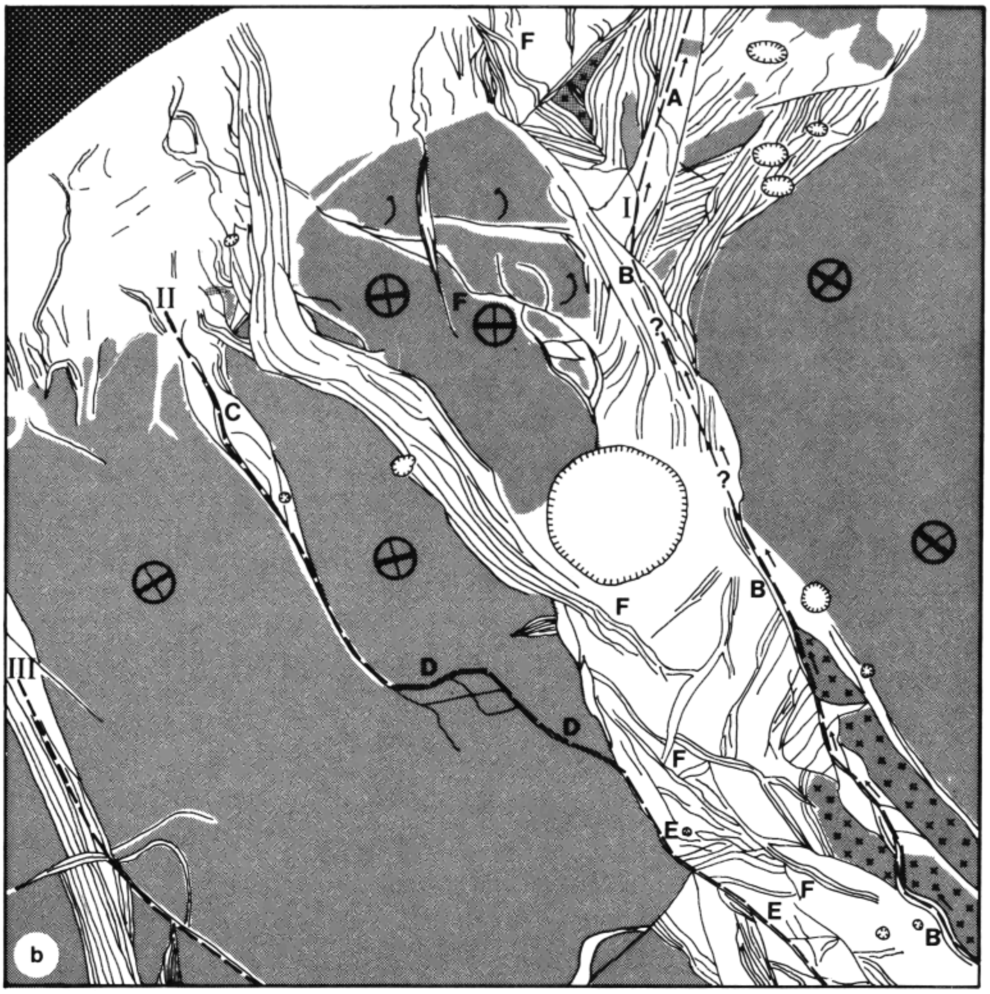

Fig. 2*b*. Structural map of the same area. Groove lanes and throughgoing grooves are shown in fine lines. Arcuate and radial furrow orientations are shown as heavy and fine lines, respectively, within circles. Crater rims are shown in hachured lines. Reticulate terrain is indicated by cross-hatching. Heavy dashed lines show hemispheric scale lineaments which are identified by Roman numerals. Straight arrows show the sense of proposed offset of Galileo Regio and Marius Regio. Stratigraphically old, proposed block rotations are shown by curved arrows. Note the abrupt break in radial furrow controlled dominant groove orientation at "A." Locations "A"-"F" are discussed in the text.

furrow curvature, but rather measures the central point around which the furrows are arranged and is thus better suited to furrow pole determination in some cases.

Three aspects of interpretation of furrow poles of different dark terrain areas merit particular attention. First, the geological characters of the areas must be considered. Clusters of small dark polygons (such as region "C" in Figure 7*a*) may have undergone small relative motions that altered the regional radius of furrow curvature. Additionally, there is no way to firmly constrain possible rotation of small blocks isolated within large areas of light material and complexly crosscutting groove sets. For the latter reason, the few furrows in small, isolated blocks south of Marius Regio were not considered in this study. Second, preexisting lithospheric structure may control furrow orientation in large areas, altering the radius of furrow curvature. If the older structures are observable in other locations, their effect may be taken into account to some extent. Third, the accuracy of furrow pole determinations depends to a large extent on the range of furrow orientations sampled. In some small area with a limited range of orientations (e.g., 10°-20°), furrow curvature may be dominated by lithospheric inhomogeneities, introducing unquantifiable uncertainty into the pole determination. For this reason, areas where furrows span a much larger range of orientations (e.g., several tens of degrees or greater) may yield more reliable poles.

Testing of Furrow Pole Separations

Once furrow poles of different areas were determined, the pole separations and the areas' geologic characters were evaluated to assess whether the separations could be explained by factors other than relative motions of blocks of lithosphere. If they could not easily be so explained, then mappable evidence for strain was then sought, including (1) throughgoing structural lineaments that may represent fault zones along which any motion occurred, (2) offsets of distinctive structures, (3) block rotation if shear motions were suggested, and (4) abrupt linear discontinuities in regional groove orientations interpreted to be furrow controlled. In addition, groove orientations in adjacent