

Strabo Geography

p419 **Book II Chapter 5 (beginning 1-5)**

1 Since the taking in hand of my proposed task naturally follows the criticisms of my predecessors, let me make a second beginning by saying that the person who attempts to write an account of the countries of the earth must take many of the physical and mathematical principles as hypotheses and elaborate his whole treatise with reference to their intent and authority. For, as I have already said,¹⁵⁰ no architect or engineer would be competent even to fix the site of a house or a city properly if he had no conception beforehand of "climata" and of the celestial phenomena, and of geometrical figures and magnitudes and heat and cold and other such things — much less a person who would fix positions for the whole of the inhabited world. For the mere drawing on one and the same plane surface of Iberia and India and the p421 countries that lie between them and, in spite of its being a plane surface, the plotting the sun's position at its settings, risings, and in meridian, as though these positions were fixed for all the people of the world — merely this exercise gives to the man who has previously conceived of the arrangement and movement of the celestial bodies and grasped the fact that it is depicted for the moment as a plane surface for the convenience of the eye — merely this exercise, I say, gives to that man instruction that is truly geographical, but to the man not thus qualified it does not. Indeed, the case is not the same with us when we are dealing with geography as it is when we are traveling great plains (those of Babylonia, for example) or over the sea: then all that is in front of us and behind us and on either side of us is presented to our minds as a plane surface and offers no varying aspects with reference to the celestial bodies or the movements or the positions of the sun and the other stars relatively to us; but when we are dealing with geography the like parts must never present themselves to our minds in that way. The sailor on the open sea, or the man who travels through a level country, is guided by certain popular notions (and these notions impel not only the uneducated man but the man of affairs as well to act in the self-same way), because he is unfamiliar with the heavenly bodies and ignorant of the varying aspects of things with reference to them. For he sees the sun rise, pass the meridian, and set, but how it comes about he does not consider; for, indeed, such knowledge is not useful to him with reference to the task before him, any more than it is useful for him to know whether or not his p423 body stands parallel to that of his neighbor. But perhaps he does consider these matters, and yet holds opinions opposed to the principles of mathematics — just as the natives of any given place do; for a man's place occasions such blunders. But the geographer

does not write for the native of any particular place, nor yet does he write for the man of affairs of the kind who has paid no attention to the mathematical sciences properly so-called; nor, to be sure, does he write for the harvest-hand or the ditch-digger, but for the man who can be persuaded that the earth as a whole is such as the mathematicians represent it to be, and also all that relates to such an hypothesis. And the geographer urges upon his students that they first master those principles and then consider the subsequent problems; for, he declares, he will speak only of the results which follow from those principles; and hence his students will the more unerringly make the application of his teachings if they listen as mathematicians; but he refuses to teach geography to persons not thus qualified.

2 Now as for the matters which he regards as fundamental principles of his science, the geographer must rely upon the geometers who have measured the earth as a whole; and in their turn the geometers must rely upon the astronomers; and again the astronomers upon the physicists. Physics is a kind of *Arete*; ¹⁵¹ by *Aretai* they mean those sciences that postulate nothing but depend upon themselves, and contain within themselves their own p425 principles as well as the proofs thereof. Now what we are taught by the physicists is as follows: The universe and the heavens are sphere-shaped. The tendency of the bodies that have weight is towards the centre. And, having taken its position about this centre in the form of a sphere, the earth remains homocentric with the heavens, as does also the axis through it, which axis extends also through the centre of the heavens. The heavens revolve round both the earth and its axis from east to west; and along with the heavens revolve the fixed stars, with the same rapidity as the vault of the heavens. Now the fixed stars move along parallel circles, and the best known parallel circles are the equator, the two tropics, and the arctic circles; whereas the planets and the sun and the moon move along certain oblique circles whose positions lie in the zodiac. Now the astronomers first accept these principles, either in whole or in part, and then work out the subsequent problems, namely, the movements of the heavenly bodies, their revolutions, their eclipses, their sizes, their respective distances, and a host of other things. And, in the same way, the geometers, in measuring the earth as a whole, adhere to the doctrines of the physicists and the astronomers, and, in their turn, the geographers adhere to those of the geometers.

3 Thus we must take as an hypothesis that the heavens have five zones, and that the earth also has five zones, and that the terrestrial zones have the same names as the celestial zones (I have already stated the reasons for this division into zones). ¹⁵² The limits of the zones can be defined by circles drawn on both sides of the equator and parallel to it, p427 namely, by two circles which enclose the torrid zone, and by two others, following upon these, which form the two temperate zones next to the torrid zone and the two frigid zones next to the temperate zones. Beneath each of the celestial circles falls the corresponding terrestrial circle which bears the same name: and, in like manner, beneath the celestial zone, the terrestrial zone. Now they call "temperate" the zones that can be

inhabited; the others they call uninhabitable, the one on account of the heat, and the other on account of the cold. They proceed in the same manner with reference to the tropic and the arctic circles (that is, in countries that admit of arctic circles):¹⁵³ they define their limits by giving the terrestrial circles the same names as the celestial — and thus they define all the terrestrial circles that fall beneath the several celestial circles. Since the celestial equator cuts the whole heavens in two, the earth also must of necessity be cut in two by the terrestrial equator. Of the two hemispheres — I refer to the two celestial as well as the two terrestrial hemispheres — one is called "the northern hemisphere" and the other "the southern hemisphere"; so also, since the torrid zone is cut in two by the same circle, the one part of it will be the northern and the other the southern. It is clear that, of the temperate zones also, the one will be northern and the other southern, each bearing the name of the hemisphere in which it lies. That hemisphere is called "northern hemisphere" which contains that temperate zone in which, as you look from the east to the west, the pole is on your right hand and the equator on your left, or in which, as you look towards p429the south, the west is on your right hand and the east on your left; and that hemisphere is called "southern hemisphere," in which the opposite is true; and hence it is clear that we are in one of the two hemispheres (that is, of course, in the north), and that it is impossible for us to be in both. "Between them are great rivers; first, Oceanus", and then the torrid zone. But neither is there an Oceanus in the centre of our whole inhabited world, cleaving the whole of it, nor, to be sure, is there a torrid spot in it; nor yet, indeed, is there a portion of it to be found whose "climata" are opposite to the "climata"¹⁵⁴ which I have given for the northern temperate zone.¹⁵⁵

4 By accepting these principles, then, and also by making use of the sun-dial and the other helps given him by the astronomer — by means of which are found, for the several inhabited localities, both the circles that are parallel to the equator and the circles that cut the former at right angles, the latter being drawn through the poles — the geometrician can measure the inhabited portion of the earth by visiting it and the rest of the earth by his calculation of the intervals. In the same way he can find the distance from the equator to the pole, which is a fourth part of the earth's largest circle; and when he has this distance, he multiplies it by four; and this is the circumference of the earth. Accordingly, just as the man who measures the earth gets his principles from the astronomer and the astronomer his from the physicist, so, too, the geographer must in the p431same way first take his point of departure from the man who has measured the earth as a whole, having confidence in him and in those in whom he, in his turn, had confidence, and then explain, in the first instance, our inhabited world — its size, shape, and character, and its relations to the earth as a whole; for this is the peculiar task of the geographer. Then, secondly, he must discuss in a fitting manner the several parts of the inhabited world, both land and sea, noting in passing wherein the subject has been treated inadequately by those of our predecessors whom we have believed to be the best authorities on these matters.

5 Now let us take as hypothesis that the earth together with the sea is sphere-shaped and that the surface of the earth is one and the same with that of the high seas; for the elevations on the earth's surface would disappear from consideration, because they are small in comparison with the great size of the earth and admit of being overlooked; and so we use "sphere-shaped" for figures of this kind, not as though they were turned on a lathe, nor yet as the geometrician uses the sphere for demonstration, but as an aid to our conception of the earth — and that, too, a rather rough conception. Now let us conceive of a sphere with five zones, and let the equator be drawn as a circle upon that sphere, and let a third circle be drawn parallel thereto, bounding the frigid zone in the northern hemisphere, and let a third circle be drawn through the poles, cutting the other two circles at right angles. Then, since the northern hemisphere contains two-fourths of the earth, which are formed by the equator with the circle that passes through the poles, a quadrilateral area is p433cut off in each of the two fourths. The northern side of the quadrilateral is half of the parallel next to the pole; the southern side is half of the equator; and the two remaining sides are segments of the circle that runs through the poles, these segments lying opposite to each other and being equal in length. Now in one of these two quadrilaterals (it would seem to make no difference in which one) we say that our inhabited world lies, washed on all sides by the sea and like an island; for, as I have already said above,¹⁵⁶ the evidence of our senses and of reason prove this. But if anyone disbelieves the evidence of reason, it would make no difference, from the point of view of the geographer, whether we make the inhabited world an island, or merely admit what experience has taught us, namely, that it is possible to sail round the inhabited world on both sides, from the east as well as from the west,¹⁵⁷ with the exception of a few intermediate stretches. And, as to these stretches, it makes no difference whether they are bounded by sea or by uninhabited land; for the geographer undertakes to describe the known parts of the inhabited world, but he leaves out of consideration the unknown parts of it — just as he does what is outside of it. And it will suffice to fill out and complete the outline of what we term "the island" by joining with a straight line the extreme points reached on the coasting-voyages made on both sides of the inhabited world.