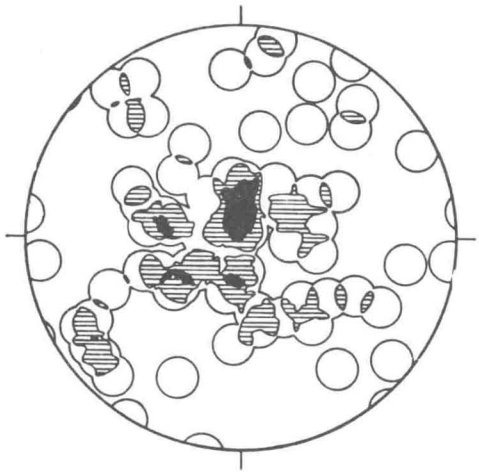

Fig. 49—Diagram illustrating orientation of calcite c_v in 72 porphyroblasts that resulted from the annealing recrystallization of powdered Yule marble. Contours are at 1.3, 2.7, and 5.5 per cent per 1 per cent area. Plane of the diagram is oriented normal to the axis of compression.

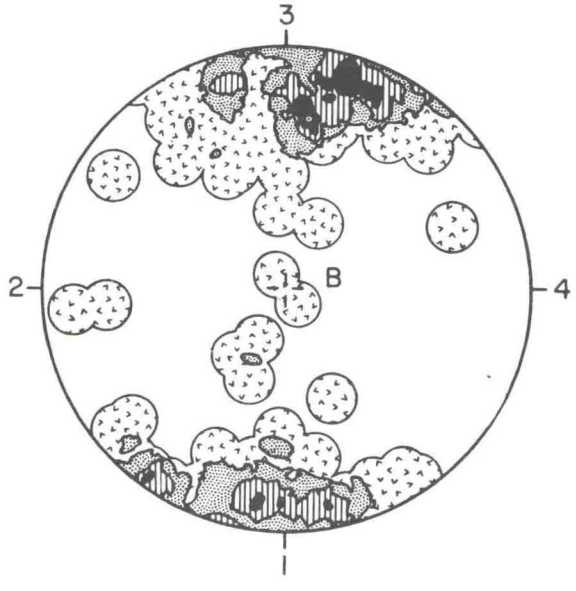

Fig. 50—Diagram showing orientation of 100 calcite c_v in Yule marble (from Handin, Higgs, and O'Brien, Ref. 175, Fig. 12). Contours are at 1, 3, 5, and 7 per cent per 1 per cent area. The foliation plane is parallel to the 2-B-4 plane.

hypothesis, the greatest principal compressive stress during the latest stages of recrystallization should be oriented nearly normal to the foliation. An interesting example is afforded by marble fabrics in five specimens from a recumbent fold in the Mojave Desert of southern California.[116] In three of these (Nos. 278, 161, and 70) the grains are nearly equant, and there is little evidence of postcrystallization strain. The other two specimens (Nos. 298 and 72) are conspicuously deformed and markedly elongated (average dimensional ratio is 1:2:7 with long and intermediate grain diameters in or near the plane of the foliation). Despite these textural differences the c_v maxima in all five specimens are similarly oriented at high angles to the foliation (Fig. 51). Weiss (Ref. 116, p. 77) concluded that "the preferred orientation of c_v in the calcite marbles dates from the main deformation, and the direction of maximum concentration in each specimen is thought to coincide with the axis of maximum compressive stress immediately before cessation of movements." This statement seems to recognize the ability of calcite grains to become reoriented by gliding flow. Although the textures of specimens Nos. 298 and 72 suggest that this

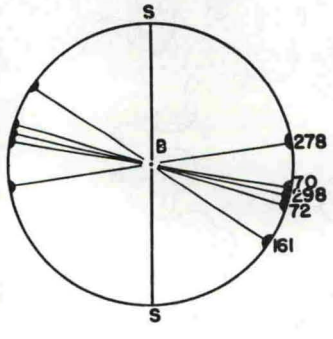

Fig. 51—Synoptic diagram showing the orientation of calcite c_v maxima in relation to the foliation (SS) in five marbles from southern California (from Weiss, Ref. 116, Fig. 27).

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recrystallization rather than from mechanical reorientation of the grains by gliding flow. A nearly similar c_v subfabric can be produced by complete twinning and external rotation of grains. This, however, produces markedly elongated grains, remanent internally rotated lamellae, and a tendency for the c_v to lie along small circles rather than in a distinct maximum (Ref. 43, p. 91).