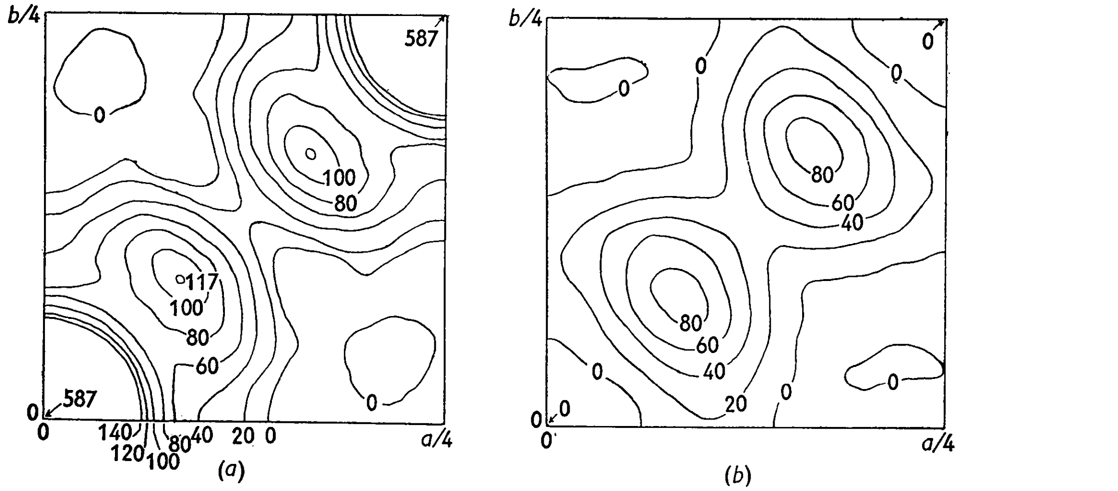

Fig. 2. (a) Potential Fourier map of cubic ice projected on (001). The unit of the contour scale is 0·37 V. Å. (b) As (a) with oxygen contributions subtracted.

In conclusion, the authors express their sincere appreciation to Prof. S. Miyake for his kind advice and interest.

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On the determination of crystallographic directions.

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(*Received* 11 *July* 1957)

Relations previously developed using linear transformation equations yield the crystallographic directions of paths uniquely from their angles of inclination θ and azimuth φ in any crystal plate of known orientation (Davisson, 1957). The purpose of this note is to modify the transformation equations so that they apply directly to goniometric measurements of crystals. Directions are specified by such measurements in terms of angles from two known reference directions.

The problem we consider is the determination of a specific crystallographic direction $\mathbf{R}_2$ when we are given the angles θ_{01}, θ_{02} and θ_{12} between the directions $\mathbf{R}_0$, $\mathbf{R}_1$, and $\mathbf{R}_2$, where $\mathbf{R}_0$ and $\mathbf{R}_1$ are two known reference directions and $\theta_{01} = \mathbf{R}_0 \wedge \mathbf{R}_1$, etc. The crystallographic direction $\mathbf{R}_2$ can then be computed uniquely for any crystal from equations (8), (9), and (10) given by Davisson (1957) when the following relationships are used:

$$\theta = \theta_{02}\,,$$

$$\varphi = \cos^{-1}\left\{\frac{\cos\theta_{12} - \cos\theta_{01}\cos\theta_{02}}{\sin\theta_{01}\sin\theta_{02}}\right\},$$

where the angle φ is positive or negative depending upon whether the direction $\mathbf{R}_2$ lies on the positive or the negative side of the plane defined by the vector $\mathbf{R}_3 = \mathbf{R}_0 \times \mathbf{R}_1$.

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