

Ptolemy, Geographia VIII 1-2

A. With what project must division of the ecumene be made by maps?

1. What ought to be put into the Geographical Guide from the increasing accuracy of those who have visited our outlying regions and from the design of the maps for both convenience and relevance I think is clear enough. For to add summarily as those before us have done through what points each parallel or even meridian shown on the map passes may be absurd, since for all the points, even those that do not lie on the circles presented, the positions of their parallels and meridians are available.
2. Now that we have seen what rendering of the whole ecumene in a single map would be suitable, the next thing is to set out the summary outlines to be if we divide it into several maps in order to put in the actual data in full and in scale for clarity. For in a single drawing where we must keep the proportion of the parts of the ecumene to each other it is necessary for some of the parts to be crowded because of the wealth of the data being shown and for others to be wasted for lack of data to be shown.
3. To evade this most were forced by the maps themselves, but not by the matter, to distort the sizes and shapes of the- countries extensively. Thus those who allotted the greatest part of the map to Europe in both longitude and latitude for the wealth of data being shown, and the least part in longitude to Asia and in latitude to Libya for the contrary. For this reason they turned the Indian ocean beyond Taprobane northward as the map prevented their extending it eastward while they had nothing to put in against Scythia lying to the north, and they turned the western ocean eastward as the rasp prevented their extending it southward while here too the depth of interior Libya and of India did not have anything to be put in to continue the western coast. In this way the notion of the whole earth surrounded by ocean began from errors in drawing and ended in unproved doctrine.
4. In the division by maps, however, we would escape this result if we made the divisions so that the map would take the richest countries either single or few together with large distances between the circles while the meagre and undistinguished would be contained whole with several like them in one map with lesser distances on the map between the circles. For the maps need no more be all in proportion to each other but only the parts in each need to keep the ratio to each other as when we sketch a head alone the parts of the head only or a hand alone the parts of the hand only but no more the parts of the head to the parts of the hand unless we do the whole man in one figure. But just as nothing prevents now enlarging now reducing the whole so the parts also when they are by themselves, according to the space of the respective map.
5. It will not be far from the truth, as we said in the beginning of work (II 1.10), if we make straight lines instead of circles at least on the partial maps, and moreover the meridians not converging but them also parallel to each other. For in the whole ecumene the lines of latitude and longitude taken at large intervals produce considerable changes at the ends of the circles but not on the several maps. Therefore we say the comparisons in degrees must be made in the ratio between the parallels dividing the map in half and the greatest circle in order not to reckon the reduction on the whole breadth of the map but only that on the distance from the middle to one of the margins.

B. What is suitable in an outline for each map?

1. Pursuing the divisions in this project we have made ten maps of Europe, four of Libya, and twelve of greater Asia. We have set out the outlines for each, prefacing what continent the map belongs to and its number in order and what countries it contains and the ratio of the parallel through the middle to the meridian and what bounds the whole map, and subjoining for the outstanding cities in each country their declination converted into the length of their longest day and their positions in longitude converted into distances from the meridian of Alexandria either east or west in number of equinoctial hours and for those that lie under the zodiac whether the sun touches zenith once or twice and how it stands to the solstices.
2. We would have added what fixed star they have at zenith if they appeared to keep their latitude toward the equator, that is, if they moved always along the same parallel. We have shown in our" mathematical work (VII 2-3) that the sphere of the fixed stars also moves backward in relation to the tropical and equinoctial signs and not around the poles of the equator but around those of the zodiac, as do those of the planets also, and for this reason the same stars cannot always touch zenith to the same points but must shift some north some south. So I thought this addition to the outline superfluous, since, with the stellar sphere I have made for this purpose we can, by setting it at the proper position for a given time in relation to the circle through the two poles and turning it along the graduated edge of the fixed meridian, note the point on it as many degrees from the equator as the parallel through the given place and thus perceive easily whether no star at all passes through that point or one or more and which one or ones.
3. With these preliminaries settled we must begin the rest of the project.