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**The crystallography of cycloheptatriene.** By THOMAS B. REED and WILLIAM N. LIPSCOMB, *School of Chemistry, University of Minnesota, Minneapolis 14, Minnesota, U.S.A.*

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An attempt has been made to determine the molecular structure of cycloheptatriene (tropilidene) from an X-ray diffraction study of single crystals below the freezing point of  $-80^{\circ}\text{C}$ . A cubic phase ( $a = 10.6 \pm 0.1 \text{ \AA}$ ) was found, yielding only five reflections ( $F_{200} = 14.5$ ,  $F_{210} = 16.6$ ,  $F_{211} = 11.9$ ,  $F_{220} = 1.2$  and  $F_{410} = 1.2$ ) in a reciprocal lattice of symmetry  $O_h$ . The assumption of eight molecules in this unit cell yields a calculated density of  $0.99 \text{ g.cm.}^{-3}$ . Unfortunately, a simple interpretation of this highly disordered phase was not obtained.

A major transition occurs at about  $-125^{\circ}\text{C}$ . during which single crystals are transformed into a powder as the temperature is lowered. As a result, studies of single crystals of this probably ordered phase must await techniques for the growth of single crystals below transition temperatures.

We wish to thank Prof. William Doering for supplying us with the sample, and the Office of Naval Research for support of this research.

## Notes and News

*Announcements and other items of crystallographic interest will be published under this heading at the discretion of the Editorial Board. Copy should be sent direct to the British Co-editor (R. C. Evans, Crystallographic Laboratory, Cavendish Laboratory, Cambridge, England).*

### **Acta Crystallographica: important notices**

1. The Executive Committee has decided that *Acta Crystallographica* shall henceforth be published monthly. Future issues will therefore appear on the tenth day of each month.

2. Readers are reminded that bona fide crystallographers may obtain this journal for their private use at a reduced price. Such subscriptions, at a rate of 60 Danish crowns or \$9 post free, can be accepted *only if placed direct* with Messrs Ejnar Munksgaard (Nørregade 6, Copenhagen, Denmark) or with the American Institute of Physics (57 E 55th Street, New York 22, N. Y., U. S. A), and *must be accompanied by a declaration* that the journal will be used solely for the personal purposes of the subscriber. Unless such a declaration is given, correspondence and delay will be involved. Proposals are still awaited from some of the Adhering Bodies and at present it is possible to offer this concession only as follows:

*Austria, Belgium, Brazil, Denmark, India, Italy, Sweden*  
Crystallographers in these countries should apply to the Secretary of their National Committee:

F. Machatschki, Mineralogisches Institut der Universität, Vienna.

R. Van Tassel, Institut royal des Sciences Naturelles de Belgique, Rue Vautier 31, Brussels.

E. Tavora, Faculdade Nacional de Filosofia, Av. Pres. Antonio Carlos 40, Rio de Janeiro, D.F.

A. Tovborg Jensen, Den Kgl. Veterinær- og Landbohøjskoles kemiske Laboratorium, Copenhagen V.

The Secretary to the Government of India, Department of Scientific Research, North Block, Central Secretariat, New Delhi.

G. Giacomello, The University, Rome.

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*Canada, France, Japan, Netherlands, Norway, Spain, Switzerland, United Kingdom, U.S.A.*

The reduced subscription is available only to members of the following societies:

The Canadian Association of Physicists, the Canadian Institute of Chemistry, the Canadian Institute of Mining and Metallurgy, the Royal Society of Canada. Société Chimique de France, Société de Chimie Physique, Société Française de Métallurgie, Société Française de Minéralogie et Cristallographie, Société Française de Physique.

The Crystallographic Society of Japan.

Nederlandsche Chemische Vereeniging, Nederlandsche Natuurkundige Vereeniging.

Det Kgl. Norske Videnskabers Selskab, Norsk Geologisk Forening, Norsk Kjemisk Selskap.

Asociación Española de Cristalografía.

Société Suisse de Mathématique, Société Suisse de Physique, Société Suisse de Chimie, Société Suisse de Minéralogie et de Pétrographie.

The Chemical Society, the Faraday Society, the Institute of Metals, the Institute of Physics, the Iron and Steel Institute, the Mineralogical Society, the Physical Society, the Royal Society.

The American Crystallographic Association.

*In placing their orders, subscribers in these countries should state of which society they are members.*

Further announcements will be made as soon as it is possible to give details of arrangements in other countries.

### **Fortieth Anniversary of the Discovery of X-ray Diffraction**

1. The fortieth anniversary of the discovery of X-ray diffraction by M. von Laue was celebrated in Brazil on

10 June 1952 at a special meeting promoted by the Brazilian National Committee for Crystallography and held under the sponsorship of the Brazilian Academy of Sciences. Dr Arthur Moses, President of the Academy, was in the Chair, and after the presentation of a message written for the occasion by Prof. von Laue the following papers were read:

'History of the Discovery of X-ray Diffraction with an Account of Forty Years Progress in the Crystallographic Field' by E. Tavora, Secretary of the Brazilian National Committee for Crystallography and Professor of Mineralogy at the University of Brazil.

'Crystallography and Chemistry' by Admiral Alvaro Alberto, President of the National Research Council and Professor of Chemistry at the Naval Academy of Brazil.

'Crystallography and Physics' by Bernard Gross, Head of the Sector of Physical Research of the National Research Council.

'Crystallography and Metallurgy' by E. Fonseca Costa, Director of the National Institute of Technology and Professor of Metallurgy at the University of Brazil.

'Crystallography and Biology' by Carlos Chagas, Professor of Biophysics at the University of Brazil.

'Crystallography and Mineralogy' by E. Tavora.

The proceedings of the meeting, which were widely reported in the public press, will appear as a special publication of the Brazilian Academy of Sciences.

2. The X-ray Analysis Group of the Institute of Physics celebrated the fortieth anniversary of the discovery of X-ray diffraction by holding a Conference at the Royal Institution, London, on 24 and 25 October 1952. On 24 October Prof. Sir Lawrence Bragg gave a historical survey and was followed by Prof. Max von Laue, who gave a short talk about the early days of X-ray diffraction which was as welcome as it was unexpected. Prof. J. D. Bernal then spoke on 'The Growth and Scope of X-ray Crystal Analysis'. In the evening an Anniversary Dinner was held at the Criterion Restaurant, Piccadilly, at which Prof. von Laue and Prof. J. M. Bijvoet were the principal guests. Speeches were made by both Prof. von Laue and Prof. Bijvoet, as well as by Sir Charles Darwin, Prof. Sir Lawrence Bragg, Dr C. Sykes and Prof. J. D. Bernal.

On 25 October survey papers on recent developments were given by Dr Dorothy Hodgkin on 'Chemical Problems', Prof. G. V. Raynor on 'X-ray Analysis and the Metallic State' and by Prof. Sir Lawrence Bragg on 'The Application of X-ray Analysis to Protein Structure'.

On both days a historical exhibition was held at the Royal Institution. Early apparatus and models were displayed, together with original manuscripts and note books.

### Third General Assembly and International Congress

The Executive Committee of the Union has accepted a kind invitation from the French Government to hold the Third General Assembly and International Congress

in Paris from 21 to 28 July 1954. These dates have been chosen in consultation with the French National Committee and with the National Committees of all the Adhering Bodies. It is hoped that this early notice will make it possible for crystallographers throughout the world to arrange to attend.

Further particulars of the meeting will be given from time to time in these columns and elsewhere.

### An X-ray powder study of $\beta$ -uranium: correction

In the above article by Thewlis (*Acta Cryst.* (1952), 5, 790) an error occurs in Table 1. The indices corresponding to line No. 19 should read:

$$\begin{cases} 532 \\ 631 \end{cases}$$

### International Tables for X-ray Crystallography

The Executive Committee has accepted a recommendation of the *International Tables* Commission that Dr G. D. Rieck (Netherlands) should be co-opted on to the Commission and appointed as joint co-editor with Prof. C. H. MacGillavry for Volume 3 of the *Tables*.

### Moving-Strip Fourier Analyser

A limited number of copies of a moving-strip Fourier-summation device have been printed photomechanically and are offered for sale. The principle employed is that described by J. M. Robertson (*Phil. Mag.* (1936), 21, 176) for evaluating expressions like

$$\Sigma \Sigma F(hk) \frac{\sin}{\cos} 2\pi(hX+kY)$$

without first expanding them in the form

$$\Sigma \Sigma F(hk) \cos 2\pi hX \cdot \cos 2\pi kY - \sin 2\pi hX \cdot \sin 2\pi kY.$$

Each one-dimensional summation  $\Sigma F(hk) \cos 2\pi(hX+kY)$  for  $h = -15$  to  $15$ ,  $k = \text{constant}$ , is carried on a separate board, there being 16 boards in all (for  $k = 0$  to  $15$ ). The cosine functions are given at  $10^\circ$  intervals, and the amplitudes range from  $-99$  to  $99$  and are given to two figures. Sine summations and some three-dimensional summations can be readily evaluated with the cosine strips.

The strips, measuring  $17 \text{ in.} \times \frac{1}{2} \text{ in.}$ , are printed in black on heavy white card, and the location sheets, against which they move, are printed in red. The strips slide in slots stamped in  $\frac{1}{2} \text{ in.}$  aluminium strip. Five sets of strips of positive and negative amplitudes 1 to 33, and three sets of amplitudes 34 to 99 are provided.

The price is \$15.00 for institutions and established crystallographers, and \$3.00 for research students. Orders should be sent to Dr H. J. Grenville-Wells, Laboratory for Insulation Research, Massachusetts Institute of Technology, Cambridge 39, Mass., U.S.A., from whom further information can be obtained.