On occasion, however, one feels the author might with advantage have used more of his ration of 200 pages to expand some of the topics he tackles. One gets this feeling on the very first page. Here the author illustrates diffraction by means of a one-dimensional simple-harmonic grating. Not only does this, as it stands, imply regions of negative scattering amplitude for light but it is a highly special case in which only the first order of diffraction is observed (correctly noted, but unexplained by the author). Similarly a sentence or two would have clarified why, in the projections of KH_2PO_4 (pp. 25, 26), the applied electric field appears to cause the hydrogen atoms to move in such differing directions. It is only later (page 28) that we realize that we are looking along the applied field. A portion of the periodic table might have