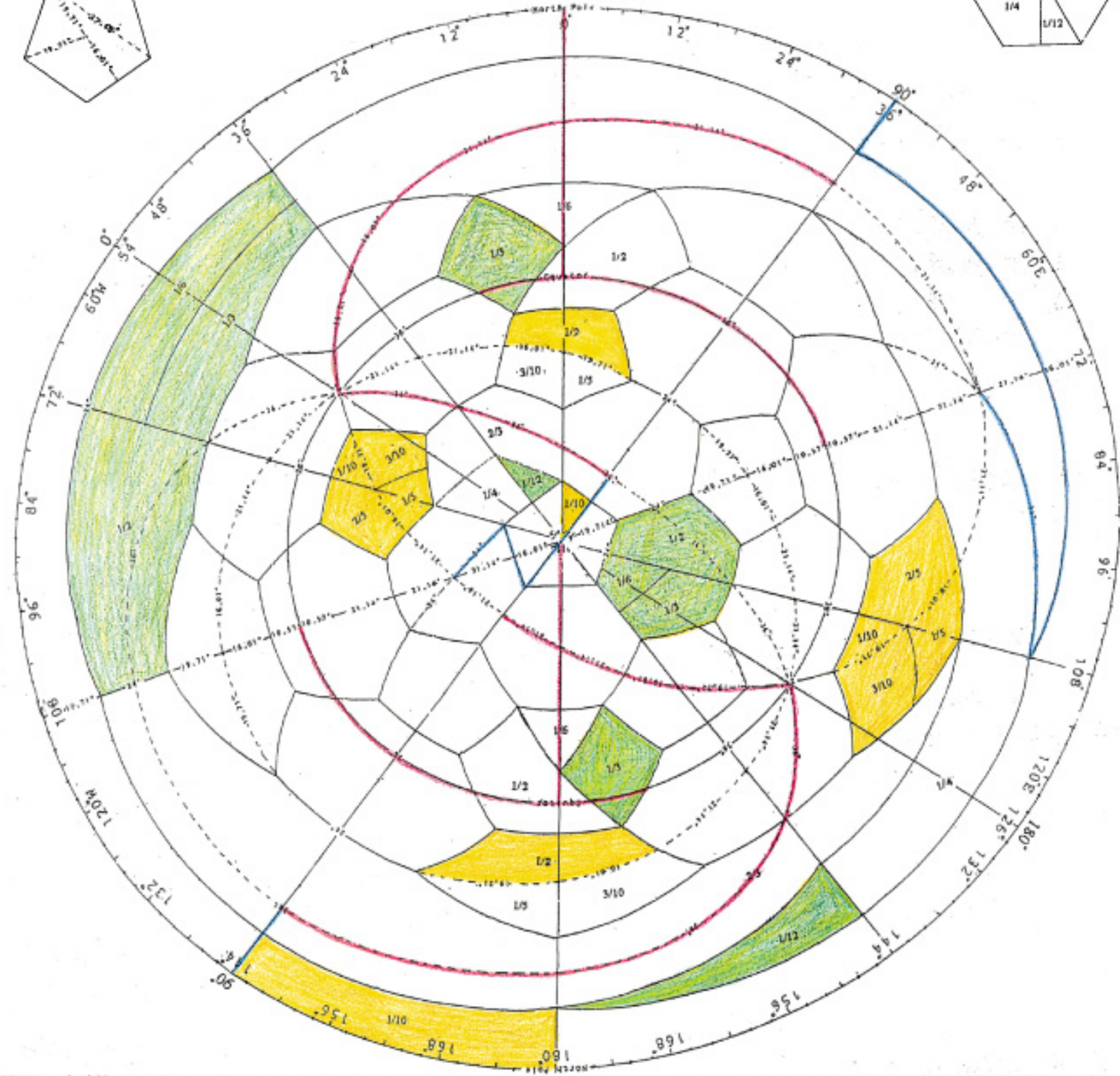
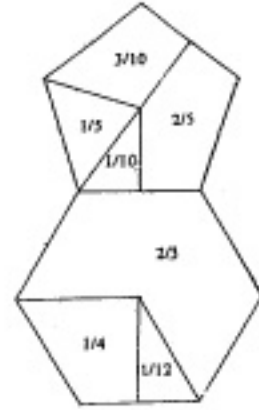
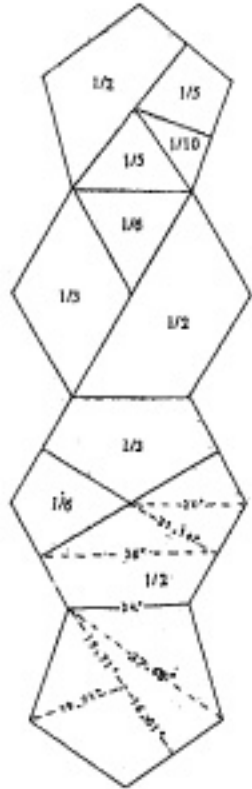


Describing the use of the "hex-pen" grid for distance and area measurements on the antipodes map

In the diagram below the "hex-pen" grid is superimposed onto an invisible antipodes map (antarctic view). Antipodal pairs of hexagons and pentagons, and parts thereof, are shown differentiated by colour. Each of the variously segmented parts has its corresponding antipodal counterpart which is equal and congruent to it. The congruency of each pair, although not apparent from the diagram, is based on spherogeometry. They are representative of any other antipodal hexagons and pentagons. The diagram also shows four pairs of antipodal arc-angles, each arc-angle having a value of 90°, taken from the great circles featured. The smaller diagrams of hexagons and pentagons, and parts thereof, along the periphery are helpful in visualising those depicted in the map. The distances of the various arc-angles and the areas of the various hexagons and pentagons can be ascertained from "Arc-angle distances and areas table of the "hex-pen" grid superimposed onto the antipodes map" in the next article.

Mapping out the antipodal polar routes

The diagram shows the courses of routes going across the south pole in a clear manner. The same routes are duplicated in an antipodal manner, going across the magnified point of the north pole, in order to visualise the courses it takes on the antipodes map with reference to the north pole. Note that the straight line route goes through a meridian and continues through an anti-meridian on the opposite side. But a route going across the pole and continuing in a different direction follows the relevant directional meridian on the map. The courses of the antipodal routes can indeed be proven to be antipodal counterparts. If the outermost circle representing the magnified point of the north pole is contracted to an actual point on the opposite side of the map, then all the courses of the routes shown on the map with reference to the north pole would appear as shown below, within the pentagon at the south pole. Note that the pentagons at the poles and the polar routes are exact mutual antipodal counterparts.



■ antipodal hexagons (about 18,252,901.09 sq. kms. each) and parts thereof
■ " " pentagons (about 12,084,291.72 sq. kms. each) " " " "
— 4 pairs of antipodal 90° arc-angles (10002 – 10018.79 kms. each)
— travel routes going across the poles, duplicated antipodally