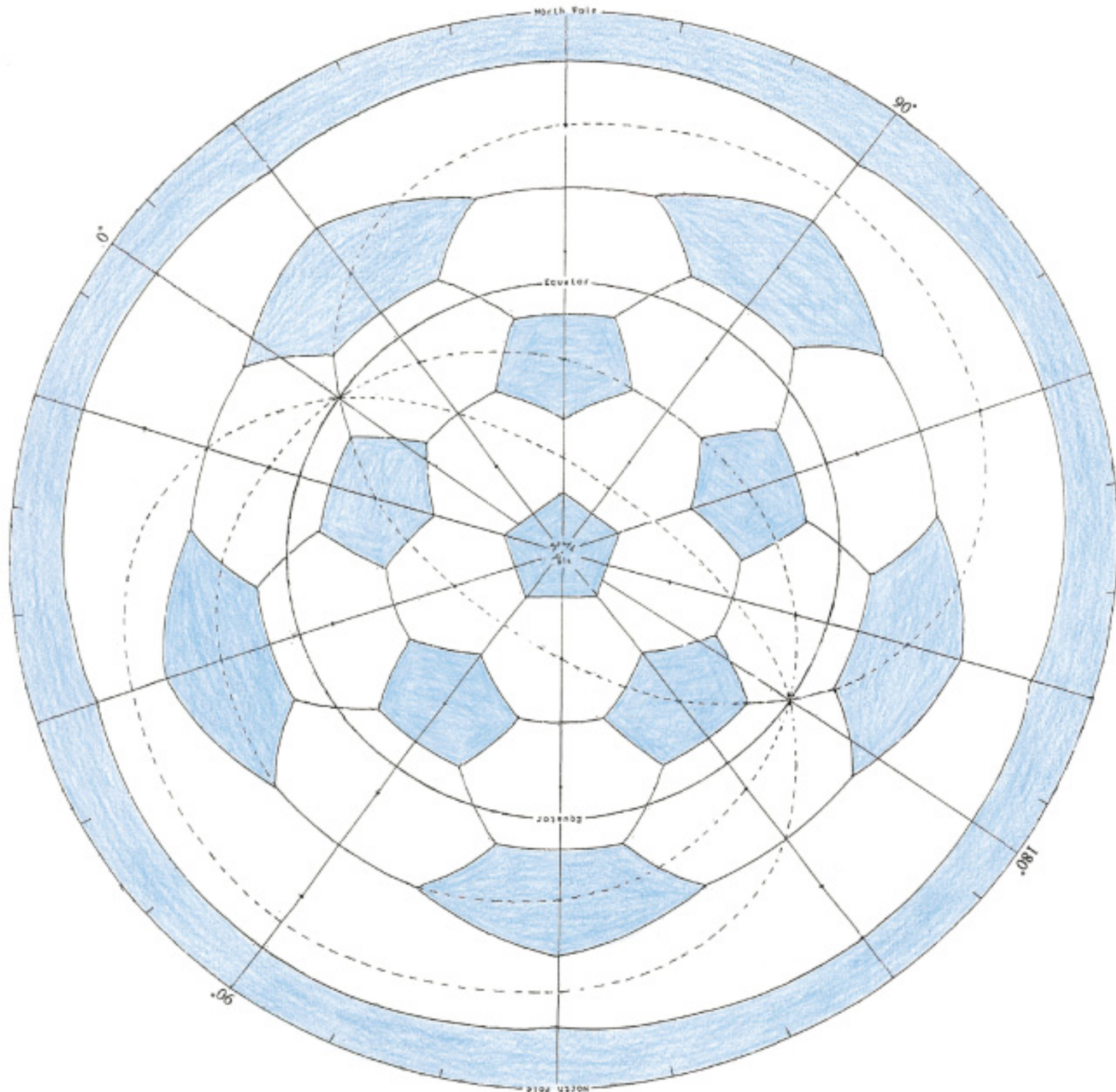


### The rotary "Hex-pen" grid



The above diagram is a plain representation of the map of the insphered hexpenhedron without unnecessary lettering or numbers which could interfere with its use. It is called the rotary "hex-pen" grid. The purpose of the grid is to facilitate random measurements of distances and areas on the antipodes map. This is done by exploiting the symmetrical design of the mapped out football when the grid is superimposed onto an antipodes map that is equal in size, and rotated to any position over it. It includes two polar type circumferences and one equatorial type circumference. This is to facilitate the approximation of longer distances in various directions through their component arc-angles. The two types of circumferences also aid in approximating other distances along similar routes through the hexagons and pentagons. The grid can also be used for random measurements of areas in the map by exploiting the network of hexagons and pentagons. Like the antipodes map, any point, distance and area in it has its equal antipodal counterpart. Remember that the hexagons and pentagons are equal in kind having a uniform arc-angle value of  $24^\circ$  for each of their sides, just like on the football. Remember also that the outermost circle is the magnified point of the north pole where all the meridians actually meet.

An appreciation of the "hex-pen" grid and its practical use is elaborated on diagrammatically in the next page. The figures  $0^\circ$ ,  $90^\circ$ , and  $180^\circ$  serve as helpful indicators when using the grid over the map. The intervals along the periphery are  $12'$  apart, as the strategic points of the grid align well with longitudes that are  $12'$  apart as shown in the map of the insphered hexpenhedron. Only distances along a north/south alignment are truly equidistant. The grid can be made of clear plastic and rotated to any position over the antipodes map of congruent size to approximate distances and areas.