*International Tables for Crystallography* (2006). Vol. C, Figure 5.3.2.1, p. 511.



cone and normal to the plane of interest, and $\alpha$ is the semivertical angle. Since $\alpha$ depends on the Bragg angle, it is possible to combine (5.3.2.6) with the Bragg law [equations (5.3.1.1) or (5.3.1.2)], and so with the lattice parameters. In particular, the dependence can be presented as:

$$\frac{r}{z'} = \frac{1}{\sin\theta} = \frac{2d}{n\lambda}, \qquad (5.3.2.6a)$$

where $r = (x'^2 + y'^2 + z'^2)^{1/2}$.

In another convenient coordinate system $(x, y, z)$ common for all the cones, say with $z$ along the direction of the incident beam, (5.3.2.6$a$) will take the form:

$$\frac{r}{c_x x + c_y y + c_z z} = \frac{2d}{n\lambda}, \qquad (5.3.2.6b)$$

where $c_x$, $c_y$, $c_z$ are direction cosines of the angles between the $z'$ axis and the axes $x$, $y$ and $z$, respectively. Since the origin of the coordinate system has not been changed,

$$r = (x^2 + y^2 + z^2)^{1/2}. \qquad (5.3.2.6c)$$

The Kossel lines (Fig. 5.3.2.3) are formed at the intersections of the cones with a flat film placed parallel to the specimen surface (Fig. 5.3.2.2). When the film plane is normal to the $z$ axis, and the focus-to-film distance is equal to $Z$, putting $z = Z$ in

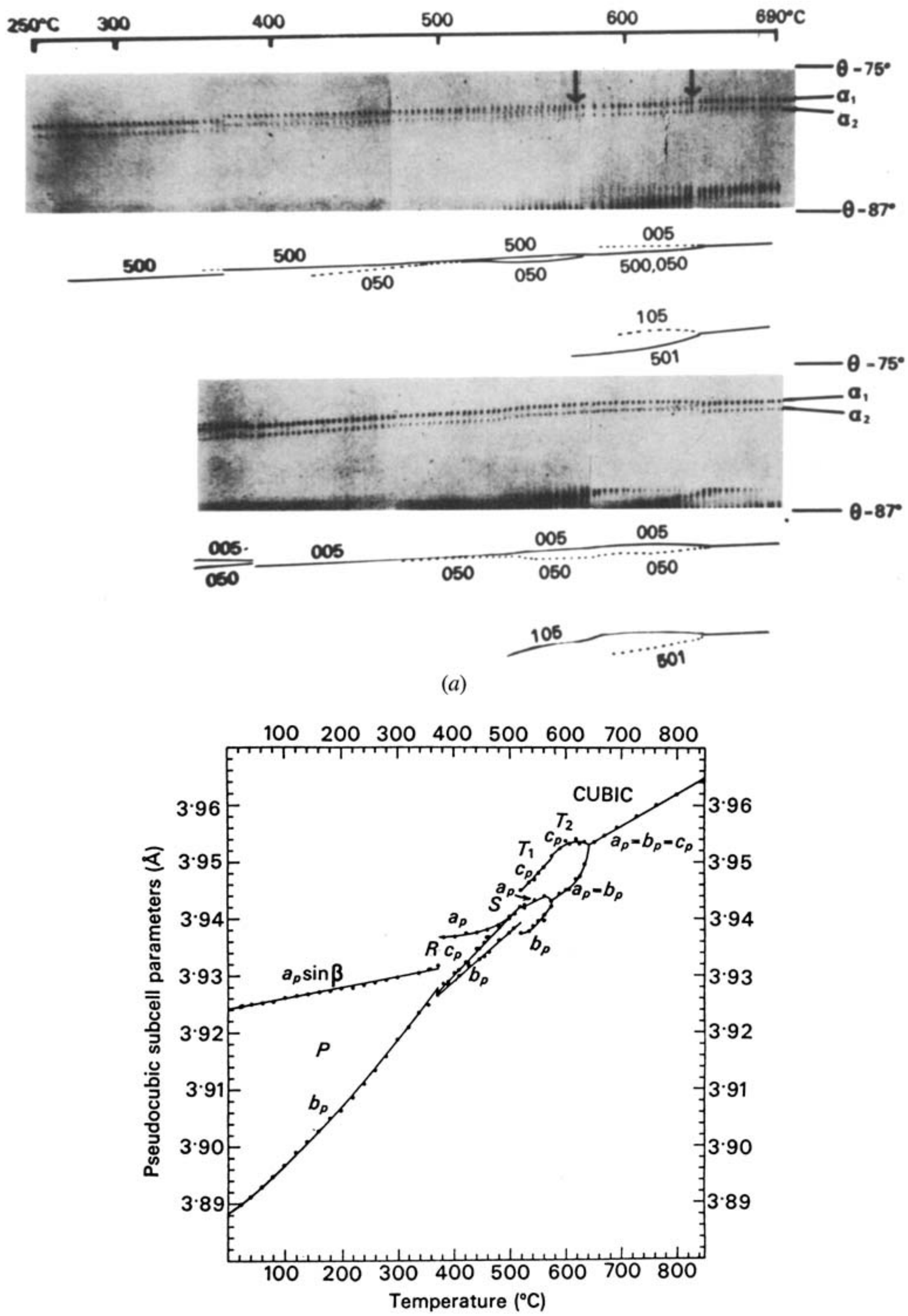


Fig. 5.3.2.1. ($a$) Photographic recording of lattice-parameter changes. ($b$) Corresponding diagram of the variation of lattice parameters in pseudocubic $NaNbO_3$ (Glazer & Megaw, 1973).



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