Table 1. *Lattice parameters of tin at various temperatures*

Temperature	a	c
33 °C.	5·8326 ± 0·0001 Å	3·1821 ± 0·0003 Å
106	5·8403	3·1908
148	5·8450	3·1958
166	5·8477	3·1991
178	5·8492	3·2004
180	5·8494	3·2009
186	5·8504	3·2021
194	5·8515	3·2035
200	5·8522	3·2038
212	5·8539	3·2061

Table 2. *Coefficients of expansion of tin at different temperatures*

Temperature	$\alpha_{\perp} \times 10^6$	$\alpha_{\parallel} \times 10^6$
30 °C.	16·5	32·4
50	17·0	33·9
70	17·8	34·9
90	18·7	36·5
110	19·7	39·0
130	20·2	41·2
150	21·6	43·7
160	22·3	45·9
170	22·8	47·8
190	24·3	51·2
200	25·4	53·7
210	26·2	56·9

pansion in the controversial region are not available. Therefore, the authors have determined the lattice parameters of tin up to 212 °C., in continuation of their earlier work (Deshpande & Sirdeshmukh, 1961). Because tin has a low Debye temperature, the intensity of powder lines falls rapidly at higher temperatures. To reduce exposure time and also for greater dispersion, a specially constructed focusing camera was used and the lattice parameters were calculated by Cohen's method. It was found that the back-reflection photographs do not show any change in the pattern up to 212 °C. and the diffraction lines continue to be sharp throughout. It was also observed that the lattice parameters increase continuously without any abrupt change in the expansion coefficients. The lattice parameters and the principal coefficients of expansion, at various temperatures, are given in Tables 1 and 2, respectively. (Since only one of the measured lines had a high l index, the accuracy of measurement of c is less than that of a). The values of the coefficients in the range 30–150 °C. agree, within limits of experimental errors, with the values reported earlier by the authors.

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International Union of Crystallography

Symposium in Kyoto, Japan, 25–30 September 1961

An International Conference on Magnetism and Crystallography was held in Kyoto, Japan, from 25 to 30 September 1961. This meeting was organized jointly by the Science Council, the Physical Society and the Crystallographic Society of Japan. It consisted of two parts which ran parallel: (I) an International Conference on Magnetism, under the sponsorship of the International Union of Pure and Applied Physics, and (II) an International Symposium on Electron and Neutron Diffraction, under the sponsorship of the International Union of Crystallography.

The Conference was attended by about 600 Japanese and 225 foreign scientists, the latter coming from 19 countries. The approximate ratio of those mainly interested in Parts I and II respectively amounted to 3 to 1. Generous financial assistance received from UNESCO through ICSU, and from the Charles F. Kettering Foundation (U.S.A.), had made possible the attendance of a large number of the scientists from abroad. For the same purpose, and for the defrayment of the further cost of the Conference, substantial financial support was also received from the Japanese Government and from a large number of industrial and commercial organizations in Japan. Without these generous contributions the meetings would certainly not have been so successful as they were, and the organizers and participants are most grateful for this help.

For the organization of the Conference various Committees had been established. The general responsibility was in the hands of an Organizing Committee under the chairmanship of S. Kaya, with I. Nitta as Vice-Chairman. For each of Parts I and II there were a Sub-Committee of the Organizing Committee and a Programme Committee. The Sub-Committee and the Programme Committee for Part I were both headed by T. Nagamiya, those for Part II by S. Miyake. A special Sub-Committee for two joint neutron-diffraction sessions stood under the chairmanship of Y. Takagi. For the printing of the preprints and the other material, and of the later publication of the proceedings of the Conference, a Publications Committee was responsible, on which K. Yosida served as Chairman. The excellent local arrangements for the Conference were made by a Local Committee under the guidance of K. Tanaka. All these Committees could apply for advice to an Advisory Board consisting of T. Fujiwara, T. Ito, M. Kotani and others.

The Commission on Electron Diffraction of the International Union of Crystallography, and in particular the Chairman of this Commission, L. O. Brockway, played an important role in the planning and preparations of Part II of the Conference. The first plans had already been made soon after the establishment of this Commission at the Fourth General Assembly of the Union in 1957. The rapid developments in the field of electron

diffraction made it desirable to arrange for Symposia at relatively short intervals, and, if possible, in the countries which are most active in this field. The first of these Symposia was held in Leningrad in May 1959 (see *Acta Cryst.* (1959), **11**, 951). About a year later an invitation was received from the Science Council of Japan to participate in a Symposium on Electron and Neutron Diffraction in Japan in September 1961. This invitation was accepted by the Fifth General Assembly of the Union in 1960.

The Conference was held in a recently constructed municipal building, the Kyoto Kaikan, which had been especially designed for accommodating meetings. The arrangements and facilities in the Kyoto Kaikan were perfect in all respects, and this contributed much to the success of the meeting. The formal opening took place on Monday morning 25 September. On behalf of the Organizing Committee I. NITTA welcomed the members of the Conference to Kyoto, in particular those from abroad. Addresses of welcome were further read by K. WADATI, President of the Science Council of Japan, and K. HIRASAWA, President of Kyoto University. The Secretary of the Commission on Magnetism of the International Union of Pure and Applied Physics, L. F. BATES, was the next speaker, and he was followed by the President of the International Union of Crystallography, P. P. EWALD, who spoke on behalf of this Union. The opening session was closed by T. NAGAMIYA, who first read a business report.

The scientific programme of the Conference comprised both invited and contributed papers. The total number of papers read at Part II, the Symposium on Electron and Neutron Diffraction, amounted to 118 which were given during thirteen morning, afternoon and evening sessions. Two of these sessions were actually joint sessions of the two Parts of the Conference, and were devoted to neutron-diffraction studies of magnetic materials. At the end of this report a list of the papers presented at Part II and at the joint sessions is given. More detailed proceedings of the Conference will be published early in 1962 as Supplements to the *Journal of the Physical Society of Japan*. These proceedings will consist of all papers presented, and include the discussions as well.

A marvellous programme of social events had been organized for the members of the Conference. On Monday evening 25 September the Chairman of the Organizing Committee was host at a Beer Party at Kangyo-kan. This reception was followed by a Concert of the Kyoto Municipal Symphony Orchestra in the Main Auditorium of the Kyoto Kaikan, which was offered by the Mayor of the City of Kyoto. On Wednesday evening 27 September the President of the Science Council of Japan received the members of the Conference at a Banquet given at the Miyako Hotel. A large number of foreign guests found here the opportunity to express the gratitude of the visitors from abroad to their Japanese hosts for the unbelievably great hospitality received, which had made the stay in Japan unforgettable. A Cocktail Party at the International Kyoto Hotel was offered by the President of Kyoto University on Thursday evening 28 September.

Sight-seeing tours in the City of Kyoto, which led to some of the most interesting places, had been arranged for the afternoons of Wednesday 27 and Thursday 28 September. The ladies programme consisted of a tour through Kyoto on Tuesday 26 September, with visits to some typical shops, and demonstrations of the miniature landscape art and of the manufacturing of china ware; and of a sight-seeing tour on Friday 29 September with a boat trip on the river Hozu and a kimono show at Nishijin Kaikan. The series of social events was closed by a Farewell Party in the Mt. Hiei Hotel, situated in the mountains east of Kyoto, on Saturday 30 September. The participants in this party had first enjoyed a beautiful drive through the mountains, a boat trip on Lake Biwa, and a tea at the Biwako Hotel. For most foreign visitors the Farewell Party did not mean, however, the end of their stay in Japan because many of them remained longer in the country, to attend meetings held elsewhere in Japan after the Kyoto Conference (c.f. next report), or to visit laboratories and to go on private tours to see more of the country.

The Commission on Electron Diffraction itself held two private meetings in Kyoto during the period of the Conference. All members except two were present at these meetings, which were also attended by Consultants. The main topics of discussion were the future activities of the Commission and the new membership to be proposed to the Rome General Assembly in 1963.

List of Contributions

At Part II of the Conference, the International Symposium on Electron and Neutron Diffraction, and at the joint sessions, the following papers were read. Papers with more than one author were presented by the first author, or by the author whose name is marked by an asterisk.

Gas Electron Diffraction

L. O. BROCKWAY (U.S.A.). Recent problems in diffraction by gases.

D. A. SWICK (U.S.A.). Diffraction patterns of electrons elastically and inelastically scattered by gases.

R. A. BONHAM (U.S.A.). Calculation of the inelastic scattering factor for the $3p$ to $4s$ transition in argon at 40 kV.

J. A. IBERS (U.S.A.). Current status of electron scattering-factor calculations.

R. A. BONHAM & J. KARLE (U.S.A.). The calculation of electron-scattering factors.

A. ALMENNINGEN, O. C. A. BASTIANSEN*, H. HANSON & M. TRAETTEBERG (Norway). Theoretical and experimental backgrounds in gas electron-diffraction intensities.

L. S. BARTELL (U.S.A.) & K. KUCHITSU (Japan). Significance of bond lengths determined by electron diffraction.

K. KUCHITSU (Japan) & L. S. BARTELL (U.S.A.). Study of anharmonic vibrations of polyatomic molecules by gas electron-diffraction.

Y. MORINO & T. IIJIMA* (Japan). The effect of molecular vibration upon interatomic distances of carbon disulfide.

K. HEDBERG & M. IWASAKI (U.S.A.). The effect of temperature on the structure of gaseous molecules.

S. SHIBATA (Japan). Electron-diffraction study on the molecular structure of chlorine.

Y. MORINO, Y. MURATA, T. ITO & J. NAKAMURA (Japan).

Mean-square amplitudes and force constants of silicon tetrachloride and sulfur dichloride.

S. J. Cyvin & E. Meisingseth (Norway). Out-of-plane molecular vibrations and 'shrinkage effects' in naphthalene skeleton.

T. Ino (Japan). Diffraction intensity by a bounded radial distribution function.

K. Katada (Japan). Electron-diffraction study of thin films of polymers of *para*-halogeno-styrene.

Scattering Phenomena in Electron Diffraction

P. P. Ewald (U.S.A.). Origin and development of the dynamical theory of X-ray diffraction.

N. Kato (Japan). Recent development of dynamical theory of diffraction of waves in crystals.

H. Raether (Germany). Experiments on elastic and inelastic scattering intensity.

J. M. Cowley & A. F. Moodie (Australia). The scattering of electrons by thin crystals.

L. Sturkey (U.S.A.). Electron-diffraction intensities from thick crystals.

K. Molière & G. Lehmpfuhl (Germany). Study on absorption of electron wave fields in ideal crystals by interference double-refraction experiments.

K. Fujiwara (Japan). Relativistic dynamical theory of electron diffraction.

L. L. Marton (U.S.A.). Electron-energy losses in solids and their influence on the electron-diffraction diagram.

H. Watanabe (Japan). Measurement of differential cross section of 30 kV electrons for plasmon excitation in Al.

F. Fujimoto & Y. Kainuma (Japan). On the inelastic scattering of electrons in crystals.

H. Yoshioka & Y. Kainuma (Japan). The effect of thermal vibrations on electron diffraction.

J. Gjønnes (Australia). Inelastic interactions in dynamic electron-scattering.

S. Miyake, K. Fujiwara & K. Suzuki (Japan). Experimental aspects of relativistic effect in electron diffraction.

K. Kohra (Japan), K. Molière (Germany), S. Nakano* & M. Ariyama (Japan). Anomalous intensity of mirror reflexion from the surface of a single crystal.

Chr. Menzel-Kopp & E. Menzel* (Germany). Anomalies in Kikuchi reflection diagrams.

M. Tournarie (France). Recent developments of the matrical and semi-reciprocal formulation in the field of dynamical theory.

F. Fujimoto (Japan). The intensity calculation by the expansion of scattering matrix.

H. Niehrs (Germany). Remark on the diffracting power of lattice planes with very large spacing.

J. Gjønnes (Australia). The dynamic potentials in electron diffraction.

S. Miyake & K. Fujiwara (Japan). Intensity measurement of electron-diffraction spot patterns.

S. Kuwabara (Japan). Variation of electron-diffraction intensities with tilting angle and λ_H.

Diffraction Effects in Electron-Microscopic Images

P. B. Hirsch (U.K.). Electron-microscope studies of defects in crystals.

M. J. Whelan (U.K.). Numerical methods in the theory of diffraction contrast of crystal-lattice defects.

K. Tanaka, H. Hashimoto & M. Mannami* (Japan). Theory and observation of diffraction contrast of electron-micrographs of dislocations and G. P. zone.

G. Möllenstedt & F. Lenz* (Germany). Some electron-interference experiments and their theoretical interpretation.

W. C. T. Dowell (Germany) (paper read by H. Niehrs). The observation of small crystal-lattice spacings in the electron microscope.

R. Uyeda (Japan). On the contrast in electron-microscopic images of crystalline materials.

H. Niehrs (Germany). On the contents of information from electron-microscope images, especially from defocused series, of crystal-lattice periods.

Ch. Fert (France). Effets de diffraction dans les images électroniques et formation des images en optique électronique.

Y. Kamiya & R. Uyeda (Japan). Effect of incoherent waves on the electron-microscopic images of crystals.

H. Watanabe, A. Fukuhara & K. Kohra* (Japan). Measurement of mean and anomalous absorption coefficients of electrons in MgO crystals by the use of electron-microscopic images.

H. Hashimoto, K. Tanaka, E. Suito, K. Kobayashi & S. Shimadzu (Japan). Absorption and diffraction effects of electron waves observed in 300 kV electron-microscopic images.

Z. Nishiyama & H. Fujita* (Japan). Dislocation images in pure iron observed by transmission electron-microscopy.

D. Watanabe, S. Fujime & S. Ogawa (Japan). The observation on the phase transformation of cobalt and cobalt–nickel alloys in thin sections by means of electron diffraction and electron microscopy.

S. Nagakura (Japan). Electron diffraction and microscopic study on the faulted structure of martensite in evaporated Fe–Ni alloy films.

T. Hibi & K. Yada* (Japan). Direct observation of crystal imperfections in KCl single crystals by electron microscopy.

E. Suito & N. Uyeda* (Japan). The anomalous diffraction-contrast on (111) face of lamellar single microcrystals of colloidal gold.

Structure Studies by Electron Diffraction

B. K. Vainshtein (U.S.S.R.). The development of structure analysis by electron diffraction.

S. Oketani & S. Nagakura* (Japan). Electron-diffraction studies on the crystal structures of carbides of iron, cobalt and nickel.

N. Terao (Brussels). Transformation of the metallic lattices by insertion of nitrogen atoms. I. Structure of nickel nitrides. II. Nitrification of Ni-24% Fe alloy.

N. Kitamura & J. Harada (Japan). Structure and phase transition of solid hydrogen sulfide.

A. N. Lobatchev & B. K. Vainshtein (U.S.S.R.). Electron-diffraction study of urea, $CO(NH_2)_2$.

S. B. Badachhape & A. Goswami* (India). (*a*) A new spinel from cuprous chloride. (*b*) Structure of evaporated tin sulphide.

S. Ogawa (Japan). On the anti-phase domain structures in ordered alloys.

H. Sato & R. S. Toth (U.S.A.). The effect of additional elements on the period of CuAu II and the origin of the long-period superlattice.

J. Kakinoki (Japan). One-dimensionally disordered

crystal with a special reference to the anti-phase domain structures.

R. Sato & B. Ishii (Japan). Crystallographic out-of-step in oxygen-deficient U_3O_8.

H. Morimoto (Japan). Radial distribution analysis of evaporated thin films.

Technique and Application of Electron Diffraction

L. H. Germer & A. U. MacRae (U.S.A.). Low-energy electron-diffraction studies of adsorbed gases.

G. Honjo (Japan). Some recent developments in electron-diffraction technique.

N. Takahashi, K. Ashinuma & Y. Nagahama (Japan). An electron microscope capable of simultaneous recording of electron-microscopic image and electron-diffraction pattern.

P. Goodman (Australia). Intensity measurement of electron-diffraction patterns with a scanning photomultiplier.

C. W. B. Grigson (U.K.). A scanning electron-diffraction system.

S. H. Bauer & K. Kimura (U.S.A.). Design and characteristics of parallel incidence electron-diffraction apparatus.

G. Shimaoka (Japan). Electron-diffraction specimen holder for the study of gas–metal reaction at elevated temperatures.

S. Goldsztaub (France). Recherches de diffraction électronique poursuivies au Laboratoire de minéralogie de Strasbourg.

M. Blackman & G. Kaye (U.K.). The Curie point of hematite crystals.

H. Hagihara & H. Uchikoshi* (Japan). Electron-diffraction studies of monolayers adsorbed on a single-crystal surface.

A. L. Mackay (U.K.). The micro-morphology of β-FeOOH.

S. Shirai & Y. Fukuda* (Japan). Structure of thin layers of some face-centred cubic metals deposited on oriented Ag, Pd and Ni films.

Neutron Diffraction: General Problems, Technique and Apparatus

G. E. Bacon (U.K.). Recent progress in neutron diffraction.

N. V. Belov (U.S.S.R.). Magnetic (ferromagnetic) space-group symmetry.

N. V. Belov, N. N. Neronova (U.S.S.R.), J. D. H. Donnay* & G. H. Donnay (U.S.A.). Tables of magnetic space groups: II. Special positions.

S. W. Peterson & H. G. Smith (U.S.A.). Anomalous neutron scattering from some cadmium, boron and lithium compounds.

S. P. Wang & C. G. Shull* (U.S.A.). Photography of neutron-diffraction patterns.

R. D. Lowde (U.K.). Techniques in the study of magnetic disorder scattering.

G. Caglioti & F. P. Ricci (Italy). Resolution and luminosity of crystal spectrometers for neutron diffraction.

G. Caglioti, F. P. Ricci, A. Santoro & V. Scatturin (Italy). Neutron-diffraction work at the ISPRA Center.

T. M. Sabine (Australia). Neutron-diffraction research in Australia.

N. Kunitomi, Y. Hamaguchi, M. Sakamoto & S. Komura (Japan). Neutron diffractometer JAER-1.

S. Miyake, S. Hoshino, K. Suzuki*, H. Katsuragi, S. Hagiwara, T. Yoshie & K. Miyashita (Japan). Single-crystal neutron diffractometer with automatic programming control system.

Neutron Diffraction: Inelastic Scattering and Structure Studies

B. N. Brockhouse (Canada) (paper read by A. D. B. Woods). Interatomic forces in crystals from neutron scattering.

H. Palevsky (U.S.A.). The lattice dynamics of the ammonium halides.

M. Sakamoto, B. N. Brockhouse, R. G. Johnson & N. K. Pope (Canada). Neutron inelastic scattering study of water.

W. C. Hamilton (U.S.A.). Thermal motion and hydrogen atom location by neutron diffraction: recent work at Brookhaven.

B. C. Frazer (U.S.A.). Neutron-diffraction study of ferroelectrics.

W. C. Hamilton & J. A. Ibers* (U.S.A.). A neutron-diffraction study of polycrystalline $HCrO_2$ and $DCrO_2$.

R. P. Ozerov, G. S. Zhdanov & V. S. Cogan (U.S.S.R.). Neutron-diffraction study of the structure of solid hydrogen and deuterium.

H. Dachs (Germany). Hydrogen position in manganite, MnOOH, by neutron diffraction.

M. I. Kay, B. C. Frazer (U.S.A.) & R. Ueda* (Japan). X-ray and neutron study on the phase transformation of $NaNO_2$.

R. Ueda & K. Hasegawa (Japan). Vacancy distribution in ferrimagnetic γ-Fe_2O_3.

M. Atoji (U.S.A.). Neutron-diffraction studies of higher carbides of heavy metals.

Neutron-Diffraction Study of Magnetic Materials (Joint Session)

C. G. Shull & Y. Yamada (U.S.A.). Magnetic electron configuration in iron.

H. A. Alperin (U.S.A.). The magnetic form factor of nickel oxide.

R. Nathans (U.S.A.). Spin density maps from neutron form-factor.

D. P. Shoemaker, R. J. Chandross & J. Mellor (U.S.A.). Atomic magnetic moments in B2 transition alloys.

R. D. Lowde (U.K.). On the magnetic moment distributions in disordered ferromagnetic alloys.

M. K. Wilkinson, H. R. Child, W. C. Koehler, J. W. Cable & E. O. Wollan (U.S.A.). Recent magnetic neutron-scattering investigations at Oak Ridge National Laboratory.

W. C. Koehler, J. W. Cable, E. O. Wollan & M. K. Wilkinson (U.S.A.). Recent progress in magnetic structure determination of rare earth metals.

G. Shirane & W. J. Takei (U.S.A.). Neutron-diffraction study of chromium single crystal.

E. O. Wollan, J. W. Cable, W. C. Koehler & M. K. Wilkinson (U.S.A.). Magnetic moment distribution in palladium and iron group alloys.

P. K. Iyengar, B. A. Dasannachara, P. R. Vijayaraghavan & A. P. Roy (India) (paper read by S. S. Dharmatti). Neutron-diffraction study of antiferromagnetism in $FeSn_2$.

J. M. HASTINGS & L. M. CORLISS (U.S.A.). Magnetic structure of $MnCr_2O_4$.

Y. HAMAGUCHI, S. KOMURA, N. KUNITOMI & M. SAKAMOTO (Japan). Magnetic properties and structures of uranium-3*d* transition metal alloys.

B. G. LYASHENKO, D. F. LITVIN, I. M. PUZEY & J. G. ABOV (U.S.S.R.). Neutron-diffraction investigation of order–disorder in the alloys ferrum–nickel and ferrum–cobalt.

E. F. BERTAUT, A. DELAPALME, F. FORRAT, G. ROULT, F. DE BERGEVIN & R. PAUTHENET* (France). Studies of magnetic structures at the nuclear center of Grenoble.

I. I. YAMSIN, N. V. BELOV* & YU. Z. NOZIK(U.S.S.R.). Atomic and magnetic structure of manganese ferrites.

R. A. ALIKHANOV (U.S.S.R.) (paper read by R. P. OZEROV). Neutronographic study of $NiCO_3$.

R. D. LOWDE (U.K.). Magnetic inelastic scattering of neutrons.

T. RISTE (Norway). Some experiments on magnetic inelastic scattering of neutrons.

A. MURASIK, K. RUTA-WALA & A. WANIC (Poland) (paper read by T. RISTE). Investigation of magnons in franklinite by the neutron-scattering method.

B. N. BROCKHOUSE, L. N. BECKA, K. R. RAO & A. D. B. WOODS* (Canada). Crystal field spectra in rare earth oxides.

D. CRIBIER, B. JACROT & G. PARETTE (France). Critical scattering of neutrons by nickel.

Conference in Nishinomiya (near Osaka), Japan, 3 and 4 October 1961

The expected presence of a relatively large number of foreign crystallographers and physicists in Japan attending the Kyoto Symposium (see preceding report) had made the Crystallographic Society of Japan decide to organize an International Conference on Scientific Information in the Fields of Crystallography and Solid-State Physics. This meeting was held at the Kwansei Gakuin University, Nishinomiya, on 3 and 4 October. Formally the International Union of Crystallography had no responsibility in the organization of the Conference. However, the topics were of immediate interest to the Commissions on Crystallographic Data, on *Acta Crystallographica* and on *Structure Reports*. Therefore assistance from the Union had been sought that these Commissions be adequately represented at the meeting, and, on an informal basis, the Union participated through these Commissions in the planning of the programme.

About sixty scientists from eight countries attended the Conference, and most of them took part in the often lively discussions which followed the papers. The meeting was opened on Tuesday 3 October by the President of the Crystallographic Society of Japan, T. WATANABÉ, and his speech was followed by an address of welcome by I. NITTA. At the beginning of the afternoon session the President of the Union, P. P. EWALD, read a message from the Union.

During three half-day sessions nineteen papers were given, which are listed at the end of this report. The contributions were divided between papers by specialists in various aspects of documentation work, and papers by crystallographers dealing with specific documentation problems in crystallography and solid-state physics. Special mention may be made of the introductory lecture of J. D. BERNAL, who unfortunately could not be present himself. This paper contained a number of ideas and suggestions with respect to scientific communication and documentation, which might be tried in the field of crystallography, this field being comparatively young, and while intrinsically it is a well-limited system of thought, extrinsically it stands at the cross roads of various other fields. Mimeographed abstracts of most papers had been distributed to the participants in advance; more detailed proceedings will be published by the Crystallographic Society of Japan, to appear early in 1962. These proceedings will include the full text of the papers as well as of the discussions.

During the Conference two panel discussions were held. The first of these dealt with the ASTM Powder Data Compilation, and took place at the end of the afternoon session on Tuesday 3 October. The second was held at the end of the Conference on Wednesday morning 4 October, its topic being the compilation *Crystal Data*.

On Tuesday evening the participants enjoyed a dinner at the Takarazuka Hotel, which was offered by the President of the Crystallographic Society of Japan. An excursion to Nara on Wednesday afternoon, and a dinner at the Nara Hotel, concluded the Conference. The participants in the meeting, and in particular those from abroad, owe a deep debt of gratitude to their Japanese hosts for the efficient organization and the most generous hospitality received throughout their stay in Japan.

List of Contributions

J. D. BERNAL (U.K.) (paper presented by O. KENNARD). Introductory lecture.

H. L. BROWNSON (U.S.A.). Documentation needs of scientists.

K. HIRAYAMA (Japan). Time required, cost and personal for documentation.

G. WADDINGTON (U.S.A.). Organized numerical data compilation in the U.S.A.

H. CHIHARA (Japan). Activities of the *Chemical Abstracts* Service.

P. P. EWALD (U.S.A.). Origin of the *Strukturbericht*.

O. KENNARD (U.K.). Activities of the [IUCr] Commission on Crystallographic Data.

A. J. C. WILSON (U.K.). Activities of the [IUCr] Commissions on *Acta Crystallographica* and on *Structure Reports*.

J. WYART (France). Activities of the Centre de Documentation in France.

H. O'DANIEL (Germany). The organization of abstracting and documentation in Germany concerning international crystallographic work.

W. L. FINK (U.S.A.). Activities of the Joint Committee on Chemical Analysis by Powder Diffraction Methods. I. X-ray data.

W. C. BIGELOW (U.S.A.). Activities of the Joint Committee on Chemical Analysis by Powder Diffraction Methods. II. Problems in collecting, organizing and indexing electron-diffraction data.

O. KENNARD (U.K.). Remarks from the [IUCr] Commission on Electron Diffraction to the Commission on Crystallographic Data.