

trated, indicate less mobile conditions. Of the folds examined, approximately 70 per cent were overturned toward the south, 20 per cent were overturned toward the north, and the remainder were polyclinal.

The folds in the primary mylonitic rocks are similar with regard to orientation and style to those in the other two areas described above. The dominant fold axis in the dolomitic rocks, however, differs slightly from the *B*-axis in the primary mylonitic rocks, as it plunges to slightly north of east. Whereas the majority of the folds in the primary mylonitic rocks are overturned to the south, the folds in the dolomite are consistently overturned toward the north, as are a few of the folds and the kink zones in the mylonitic rocks. Although it is conceivable that the folds in the dolomite were produced in the same phase of deformation as the folds in the primary mylonitic rocks, the slight difference in orientation of the *B*-axes and the different directions of overturning suggest that there were separate phases of movement with slightly different directions and opposite sense. This problem is discussed more fully below.

In the vicinity of the thrust, *S*<sub>b</sub> is gently folded about an eastward-plunging axis ( $\beta$ ), but to the west, near the river Oykeell, it becomes steep, and dips toward the west. At this locality the small-scale folds, which are probably of the same age as the other folds in the dolomite, plunge toward the west. The orientation of the bedding foliation (*S*<sub>b</sub>) and the folds in the western part of the dolomite may be explained by postulating warping of the rocks about a north-trending horizontal axis after folding about the eastward-plunging axis, but, in the absence of more folds with a greater diversity of orientation, this must be regarded only as a possible hypothesis.

#### THE KNOCKAN CRAG AREA

*General description of the area.*—In the southern part of Assynt the Moine thrust overlaps the thrust slices in the zone of dislocation, and at Knockan Crag the thrust carries the mylonitized rocks and the schists directly onto the limestones in the undisturbed Cambrian succession of the foreland. At the north end of the crag a thin slice of heavily deformed white limestone, carried on the sole, rests on the dark limestones of the foreland succession, and this is overlain by the mylonitic rocks above the thrust. Near the southern end of the crag this slice is pinched out and the Moinian rocks rest directly on the limestones of the foreland.

The Moine thrust, which is well exposed for some distance along the crag and to the east, toward Drumm Poll Eoghainn, is a sharply defined surface separating the calcareous rocks from the intensely mylonitized siliceous rocks above. Immediately above the thrust is a layer, 2 or 3 feet thick, of cataclasite and kakirite, containing fragments of primary mylonitic rock. The degree of cataclastic deformation decreases rapidly upward until a few feet above the thrust the laminated primary mylonitic rocks show only a slight degree of brecciation. The primary mylonitic rocks show the normal transition into slabby "granulitic" schists to the east. The transition is so gradual that it would be impossible to place a boundary between the two rock types. The schists are comparatively undeformed for some distance to the east of the crag. Approximately 400 yards west of Loch Odhar, however, there is a zone of intense secondary deformation in which the schists are brecciated and locally slightly folded.

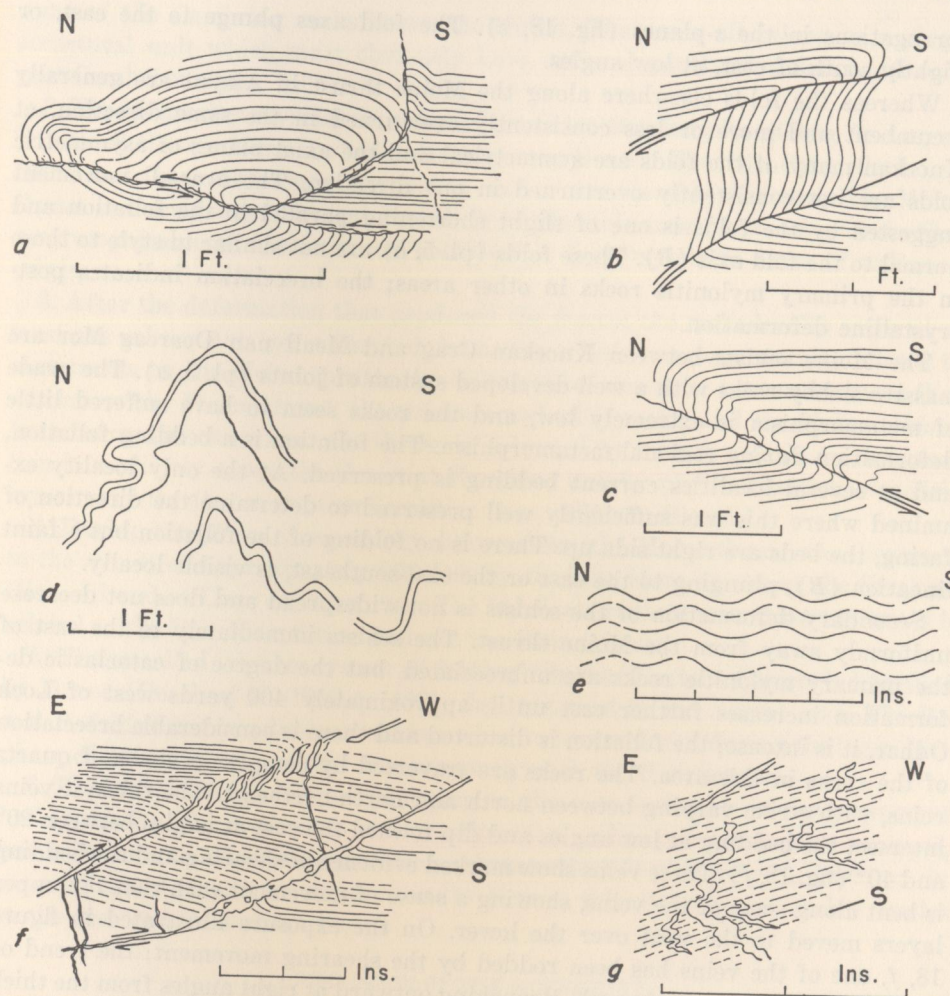


Fig. 18. Style of folding in the Knockan Crag area. *a-e*. Profiles of folds in primary mylonitic rocks at Knockan Crag. *f*. Rodde quartz vein in deformed Moine schist southeast of Knockan Crag. Note bending of foliation (*S*). *g*. Folded quartz veins in deformed Moine schist near Loch Odhar. *S* is foliation in the schist.

*Structural data.*—The foliation in the primary mylonitic rocks east of Knockan Crag has an easterly strike and dips at angles up to 10° toward the south. The strike swings at the crag and becomes north-northeast, and the dip is at low angles toward the east-southeast. Folding of the mylonitic rocks, though not so common as in the other areas described, is by no means absent. Some of the folds are symmetrical (fig. 18, *a, d-e*) and others (fig. 18, *b-c*) are asymmetrical but not overturned. The folding is commonly associated with shear surfaces and some degree of brecciation; that is, the style of folding is less "plastic" than in the other areas described. The shear surfaces dip to both north and south at variable angles. The sense of shear on the shear surfaces in a number of characteristic folds is shown in figure 18 (*a-c*). The intensity of the folding decreases upward toward the summit of Cnoc an t'Sasunnaich, and the highest folds are small symmetrical