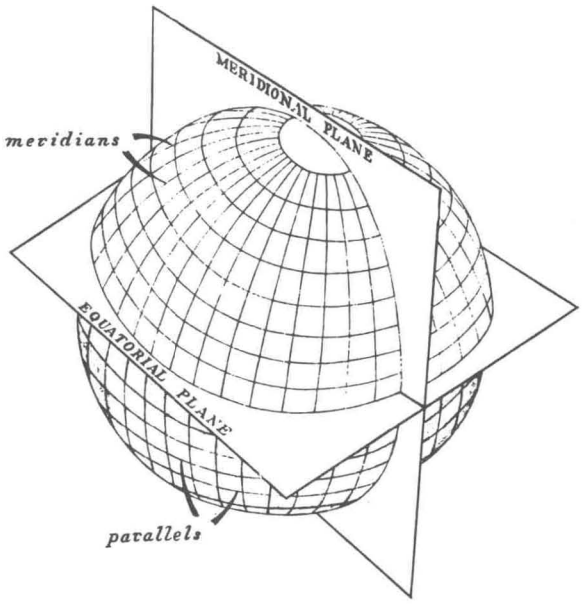

Fig. 3—A sphere or globe on which are drawn meridians or longitude circles separated by equal angles and parallels or latitude circles separated by equal angles (from Higgs and Tunell, Ref. 23, Fig. 2b).

used in petrofabrics. Next, consider any other plane of given attitude which is made to pass through the center of the sphere (Fig. 4(a)). A perpendicular to the plane is projected from the center of the reference sphere to the lower hemisphere of the sphere (P), in accord with petrofabric convention. From point P a line is projected to the zenith of the reference sphere. This line intersects the meridional plane at point P', which is the lower hemisphere stereographic projection of point P--i.e., the normal to the shaded plane (Fig. 4(a)). If the viewpoint is changed such that the eye is at the zenith point and sights directly normal to the meridional plane, one sees the point P' as in Fig. 4(b). The plane itself rather than its normal can be drawn by tracing onto the meridional plane the line that marks the intersection of the shaded plane and the meridional plane, and the great circle which marks the intersection of the shaded plane and the lower hemisphere.

Similarly, the azimuth and plunge of a line can be plotted by passing the line through the center and surface of the reference sphere (a point comparable to P). Then projection of P to the zenith intersects the meridional surface at another point (comparable to P'),

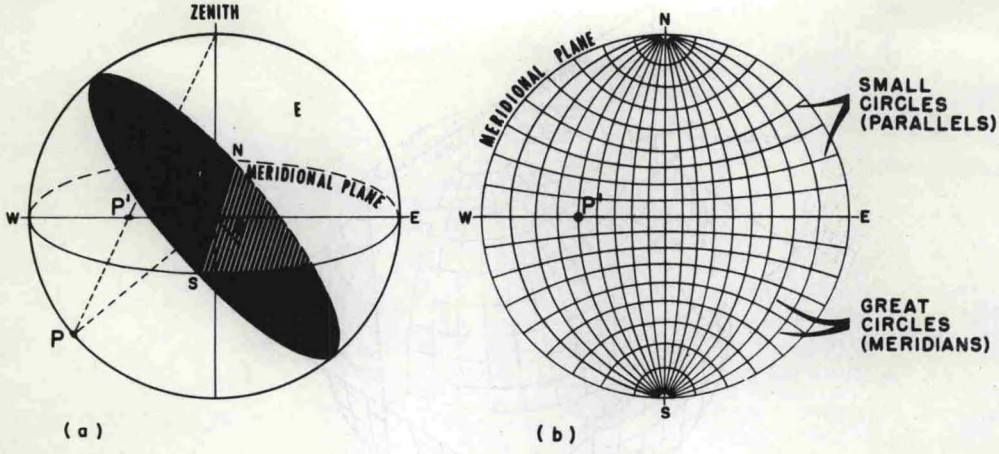

Fig. 4—Diagrams illustrating lower hemisphere stereographic projection. On the left is the reference sphere with a plane (strike N-S, dip 50°E) passing through center of sphere and intersecting the meridional plane along the N-S line. On the right, the normal to the plane (P′) is plotted in lower hemisphere stereographic projection.

which is the lower hemisphere stereographic projection of the line. Clearly, if the meridional surface is considered to be horizontal, a horizontal line will be represented by a point at a given azimuth on the periphery of the meridional plane, and a vertical line will appear as a point at the center of the meridional plane. Similarly, the normal to a vertical plane will appear on the periphery, and the normal to a horizontal plane will fall at the center.

The stereographic plotting of lines and planes is facilitated by the construction of polar or meridional nets (Fig. 5(a)). These represent the stereographic projection of points of different azimuths and vertical angles (circles of longitude and latitude). On 10-cm- and 20-cm-diameter nets the meridians and parallels are drawn at 2-degree intervals and on 40-cm nets at 1-degree intervals. The general formula for projection of any point stereographically is $r = R \tan \alpha/2$, where r is the distance along the equator from the center, R is the radius of the reference sphere, and α is the inclination from the zenith on the surface of the sphere. This generates a stereonet with true angular relationships (an equal-angle or Wulff net).

In plotting, a piece of tracing paper is usually pinned to the net so that it is free to rotate about the center of the net. A