indices, different from the simple shear plane—{112}—which might be expected on the basis of the Burgers's mechanism. This, then, is in agreement with the results found for many transformations of 'martensitic' type (cf., for example, Table 2 given in a review by Cohen (1951)).

In addition, our results for zirconium leave open the possibility of a plane {569}, which is nearer to {112} than to {144}, as found by Bowles for lithium.

With regard to the physical meaning of habit planes with complicated indices we refer to a recent paper by Machlin & Cohen (1951) in which other recent considerations of this problem are discussed.

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Correction charts for Lorentz and polarization factors in anti-equi-inclination photographs.

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The equi-inclination method of studying the n-layer in a Weissenberg photograph has been widely employed, and recently tables and charts for applying corrections for the Lorentz and polarization factors (hereafter referred to as L and P) in a convenient and rapid manner have been published by many workers (Lu, 1943; Kaan & Cole, 1949; Cochran, 1948). In certain circumstances, e.g. when the crystal is in the form of a needle rotated about an axis perpendicular to it, or a thin plate about an axis parallel or perpendicular to it and is heavily absorbing, the normal-beam method of recording the zero level does not give a reliable set of relative intensities unless absorption corrections are carefully applied for each reflexion, a procedure which generally is rather laborious. In such cases, the anti-equi-inclination method comes in useful because the variation in the length of the X-ray path inside the crystal for the different reflexions is very much reduced and consequently the error introduced by neglecting a detailed absorption correction is also lessened. The author met with such a situation with some heavily absorbing inorganic crystals having a linear absorption coefficient of the order of 100 cm.$^{-1}$ even for Mo $K\alpha$ radiation, and which crystallized in the form of needles. As it was found that neither tables nor charts were available for making the geometrical corrections in a combined form, the author calculated the corrections $D = (LP)^{-1}$ over the whole sphere of reflexion and extending up to a value of 50° for the inclination angle μ.

It may be mentioned that the anti-equi-inclination method has also other applications besides the one mentioned above. Since the conditions for both anti-equi-inclination and equi-inclination methods are closely related, it provides a way of recording an equivalent zero-level photograph for every n-layer recorded by the equi-

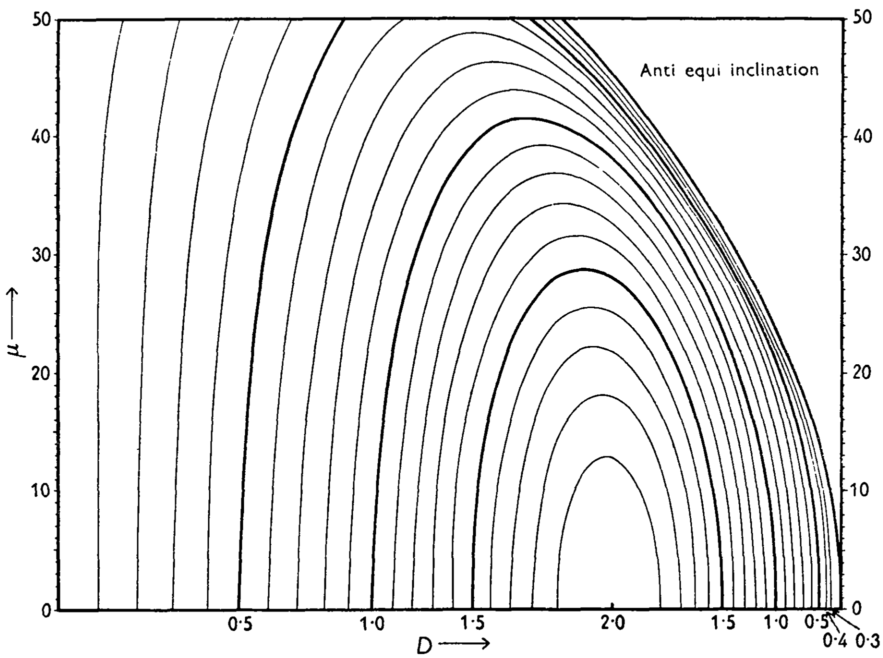

Fig. 1. Correction chart for Lorentz and polarization factors in anti-equi-inclination photographs. Approximately half full size.

inclination method. These two pairs will have the same radius for the reflecting circle, a fact which will be of advantage when direct comparison is made between the two layers, especially in the de Jong & Bouman method of recording.

Buerger (1940) has shown that the Lorentz factor for the general case is given by $1/\cos\mu\cos\nu\sin\gamma$, where the symbols have their usual significance (Buerger, 1942). For the special case of $\mu = +\nu$ which we are considering this reduces to the form $1/\cos^2\mu\sin\gamma$. Further, we have also $\sin\frac{1}{2}\gamma = \frac{1}{2}\xi/\cos\mu$, so that finally $L^{-1} = \cos^2\mu\sin\gamma = \cos^2\mu\sin 2\,[\sin^{-1}(\frac{1}{2}\xi/\cos\mu)]$, which could be calculated as a function of ξ and μ. The factor P is obviously equal to $\frac{1}{2}(1+\cos^2 2\theta)$ and has been tabulated by Buerger & Klein (1945) as a function of σ; here $\sigma^2 = \xi^2+\zeta^2$, which, for the zero layer, reduces to $\sigma = \xi$. Hence we get

$$D = L^{-1}P^{-1} = \cos^2\mu\sin 2\,[\sin^{-1}(\tfrac{1}{2}\xi/\cos\mu)]P^{-1}(\xi)\;,$$

from which the variation of D with ξ and μ could be calculated. The results of the calculation are represented in Fig. 1, which follows in lay-out the presentation adopted by Cochran (1948) for the normal-beam and equi-inclination photographs.

The chart consists of curves of constant D, the values of which are indicated at the bottom. The ordinate gives the value of μ in degrees. The abcissa is the value of the coordinate ξ, where ξ and ζ are the cylindrical coordinates of a reciprocal-lattice point when the reciprocal lattice is drawn to the scale 10 cm. = 1. If the inclination angle μ is known, the value of the correction D for each reflexion *hkl* may be found as follows:

1. A straight line ruled on a transparent material is laid horizontally across the chart so as to join the two divisions corresponding to μ on either end of the chart. The points where this straight line intersects the curves of constant D are marked on the transparent scale.

2. A drawing of the zero layer of the reciprocal lattice is now made on a scale 10 cm. = 1. The origin of the D scale is placed over the origin of the reciprocal lattice and the D scale is rotated so that it passes over the lattice points corresponding to the various reflexions. The corresponding value of D is read off by simple interpolation.

The charts have been drawn at intervals of 0·1 for D, the maximum of D being 2·0. It will be noticed that in the charts of Cochran (1948) the maximum is only 1·0 because effectively he has omitted the factor $\frac{1}{2}$ in the expression $\frac{1}{2}(1+\cos^2 2\theta)$ for P. Over most of the region, D can be read to $\pm 0{\cdot}02$ so that linear interpolation can give an accuracy of 1% in the correction.

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International Union of Crystallography

Report of Executive Committee for 1951

Introduction

The most important event of 1951 was the Second General Assembly and International Congress held in Stockholm under the patronage of His Majesty the King of Sweden. A detailed account of this meeting and of the associated symposia has already been published (*Acta Cryst.* (1951), **4**, 567). The year also saw the publication of the first volume of *Structure Reports* to be prepared under the auspices of the Union and the decision to transfer the publication of *Acta Crystallographica* to Messrs Ejnar Munksgaard of Copenhagen.

Three additional countries adhered as from 1 January 1951 and the status of the membership of Japan was raised from Group I to Group IV. Details of the eighteen countries adhering at the end of the year are given in Table 1.

Work of the Commissions

Commission on Acta Crystallographica

Publication of *Acta Crystallographica* has continued throughout 1951 and Vol. 4 was completed with the appearance of Part 6 in November. An analysis of the first four volumes (Table 2) shows that the rapid growth of the journal continues. This expansion unfortunately proved such a source of embarrassment to the Cambridge University Press that they found themselves unable to countenance any further increase in size. The Commission felt, however, that arrangements must be made for still further expansion if the journal was to maintain its reputation as the world's chief medium for the publication of crystallographic research. After careful consideration, the Executive Committee accordingly decided to accept the recommendation of the Commission to transfer publication to Messrs Ejnar Munksgaard of Copenhagen as from 1 January 1952. It is hoped that this step will make possible any further expansion of the journal which may prove necessary to meet the requirements of crystallographic research, and that it will also lead to the more rapid publication of material submitted to the editors. The Union owes a deep debt of gratitude to the officers of the Cambridge University Press, and particularly to Mr Brooke Crutchley, University Printer, for their invaluable assistance in launching