of [0001]-axes, and there is a concentration near the periphery of the diagram (i.e. parallel to the girdle axis of the [0001] diagram).

As shown in plate 1A $\{02\bar{2}1\}$ lamellae are strongly developed in all the grains. An analysis of the lamellae is given in tables 1 and 2. The majority of the grains contain three sets of $\{02\bar{2}1\}$ lamellae; but it is remarkable that there is optically recognizable twinning in only 20 percent of the grains, and in these it is generally present on only one set of lamellae. The orientation of recognizably twinned lamellae (60 lamellae in 58 grains) is shown in figure 2c. The poles of the lamellae define a single maximum.

TABLE 1*

Percentage of Grains Showing Twinned and Non-twinned $\{02\bar{2}1\}$ Lamellae

Number of sets of lamellae per grain	Percentage of grains
3 sets	71%
2 sets	25%
1 set	4%
No sets	0%

Rotated L_9 lamellae were recorded in 35 of the grains examined. These lamellae (plate 1B) differ from $\{02\bar{2}1\}$ lamellae in being less sharply defined; they have a discontinuous, granular appearance and their orientation is consequently more difficult to measure accurately than that of twin lamellae and cleavages. The L_9 lamellae may frequently be recognized by this characteristic appearance; but as this is not invariably so, and to avoid errors of identification, they were recorded only where associated with later lamellae having rational $\{02\bar{2}1\}$ orientation (plate 1B). Turner, Griggs, Heard and Weiss (1954) record only one set of L9 lamellae per grain in their experimentally deformed dolomite rock, but two sets of L_9 lamellae are present in four of the grains analyzed in the Loch Ailsh rock. Figure 2d shows the orientation of the L_9 and associated $\{02\bar{2}1\}$ lamellae in the specimen; all but two of these sets of L_9 lamellae were measured in the section with the same orientation as the diagram. The angle between L_9 and $\{02\bar{2}1\}$ varies between 5° and 12°,

TABLE 2*

Percentage of Grains Showing Twinned $\{02\bar{2}1\}$ Lamellae

Number of sets of lamellae per grain	Percentage of grains
3 sets	0%
2 sets	1%
1 set	19%
No sets	80%

* The above analyses are based only on grains in which all three planes were accessible for measurement with the U-stage. Lamellae parallel to $\{02\bar{2}1\}$ which are not recognizable as twin lamellae are described as "non-twinned" to distinguish them from lamellae in which the orientation is visibly different from that of the host grain ("twinned lamellae"), as in Borg & Turner, 1953.

with a mean value of 8½°, a figure which is comparable with that obtained in the dolomite deformed by Turner et al. The sense of rotation of $\{02\bar{2}1\}$ to L_9 is statistically constant.

Dynamic Interpretation of the Fabric.—The axes of compression and tension which would be most effective in causing the observed twinning are shown in figure 3a. It is clear that a strong compression parallel to the direction C, or a tension parallel to the direction T could account for all the observed twinning. Figure 3b shows the glide lines (a) and axes of compression (C) and tension (T) deduced for the four grains in which two sets of L_9 lamellae were recorded. For the 31 grains with one set of visible L_9 lamellae the 62 *possible* glide lines are shown contoured in figure 3c (unshaded

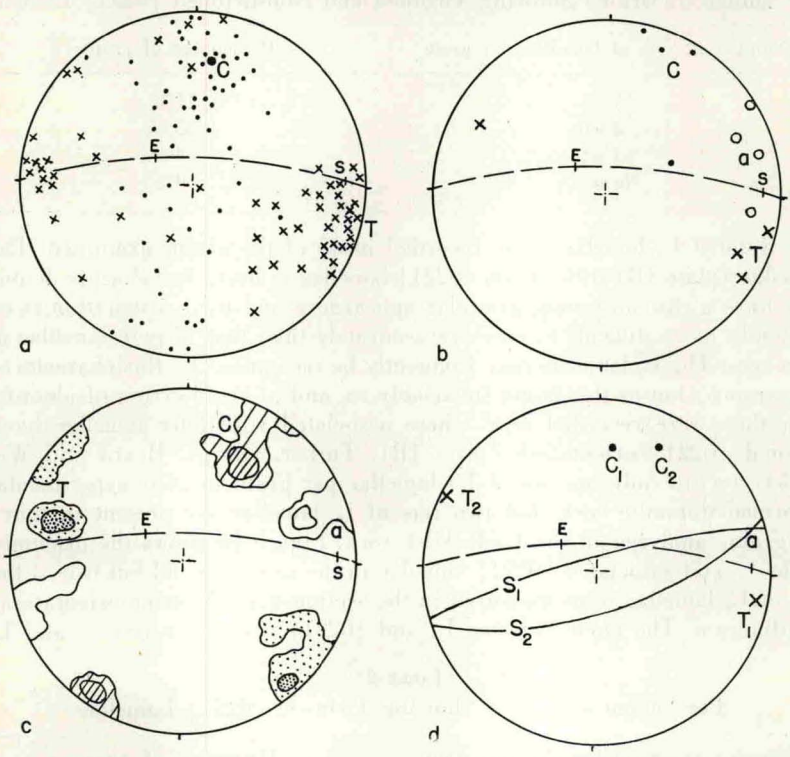

Fig. 3. Dynamic interpretation of data from the Loch Alish dolomite.

a. Axes of compression (points) and tension (crosses) which would give maximum resolved shear stress favorable for twinning on the observed twinned $\{02\bar{2}1\}$ lamellae.

b. Active glide lines (circles) and axes of compression (points) and tension (crosses) which would give maximum resolved shear stress favorable for translation-gliding on {0001} in grains containing two sets of L_9 lamellae.

c. Synoptic diagram showing maxima of *possible* glide-lines (a), tension axes (T) and compression axes (C) inferred for 31 grains containing one set of L_9 lamellae.

d. Kinematic and dynamic interpretation of the data for the specimen. S_1 and S_2 are planes defined statistically by {0001}. C_1, T_1 and C_2, T_2 are stress axes inferred from twinned $\{02\bar{2}1\}$ lamellae and L_9 lamellae respectively.