Bonham[79] studied both macrofabric and microfabric elements associated with the Pico anticline and syncline, which are located some 35 mi northwest of Los Angeles, California. The structure lies along the southern margin of the Ventura basin. Three Tertiary formations are encountered, the Modello (Miocene), the Pico (Pliocene), and the Saugus (Pliocene). These are composed of a poorly indurated turbidite sequence of interbedded arkose and graywacke sandstones, siltstones, and shales, with an aggregate thickness of nearly 15,000 ft. The anticline is 9 mi long and is folded tightly, showing an almost chevron cross section. The axial plane of the fold is nearly vertical and has a strike of about N-65°-W in the eastern and central parts and about N-75°-W in the western part. Dips on the flanks are commonly over 50 degrees with some overturning on the northern flank. The anticline plunges both east and west. Several normal faults, with as much as 500 ft of stratigraphic separation, cut the structure and tend to strike NE-SW and NW-SE. Bonham characterizes the anticline as a flexural slip fold with three mutually perpendicular axes of folding (Fig. 12).

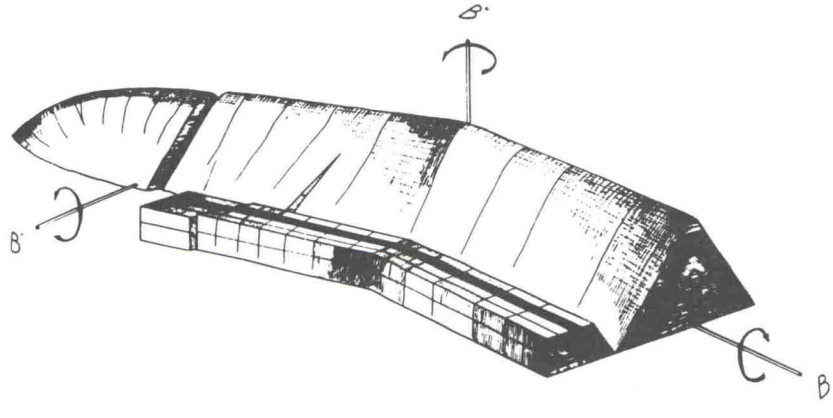

Fig. 12—Idealized block diagram of the Pico structure showing three axes of folding (from Bonham, Ref. 79, Fig. 3).

Bonham's data on orientation of microfractures and macrofractures (joints) are given in Fig. 13. For convenience, he refers his diagrams to three axes--a, b, and c. The b direction is parallel to the fold axis; the a axis lies in the bedding plane and is normal to the fold axis; and the c axis is normal to bedding. Accordingly, the

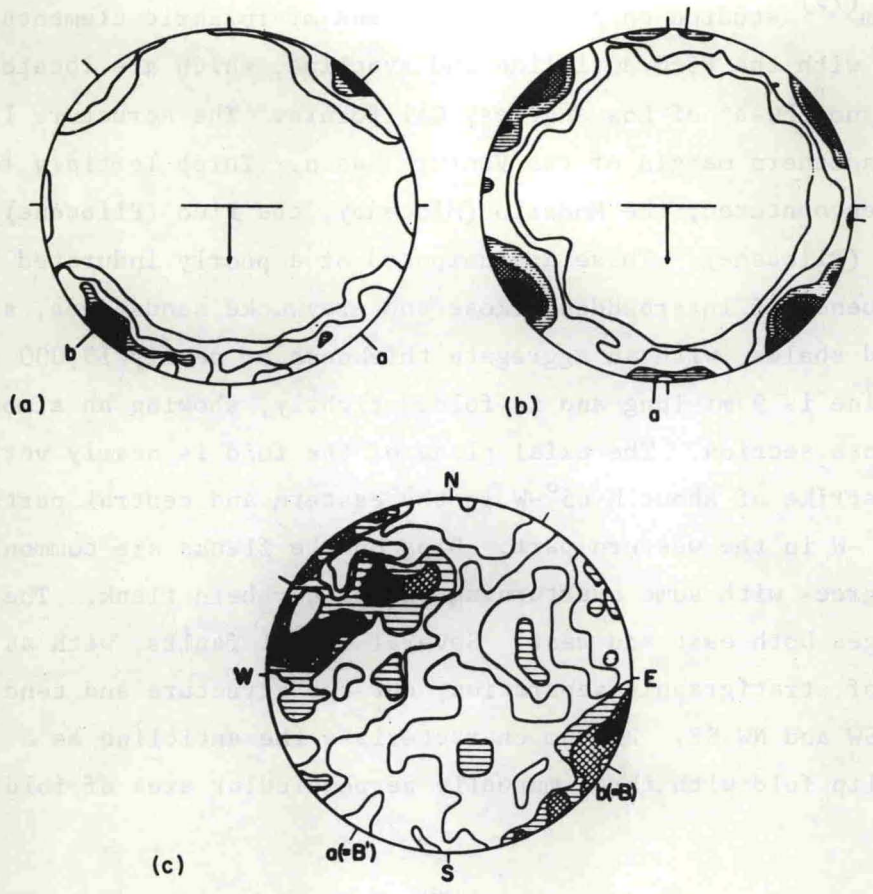

Fig. 13—Diagrams showing orientation of microfractures and macrofractures associated with the Pico structure (from Bonham, Ref. 79, Figs. 4 and 5). The plane of each diagram is parallel to bedding (ab). (a) Normals to 200 quartz microfractures. Contours are at >2, 4, 6, 8, and 10 per cent per 1 per cent area. (b) Normals to 200 quartz microfractures. Contours are at >1, 2, 4, 6, and 8 per cent per 1 per cent area. (c) Normals to 210 sets of macrofractures. Contours are at >1, 2, 3, and 4 per cent per 1 per cent area.

ab plane is parallel to the bedding plane, and the ac plane is normal to the fold axis (b = B). In diagrams with a single concentration (Fig. 13(a)), the microfractures are preferentially oriented in the ac plane of the fold. In diagrams with two concentrations (Fig. 13(b)), the microfractures are oriented in two planes which intersect in a line normal to bedding. The acute angle between these planes is bisected by the ac fabric plane. Macrofractures (Fig. 13(c)) also tend to lie in the ac plane. Stereograms showing the major plane(s) defined by the microfractures at each of 28 stations on the fold (Fig. 14) indicate