

The first formal announcement will appear in *Acta Crystallographica* at the end of 1970 or early in 1971 and will give the address from which the First Circular can be obtained. This First Circular will be available about September 1971 and copies will be sent to all National Committees for Crystallography.

### ICSU Abstracting Board: Publications

The 1969 issues of two annual publications detailing the activities of those Scientific Unions (including the International Union of Crystallography) which are members of the International Council of Scientific Unions (ICSU) and the activities of the Committees and Commissions of ICSU have been published recently by the ICSU Abstracting Board and may be purchased from the ICSUAB Secretariat, 17 rue Mirabeau, Paris 16e, France. The title of one publication, *Tentative List of Publications of ICSU Scientific Unions, Special and Scientific Committees and Commissions of ICSU, Year 1969, and Corrections and Additions to the 1968 List*, is self-explanatory. The other publication, entitled *Survey of the Activities of the ICSU Scientific Unions, Special and Scientific Committees and Commissions of ICSU in the Field of Scientific Information during the Year 1969*, presents information under the following headings: Name of union, commission, committee, or working group; President/Chairman (name and address); Secretary (name and address); Members (names and countries); Date of creation; Periodicity of meetings; and Publication of minutes of meetings. A general description is given of the activities and a listing of 1969 publications. Particular attention is given to those bodies dealing with the following topics: notations, symbols, units, nomenclature, terminology, standards, bibliographies, abstracts, review articles, classification, and publication of data.

The purpose of the ICSUAB surveys is to make the activities of the Scientific Unions and ICSU bodies in the field of scientific information more widely in the scientific

community, and to strengthen co-operation between those bodies working in similar fields.

### A Symposium on Crystal Structure and Chemical Bonding Twente, The Netherlands, 3-6 August 1971

The Netherlands National Committee for Crystallography (F.O.M.R.E.) is arranging a symposium on Crystal Structure and Chemical Bonding from 3 to 6 August 1971 at the Technological University, Twente, Enschede, The Netherlands. The topics to be covered will include structure analysis and molecular spectroscopy, intermolecular forces, electron densities, the accuracy of results, the general theory of bonding and interactions, and the comparison of results of different methods. Registration will be accepted until 1 February 1971, but the total number of participants will have to be limited to 150.

Inquiries should be addressed to the organizing secretary, Dr A. Schuyff, Laboratory for Crystal Chemistry, University of Utrecht, Utrecht, The Netherlands.

### Third International Conference on Thermal Analysis Davos, Switzerland, 23-28 August 1971

This meeting is being arranged by the International Confederation for Thermal Analysis and the programme will include sessions on advances in instrumentation; inorganic chemistry; organic chemistry, including polymers; ceramics and earth sciences. For further information apply to:

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Swiss Federal Institute of Technology  
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Sonneggstrasse 5  
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### Book Review

*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.*

**An introduction to X-ray crystallography.** BY M. M. WOOLFSON. Pp. 380. Cambridge University Press, 1969. Price £4. 25.

This book is intended for the senior undergraduate or graduate student beginning a serious study of X-ray crystallography. However, owing to lack of time most undergraduates taking courses such as physics or chemistry will probably fail to master the subject matter of this book to the desirable standard at which the author aims. On the other hand undergraduates following courses in crystallography and graduate students in other disciplines should find it an invaluable first text in which the fundamentals of

X-ray diffraction from crystals are presented clearly, rigorously and succinctly.

An introductory chapter summarizes the geometry of the crystalline state and the way in which Miller indices, symmetry elements and space groups are used to describe it. The next two chapters cover, in some fifty pages, the scattering of X-rays by matter, their diffraction by the regular arrangement of atoms in a crystal structure and the factors governing X-ray intensities. The concepts of the reciprocal lattice and the structure factor are introduced in these chapters.

The fourth chapter is a mathematical one and lays down the necessary theory of Fourier series, the Fourier trans-

form and the convolution theorem. The author is to be congratulated on his decision to use only four pages to present the necessary algebra of Fourier series while using some twelve pages to set out worked numerical examples. It is to be expected though that many students would have preferred an introductory paragraph explaining the relevance of the theory to the diffraction problem, even though this relevance is clearly brought out later in the chapter.

The next two chapters are concerned with the experimental arrangements for determining unit-cell dimensions and for collecting diffracted intensities. Standard cameras, including the Weissenberg and precession instruments are described and the methods of interpreting the resulting photographs are given. Diffractometers using quantum counters are but briefly mentioned. The effects of absorption, extinction, temperature, and anomalous scattering on the observed intensities of Bragg peaks are given and briefly explained.

The remaining three chapters are concerned entirely with the determination of the structure of single crystals. The uses of the piezoelectric and pyroelectric effects for proving the lack of a centre of symmetry, the interpretation of the optical properties of crystals in the polarizing microscope, the use of Laue symmetry, systematic absences and intensity statistics for obtaining space group information are all described in nicely judged detail. A description is given for

obtaining trial structures by means of optical transform methods, the Patterson synthesis, the heavy atom and isomorphous replacement methods. Inequality and sign relationship methods are also described in sufficient detail for the newcomer to structure determination to understand their underlying principles and uses. The final chapter is concerned mainly with refinement processes by Fourier and least-squares methods.

One might possibly have expected to find more information on the uses of the powder method in measuring accurate cell parameters, in X-ray spectroscopy, in investigating particle size and lattice strains. Some indication of the use of diffuse X-ray scattering for studying lattice defects and thermal vibrations would also have made a more complete introduction to X-ray crystallography. Nonetheless this volume is a welcome addition to existing text books. Because of the worked numerical examples in the text and the examples at the end of each chapter it should be strikingly valuable to the newcomer to crystallography who wants to practise crystal structure determination.

All the problems and formulae in this book are in S.I. units. The numerous diagrams are excellent.

T. R. LOMER

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