We see that the 'mixed parity' or nitrogen reflexions will always contain a potential contribution due to deformations of the iron atoms.

The unit cell of the h.c.p. structure contains two atoms in the positions $\pm(\frac{1}{3},\frac{1}{3},\frac{1}{4})$. They have non-centrosymmetric positions related by inversion. Hence, the structure amplitudes are

$$F_{hkl}=2\mathrm{Re}f_A\cos\frac{\pi}{2}[\tfrac{2}{3}(h+2k)+1]+2\mathrm{Im}f_A\sin\frac{\pi}{2}[\tfrac{2}{3}(h+2k)+l],$$

where the second term is the correction due to asymmetry of the atoms. The reflexions with $h\geq k\geq 0$ and $l\geq 0$ form a complete list of non-identical reflexions. In the reflexions of this list $\mathrm{Im}f_A$ vanishes by symmetry only if $h=k$. According to the conventional extinction rule all reflexions with odd l and $h=k+3n$ (n is any integer) are forbidden. This is now exact only for $n=0$, all of the other 'forbidden' reflexions being regular though very weak.

No systematic search was made to find all critical cases. These examples are given just to show the rather obvious principle and to remind us about the dangers of the conventional expressions. The correction due to atomic deformations is small, of course, but it must not be assumed zero. Unfortunately, elaborate collection of accurate data and careful analysis of them can scarcely be avoided if one wants to make sure about its significance.

This subject is treated in more detail in an internal report of the Department of Physics, University of Helsinki.

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Excess and defect Kikuchi bands in electron diffraction patterns.

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In established parallel-beam electron-diffraction practice, it is known that reversal of contrast from excess to defect occurs in Kikuchi bands when the crystal thickness is increased. A similar effect is observed when the aperture angle of the incident electrons is increased.

Excess Kikuchi bands are observed in ordinary electron diffraction patterns, from relatively thin crystals, while thick crystals give rise only to defect bands (Shinohara & Matsukawa, 1933; Boersch, 1933; Pfister, 1952). When the thickness of the crystal is increased, the contrast reversal from excess to defect begins to appear around the incident spot and it then extends outwards (Uyeda, 1968). This effect has not been thoroughly interpreted, although Kainuma (1953) attributed it to anomalous absorption. In this paper it is reported that the reversal of contrast also occurs for a fixed crystal thickness if the aperture angle of the incident electrons is increased in a way similar to that in the Kossel—Möllenstedt diffraction technique.

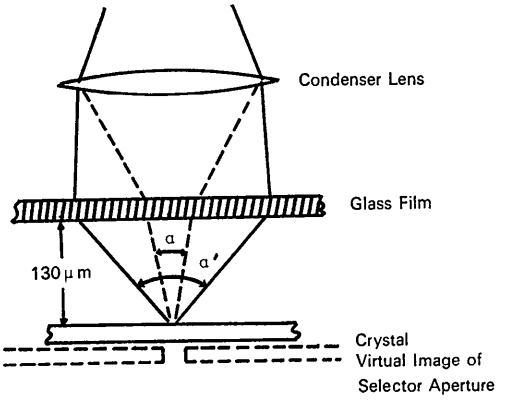

Fig.1. The experimental arrangement.

The experimental arrangement is shown in Fig. 1. A glass film of about 0·5 μm thick, (sufficiently thick to scatter the incident electrons over a wide angle) was placed over a single crystal of silicon about 2000 Å thick. Diffraction patterns were taken on an electron microscope by the selected area diffraction technique. The aperture angle of the incident electrons at the crystal was controlled by changing the illuminated area of the glass film (see Fig. 1). In Fig. 1, the case of a small aperture angle α is shown by the dotted line, and that of a large aperture angle α' by the solid line. The accelerating voltage was 100 kV. The diffraction patterns for different angles α are reproduced in Fig. 2. The crystal film is normal to $\langle 111\rangle$ and the $\{220\}$, $\{440\}$ and $\{224\}$ bands appear as seen in Fig. 2(*a*), (*b*) and (*c*); α increases in the order (*a*), (*b*), (*c*). A dotted circle in each photograph corresponds to the angle α concerned. The illumina-

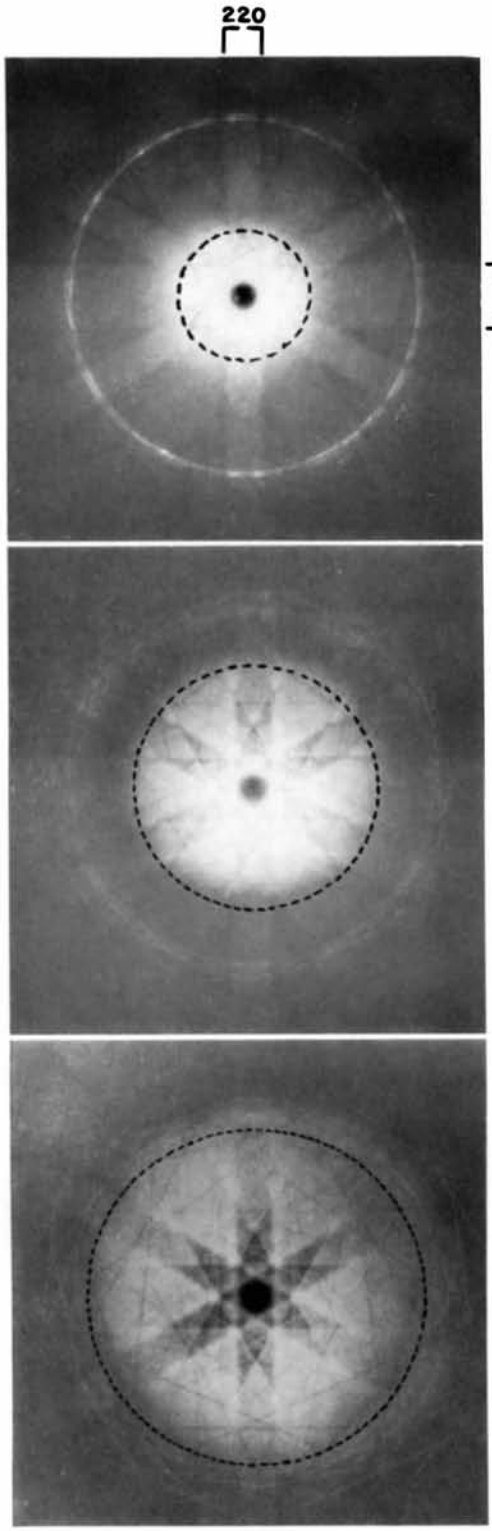

Fig.2. Diffraction patterns for different values of the angle α. α increases from (*a*) to (*c*).

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tion was almost uniform in the solid angle defined by α. In Fig. 2(*a*), where α is small, all the bands are excess. When α increases [Fig. 2(*b*) and (*c*)], defect bands appear inside the dotted circle, while excess bands remain outside. It is of note that the contrast reversal was also observed for the second-order Kikuchi bands, *i.e.* the {440} bands, on the original films.

The above results shows that the angular region over which defect bands occur increases with increasing aperture angle of the incident electrons. This effect may help towards a better understanding of the excess-defect reversal of Kikuchi bands.

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International Union of Crystallography

Inter-Congress Meetings – I. U. Cr. Sponsorship

The Executive Committee of I.U.Cr. is anxious to promote and increase in the number of Inter-Congress meetings in order to avoid future Triennial Congresses becoming excessively large and cumbersome to handle. A Sub-Committee on the Union Calendar has therefore been set up (see *Acta Cryst.* (1969) A**25**, 719) to implement this policy. Its function is to gather information on proposed or prospective meetings, coordinate the long-term planning of meetings which the Union organizes or co-sponsors, and actively to encourage the initiation of small or intermediate-sized meetings in fields where development is significant.

Since it is the aim of Sub-Committee to plan at least three, and preferably more, years ahead, it is advisable to have early advice of meetings being planned or in prospect which might appropriately come within the category of Union sponsorship or co-sponsorship in terms of their content, location, size and date. It would therefore be appreciated if bodies such as Commissions of the Union, National Committees for crystallography, regional associations and other bodies which are contemplating or have begun the planning of a future international meeting on crystallography or with a major content of crystallography would contact the Sub-Committee Chairman:

Dr. A. Línek
Institute of Solid State Physics
Czechoslovak Academy of Sciences
Cukrovarnická 10
PRAHA 6,
Czechoslovakia

The Sub-Committee would be pleased to receive advice of provisional details of proposed Inter-Congress meetings as soon as possible and it will also consider requests for Union co-sponsorship of these meetings. Nominal financial support could be available in some cases.

Contact with the Sub-Committee should assist prospective organizers of meetings to disseminate preliminary information in a convenient manner since lists of meetings of interest to crystallographers will be published in the Journals of the Union from time to time. The Sub-Committee will also be glad to be informed of local or national crystallographic meetings.

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).

Professor A. V. Shubnikov 1887–1970

Professor Alexey Vasilyevich Shubnikov died on 27 April, 1970. Professor Shubnikov was Head of the Laboratory at the Insitute of Crystallography, Academy of Sciences of the U.S.S.R. He was best known internationally as the first editor of Kristallographiia, by his participation in the founding of the International Union of Crystallography and by his discussion of the role of antisymmetry elements in structure theory ('Shubnikov Groups').

A full obituary will be published in the Journal of Applied Crystallography in due course.

International Union of Crystallograpy Ninth General Assembly and International Congress of Crystallography

Preliminary Announcement

The Ninth General Assembly and International Congress of Crystallography of the International Union of Crystallography will be held in Japan in 1972. The date and place are provisionally planned as follows: The General Assembly and Congress, lasting about 10 days, will be held within the period from 27 August to 8 September, 1972, at the Kyoto International Conference Hall, Kyoto, Japan.