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in every detail by the student on his own stereonet. Once the three dimensional picture is clearly and firmly in mind, a variety of short cuts will suggest themselves by which the plotting process can be speeded considerably.

PROBLEM

Given the attitude of a plane (N 30 E, 40 E), plot its great circle representation in stereographic projection.

VISUALIZATION

With the net in front of you (oriented as in Fig. 11.4) hold the flattened left hand, palm upward, over the center of the net with the fingers pointing toward N 30 E, and the plane of the hand inclined 40° to the southeast. The plane of the hand can readily be imagined to extend into the lower hemisphere and intersect its surface (Fig. 11.5*a*). The trace will cut through the southeast quadrant, and this is where the final plot must also be.

PLOTTING A PLANE (Fig. 11.5)

1. With an overlay sheet in place, make a small mark over the north point of the net and label it *N*.
2. To locate the line of strike, count off 30° clockwise from north, and make a small mark over the primitive at this point.
3. As no great circle on the net passes through this marked point, it is necessary to revolve the overlay until one does. Therefore turn the sheet until the strike mark exactly overlies the north point of the net, that is revolve anticlockwise 30°.
4. To locate the great circle representing a plane dipping 40° east, count off from the primitive on the right side of the net inward along the east-west diameter of the net. Trace in this arc of a great circle.
5. Revolve the overlay back to the original position and check the result by visualization (Fig. 11.5*c*). Note that it would have been easy to revolve the overlay in the opposite direction, or plot from the left, or both, with erroneous results.

In common with most other projections, the dimensions of the plot are reduced by one. The hemisphere is reduced to a plane, a plane to a line and a line to a point. A further advantage of this particular projection is that a plane can be represented as a point, reducing the dimensions of the plot by one more. For every plane there is a unique line normal to the plane, called the *pole* of the plane. To visualize, hold the hand oriented as before, but with a pencil held between the fingers perpendicular to the plane of the hand. The pencil will pierce the lower hemisphere at a point in the northwest quadrant. This point is everywhere 90°

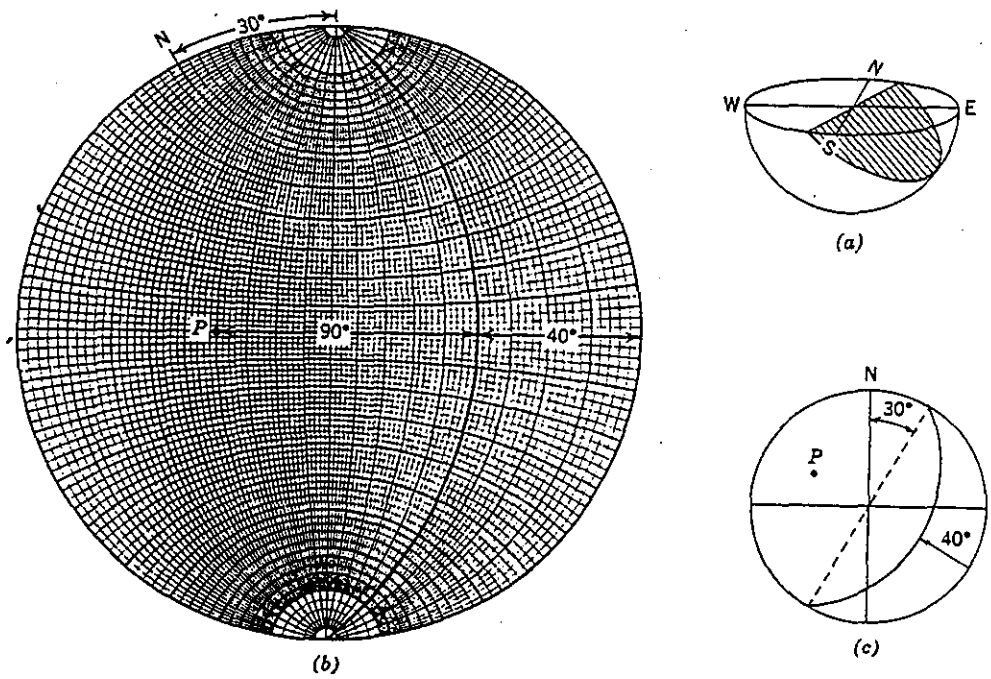

FIGURE 11.5 Stereographic plot of a plane and its pole. (*a*) Perspective view of the inclined plane to be plotted. (*b*) The position of the overlay and net for the actual plot. (*c*) The overlay as it appears after the plot.