



The idea that there was a continent in the southern hemisphere corresponding to the *oikumene* or *ecumene* (the inhabited region) in the northern hemisphere goes back to Aristotle, and was elaborated by Crates of Mallos (180 BCE), Cicero (first century BCE), Geminus (first century CE), and Macrobius (early fifth century CE). The word *Antipodes* comes from the Greek: ἀντίποδες, plural of *antipous* (ἀντίπους), “with feet opposite (ours)”, from *anti* – “opposed” and *pous* “foot”. The Greek word is attested in Plato’s dialogue *Timaeus*, already referring to a spherical earth, explaining the relativity of the terms “above” and “below”:

For if there were any solid body in equipoise at the center of the universe, there would be nothing to draw it to this extreme rather than to that, for they are all perfectly similar; and if a person were to go round the world in a circle, he would often, when standing at the *Antipodes* of his former position, speak of the same point as above and below; for, as I was saying just now, to speak of the whole which is in the form of a globe as having one part above and another below is not like a sensible man.

It was Geminus who first called the hypothetical inhabitants of this southern continent “antipodes,” meaning those who had their feet opposed to the inhabitants of the known world. Isidore of Seville (560–636, #205), in his influential *Etymologiae*, summarized thinking about this southern continent, asserting the existence of a fourth continent in addition to Europe, Africa, and Asia, a continent beyond the ocean to the south, unknown to us because of the heat of the equatorial regions, in which continent the fabulous race called the antipodes was said to dwell (14.5.17). In another passage (*Etymologiae*, 11.3.24) Isidore says that the antipodes are a race in Africa with their feet pointing backwards, each with eight toes—curiously converting the antipodes into a monstrous race. The term is also taken up by Aristotle (*De caelo* 308a.20), Strabo, Plutarch and Diogenes Laertius, and was adopted into Latin as “*Antipodes*”. The Latin word changed its sense from the original “under the feet, opposite side” to “those with the feet opposite”, i.e., a *bahuvrihi* referring to hypothetical people living on the opposite side of the earth. Medieval illustrations imagine them in some way “inverted”, with their feet growing out of their heads, pointing upward. In this sense, *Antipodes* first entered English in 1398 in a translation of the 13th century *De Proprietatibus Rerum* by Bartholomeus Anglicus, translated by John of Trevisa: “Yonde in Ethiopia ben the *Antipodes*, men that haue theyr fete ayenst our fete.”

The Flat Earth Myth – ancient and medieval people did not believe that the world was flat! It is one of our modern self-perpetuating myths that we use to claim intellectual superiority over our ancestors. Did some people, including “intellectuals” in the ancient and medieval periods believe the world was something other than spherical? Of course there were dissenters. Our superiority

is illusory, as believe it or not, there are some people even in the 21st century still believe that the earth is flat.

In classical Greek thought, the earth was divided into four quarters by a great ocean flowing in two great circles from north to south and from east to west. The known inhabited world (the *oikoumene*, *oecumene*, *ecumene*,) was thought to be wholly contained in one of the quarters in the northern hemisphere. For reasons of symmetry, rather than scientific knowledge, most classical writers accepted the idea of landmasses beyond the ocean. The Greek scientific genius could not be satisfied with the solitary "circle of lands" in the northern hemisphere; such concept violated the natural sense of harmony and balance. It had to make believe three additional landmasses; together with our *oikoumene* they occupied four symmetrical "edges" of the earth. The *Antipodes* proper, in classical terminology, was the quarter diametrically opposite the known world on the other face of the earth in the southern hemisphere, but it was often confused with the idea of a southern landmass on the same face as the known world, whose inhabitants were termed *Antoeci*. The "invisible" continents were cut off by the two insurmountable oceanic streams: one of them, latitudinal, passed through the equator, forming the so-called *Equatorial Ocean*; the other one, longitudinal, circulated across the poles.

Eratosthenes (275-194 B.C., #112) adopted the views that were current among the astronomers of his day, which had been received almost without exception from the times of Aristotle (ca. 384-322 B.C.) and Euclid (ca. 300 B.C.). He regarded the earth as a sphere, placed in the center of the universe, around which the celestial sphere revolved every twenty-four hours: besides which, the sun and moon had independent motions of their own. The obliquity of the sun's course to that of the celestial sphere was of course well known; and hence the great circles of the equinoctial, and the ecliptic, or zodiacal circle, as well as the lesser circles, called the tropics, parallel with the equinoctial, were already familiar to the astronomers of Alexandria. Moreover it appears that these conceptions, originally applied to the celestial sphere, had been already transferred in theory to the terrestrial globe. Thus the idea of the globe of the earth, as it would present itself to the mind of Eratosthenes, or any of his more instructed contemporaries, did not differ materially from that of today's modern geographer. For all geographical purposes, at least as the term was understood in his day, the difference between the geocentric and the heliocentric theories of the universe would be unimportant.

But Eratosthenes had the merit of making one valuable addition to the previously existing ideas upon this subject, by a more careful and successful measurement than had ever been previously attempted, of the magnitude of the earth, or circumference of the terrestrial globe. Once the idea of a spherical earth was accepted, and that it was a perfect sphere, the measurement of this body was a logical next step, even to Greek scholars who were more given to philosophical speculation than to quantification and experimentation. He was not indeed the first who had attempted the solution of this problem, which would naturally engage the attention of astronomers and geometers, as soon as it was agreed that the earth was of a spherical form. Aristotle refers to the calculation of "mathematicians" who had investigated the subject (without naming them) that the earth was 400,000 *stades* in circumference [a *stade*, *stadion*, *stadia*, originally the distance covered by a plough before turning, was 600 feet of whatever standard

was used]. This distinction may belong to Eudoxus of Cnidus (ca. 370 B.C.) who also estimated its measurement at 400,000 *stades*. A calculation of 300,000 *stades* is credited to Dicæarchus (died 296 B.C.), a student of Aristotle. Aristarchus of Samos (died 230 B.C.) has been called the “Copernicus of Antiquity” because of his early espousal of a heliocentric, rather than geocentric, view of the universe (perhaps, more properly, Copernicus should be called the “Renaissance Aristarchus”). At a later period Archimedes speaks of 300,000 *stades* as the measurement usually received, a statement apparently founded on the calculations of Aristarchus of Samos (died 230 B.C.), one of the earlier astronomers of the Alexandrian school. But we have no information as to the data on which these first crude attempts were based, or the mode by which he authors arrived at their results. Eratosthenes’ measurement resulted in 252,000 *stades*. A conversion to modern units of measure finds Eratosthenes’ calculation to be somewhere between 45,007 km (27,967 miles) to 39,690 km (24,663 miles), as compared to actual equatorial circumference of 40,075 km (24,902 miles), there has always been some controversy over the equivalent modern length of a *stade* as used by Eratosthenes.

In his *Geographica* Eratosthenes discussed the best method of drawing a map of the inhabited area of the earth as known. The first task of the geographer therefore, according to the notions then prevailing, was to determine the limits and dimensions of the map of the world, which was to form the subject of his special investigations. This question, which was taken up by Eratosthenes at the beginning of his second book, had already been considered by several previous writers, who had arrived at very different results. On one point indeed they were all agreed, that the length of the habitable world, from west to east, greatly exceeded as breadth, from north to south. Democritus, two centuries before Eratosthenes, had asserted that it was half as long again as it was broad, and this view was adopted by Dicæarchus (*see monograph #111*), though recent discoveries had in his day materially extended the knowledge of its eastern portions. The astronomer Eudoxus on the other hand maintained that the length was double the breadth; Eratosthenes went a step farther and determined the length to be more than double the breadth, a statement that continued to be received by subsequent geographers for more than three centuries as an established fact. According to his calculation the length of the known world from the Atlantic to the *Eastern Ocean* amounted to 74,000 *stades*, while as breadth from the parallel of the *Cinnamon Country* [Ethiopia/Somaliland] to that of *Thule* [Iceland ?], did not exceed 38,000 *stades*.

Therefore, as with earlier map construction, the length of the *oikumene* [known inhabited/habitable world, a.k.a. *oikoumene*] greatly exceeds the width, though by what proportion depends on how much of the northern, eastern and southern extremities were regarded as inhabited. It is clear from Strabo that Eratosthenes used an orthogonal projection. Rather than a rectangle, he thought of the *oikumene* as tapering off at each end of its length, like a *chlamys* [short Greek mantle].

In summary, Eratosthenes’ *oikumene* resembled a cloak bound tight at the top (the north) and loose at the bottom (the south) with tapered ends in the east and west. Its northern boundary lay on the parallel of *Thule* (66° N), a legendary island, while its southern limit extended as far as the *Cinnamon Country* (12° N),

close to the mouth of the Red Sea, and a mysterious island of *Taprobane*, off the coast of India. His main meridian linked *Thule*, the Black Sea, Egypt, Ethiopia and the sources of the Nile River. His principal parallel of Rhodes at 36° N connected its western and eastern confines from the *Pillars of Hercules* to the eastern capes of India through the whole length of the Mediterranean Sea and via the lofty mountain ranges of Asia. It was stuck against an unknown location on the shoreline of the *Eastern Ocean*, between the delta of the Ganges River and the Taurus and *Imaus* (Himalaya) mountain ranges that cut Asia lengthwise. This imaginary partition line, that crossed the whole *oikumene* cutting it into two fairly equal parts, covered the greatest east-west extent or the “length” of the inhabited world. Ancient geographers often confused place-names and used bombastic statements to report erroneous evidence. Diodorus of Sicily considered continuous mountain ranges as the most remarkable feature of Asia: “from the Cilician Taurus a continuous range of mountains extends through the whole of Asia as far as... the Eastern Sea.” [part of the ocean washing the eastern coastline of Asia].

In the scholar’s view, Africa was washed by the Atlantic and Indian Oceans, though circumnavigation of this “third continent” was out of the question due to the unbearable heat of the equatorial waters. He held the opinion that the earth included five climatic zones: two of them were inhabited (the moderate zones of the Northern and Southern Hemispheres) and three abandoned-on both sides of the equator and adjoining the poles.

Eratosthenes fixed the maximum breadth of the *oikumene* (north-south extent) at 38,000 *stades* (about 7,030 kilometers/4,368 miles); his extreme length (west-east extent) reached 78,000 *stades* (about 14,430 kilometers/8,966 miles) making more than a third of the whole circumference at the Rhodes parallel: about 202, 945 *stades* or 37,545 kilometers/23,239 miles.

It appears to have been the grammarian Crates of Mallos (180-150 B.C. #113), a contemporary of Hipparchus, and a member of the Stoic School of Philosophers, who made the first attempt to construct a terrestrial globe, and that he exhibited the same in Pergamum, around the year 150 B.C. (#113). It seems to have been Crates’ idea that the earth’s surface, when represented on a sphere, should appear as divided into four island-like habitable regions. On the one hemisphere, which is formed by a meridional plane cutting the sphere, lies our own *oikumene*, or known habitable world, and that of the *Antoecians* in corresponding longitude and in opposite latitude; on the other hemisphere lies the *oikumene* of the *Perioecians* in our latitude and in opposite longitude, and that of the *Antipodes* in latitude and longitude opposite to us. Through the formulation and expression of such a theory the idea of the existence of an antipodal people was put forth as a speculative problem, an idea frequently discussed in the Middle Ages, and settled only by the actual discovery of antipodal regions and antipodal peoples in the day of great transoceanic discoveries of the 16th and 17th centuries.

Crates’ view of terrestrial mapping was that the shape could only be right if it was drawn on a globe, and eventually that the scale could only be effective if the globe was at least ten feet in diameter. In designing his ‘orb’, if indeed he put his theory into practice, Crates favored an unusual form of symmetry. There were, he said, separated by two intersecting belts of ocean, four symmetrical

landmasses: (a) the known *oikumene*, including its three known continents: Europe, Asia and the part of Africa at that time; (b) the land of the *Antoikoi* [those who live opposite], parallel to the *oikumene* in the southern hemisphere south of them; (c) west of them, the *Perioikoi*, [those who live around], parallel to the *oikumene* on the western part of the globe; (d) south of the *Perioikoi*, the *Antipodes* [opposite feet], parallel to the *Perioikoi* in the southern hemisphere. The break between the landmass known at that time and that of the *Antoikoi* came, according to him, at a belt on each side of the equator, and there were Ethiopians (*Aethiopes*, 'black-faces') on each side of this water divide. Homer had written of the Ethiopians, split in two, some in the East, some by the setting sun. Later Greek writers interpreted this passage in various ways. Pliny the Elder promoted this idea and suggested that the entire sphere was inhabited, including the *Antipodes*, although this raised a new problem:

Human beings are distributed all round the earth and stand with their feet pointing toward each other, and the top of the sky is alike for them all and the earth trodden under foot at the center in the same way from any direction, while ordinary people enquire why the persons on the opposite side do not fall off - just as if it were not reasonable that the people on the other side wonder that w do not fall off. (Plin. HN 2.161)

Such ideas remained purely academic, and were produced by intellectuals exploring scientific premises and conclusions. At the same time, however they inflamed the popular imagination. No doubt, as a Homeric scholar, Crates was more concerned to give a plausible account of Homeric descriptions than to investigate explanations which suggested the existence of a continuous African landmass stretching across the equator. The idea however, was taken up by Cicero in the *Somnium Scipionis* [Dream of Scipio], which he incorporated in his *De republica*. When Macrobius wrote a commentary on the *Somnium Scipionis* about AD 390, he defended and amplified Crates' theory, aspects of which thus found their way into medieval cartography; the *Perioikoi* and *Antipodes* were then omitted, although discussed by Cicero and Macrobius (#201).

The illustration contained herein shows a modern reconstruction of the globe of Crates of Mallos. The various measurements of the earth's size by Eratosthenes raised a curious problem. The known dimensions of the *oikumene* [known inhabited world] were too small relative to the estimated size of the earth sphere, the *oikumene* occupied only one quadrant of the sphere. Such an imbalance in a spherical object was contrary to the Greek sense of symmetry. Crates, therefore, solved the problem on his globe by drawing three additional "continents"



(an anticipation/prediction of the existence of the Americas, all of Africa, Antarctica and Australia) to provide the necessary "balance" and symmetry. Here was born the concept of the *Antipodes*, or the great southern continent, the *Terra Australis*, that would be conjured up in medieval and renaissance period maps.

What makes Crates' role as progenitor in the history of *Antipodes* doubly important is that due to the scholarly rigor of Strabo we are afforded an explanation of the reasoning behind Crates' conception of the earth. Why this

should matter – and, indeed, why locating this progenitor is more than a matter of trivial interest – is apparent when one considers the current explanations for the ancient conjecturing of southern lands. The standard view is that the Greeks subscribed to a notion of cosmographic symmetry. Symmetry in ancient Greek times would entail the presence of either two or four landmasses: either an additional antipodal landmass on the opposite side of the globe to the *oikumene*, or a landmass in each quadrant of the globe. Alongside this notion stands the equally popular explanation of hemispheric balance, or what is referred to in Stallard's book as the theory of *equipoisure*: a southern landmass was postulated because philosophers believed the earth would be imbalanced without a counter to the *oikumene*. That is, the land-heavy north would topple over without an equally land-heavy south.

Modern representations (not reconstructions) of what a Cratesian map or globe might have looked like are now commonplace. To the best of knowledge, Crates only posited three landmasses on the sphere, and when it comes to their specific location all that is said is that there is one landmass (the *oikumene*) in the northern temperate zone, and two landmasses in the southern temperate zone. There is no indication of how far apart the latter two landmasses are, their configuration, size, shape and so on. We know almost nothing. Yet modern authors have ventured much more compelling maps than is justified, intimating very specific knowledge about Crates' cosmography that simply does not exist. Consider the reconstruction of Crates' concept above, an elegant drawing that presents a system of oceans and lands that look to be symmetrical, and includes a fourth continent. Such representations of Crates' globe have taken a lot of the attention away from the only existing evidence of Crates' cosmography, which is strictly limited to written texts.

The present ubiquity of these elegant but speculative maps accompanied by elegant but unsubstantiated explanations is what makes Strabo's record of Crates' reasoning so valuable. Crates conjectured the *Antipodes* as a matter of literary fealty; his *Antipodes*, and at least one other southern landmass besides, were created in an act of Homeric interpretation. Crates conjectured it, other scholars adopted the idea, and throughout antiquity and the Middle Ages no scholar had need for, and no scholar expressed, theories of symmetry. It was perfectly adequate for each succeeding generation of scholars to perpetuate the idea of southern land on the basis of tradition and authority alone. How or why modern historians came to believe that ideas of symmetry and balance drove this conjecture is not clear. From the first century B.C. the concept of a quadripartite cosmography is evident (that is, a landmass in each of the four quadrants of the globe). Perhaps the symmetrical agreement of this cosmography led historians to mistakenly assume that a commitment to symmetry was the actuating factor behind quadripartite cosmographies – thus misplacing effect as cause.

A belief in the existence of antipodal peoples, very clearly was also accepted by Pythagoras, Eratosthenes, Posidonius, Aristotle, Strabo, and later Capella. Numerous others presupposed the earth to be globular in shape. The idea of the earth's division into four parts or quarters persisted for centuries after Crates' day, if not among scientific geographers, at least among those who could be said to have possessed general culture. Cleomedes, Ampelius, Nonnus, and Eumenius mention the idea as one to be accepted.

Why did this ancient knowledge last until the early modern period, and why was that knowledge actively sought and used by the early moderns? While Crates originally proposed a concrete vision of peoples and lands, in the centuries that followed the question of southern hemispheric lands was treated as an open inquiry by most scholars. The *Antipodes* operated not as a place at that point in history, but a space: intangible, unknown, unknowable. Observe the comments of Cleomedes (thought to have written sometime between the first century B.C. and 44 AD) who posits other lands and other peoples on the basis of theory and reason:

The theory of Nature teaches us that circum-habitants, antipodes, and contra-habitants must exist, since none of these are described by direct reports. We simply cannot travel to our circum-habitants because the Ocean separating us from them is unnavigable and infested by beasts; nor to the inhabitants of the contra-temperate zone, since we cannot traverse the torrid zone. Yet the regions of the Earth that are equally temperate are necessarily inhabited to an equal extent, given that Nature loves Life, and Reason requires that all of the Earth, where possible, be filled with animal life, both rational and irrational.

As is the case with a number of scholars, Cleomedes makes clear to his readers that antipodality is a normal and necessary fact of spherical geometry:

Our antipodes become contra-habitants of our circum-habitants, since such relations resemble those of friends and brothers, rather than those of fathers and children, or slaves and masters; that is, they convert, in that we become circum-habitants of our circum-habitants, antipodes of our antipodes, and similarly contra-habitants of our contra-habitants.

So Europeans are antipodeans, too. Indeed, we are all antipodeans to some-one, a relativist concept that predates post-modernity by millennia. It is no coincidence that the various terms employed by scholars like Cicero (first century B.C.), Geminus (first century B.C.), Martianus Capella (fifth century AD) and Cleomedes to describe the different lands of the earth evoke spatial conceptualizations. Breaking down Cleomedes' terminology, *perioikoi* refers to circum-habitants, *antoikoi* to contra-habitants, *antomoi* to shoulder dwellers, and *antipodes* to opposite dwellers. This is the language of space and geometry, not place and geography. The *Antipodes* was an idea lacking facts, legends, and the stuff of covetous imaginations.

An early Roman geographer, Pomponius Mela (37 A.D.), although of Spanish birth, wrote a brief work entitled *Chorographia* that agrees in most of its views with the great Greek writers from Eratosthenes to Strabo (#115). However, Mela departs from the traditional ancient concept by asserting that in the southern temperate zone dwelt inhabitants who were inaccessible to Europeans because of the Torrid Zone that intervened. Pomponius Mela summarizes this outlook in the following words: "the earth...is divided...into two halves, which we term hemispheres, and is differentiated by five horizontal zones. Heat makes the middle zone unlivable and cold does so to the outermost ones. The remaining two habitable zones have the same annual seasons, but not at the same time: *Antichtones* [inhabitants of the underworld] inhabit one, we the other." This is not a scientific definition, but a rough division of the known world approximating to Asia on the east and Europe and Africa on the west. From north to south he

divided it into five zones: two cold, two temperate and one hot. This is a different approach from that offered by Strabo who chose to ignore, as virtually uninhabitable, everything south of the latitude of southern India. It does correspond, however, to the division in Eratosthenes' lost poem *Hermes*, paraphrased by Virgil, which regards the equatorial zone as 'altogether burnt up', but says that *Antipodes* live in the southern temperate zone.

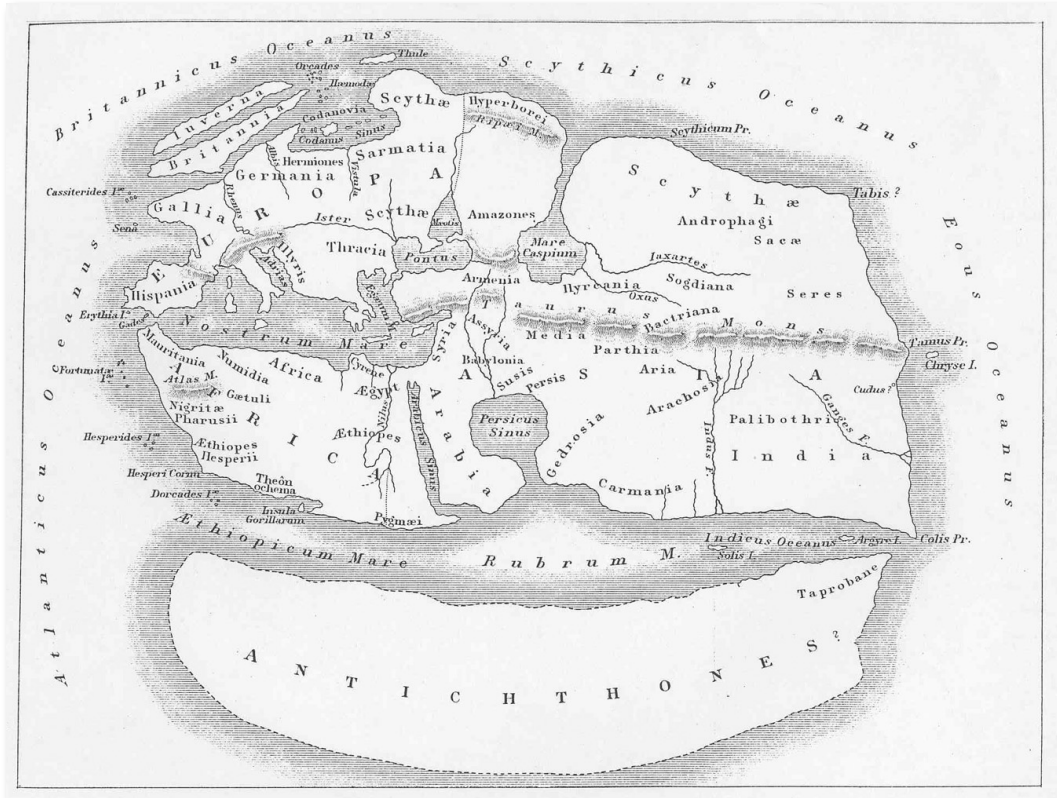
Most savants concluded that the communication between different "niches" of civilization was out of the question. Cicero claims beyond doubt that "the earth's inhabitants are so cut off that there can be no communication among the different groups".

Medieval science was largely inherited from the classical world, whence it took the idea that the earth was a sphere. The Pythagoreans argued for its sphericity from mathematical principles, and then Aristotle introduced scientific proofs such as the round appearance of the earth's shadow in lunar eclipses and the change in the stellar horizon when one changes latitude. The equilibrium of the seas would be maintained, he asserted, by the necessary gravitation of all bodies towards the center of the sphere.

The Torrid Zone was originally thought to comprise the whole inter-tropical band, but actual experience showed that parts of this area were temperate and, indeed, inhabited. Classical explorers travelled south of the Tropic of Cancer and may have reached Zanzibar. Ptolemy (first century A.D.) certainly traced the east coast of Africa to about 15 degrees South and his map showed the *mountains of the moon*, whose snow was thought to feed the Nile, under the Equator. But the southern part of the Torrid Zone, at least, was considered impassable due to the insupportable heat. This was because the eccentricity of the sun's orbit was believed to make it pass closer to the southern hemisphere than to the northern.

Beyond the Torrid Zone and the vast equatorial arm of the ocean was a Temperate Zone which the ancient world thought was inhabited. As the astronomer Cleomedes put it in the second century AD, "Nature likes life, and reason proves that wherever conditions allow it, earth should be inhabited by living beings".

About the time that Horace composed his *Epodes* (65 B.C.), Diodorus Siculus recorded in his *Library of History* the voyage of a certain Iambulus who set out to sea from the coast of Ethiopia southwards (i.e. Western and Southern Africa). After having sailed in this direction for over four months, he finally reached a "Happy Island" at the latitude of the equator. Owing to the fact that the day there was always the same length as the night, the climate in this island was most temperate and the inhabitants suffered neither from heat nor from cold. Hence the fertility of the soil, the generous nature and idyllic conditions of life in this part of the world, which Diodorus Siculus describes in detail. So, contrary to Aristotle and a number of other classical authors, the equatorial latitudes were not always conceived of as a "torrid zone" which could not allow human habitation on account of the intense heat. Diodorus Siculus's narrative shows that this could even be the ideal site for a pagan analogy of the *Garden of Delights*.



Reconstruction of Pomponius Mela's first century world view displaying his concept of the Antipodes (see monograph #114)

The following map is a rather mysterious map, apparently Egyptian in origin, that survives in several late medieval manuscripts, but which has been tentatively dated to the second to third century A.D. (#201.1). During Ptolemy's lifetime there was a Roman frontier settlement in Egypt named *Hierasyaminus* (20 B.C. - A.D 298). The presence of this settlement on this map of the cosmos helps determine when the map was created. Originally found in both Greek and Arabic copies of commentary on Ptolemy's opus, *Almagest*, the map could have been a mnemonic device or a teaching tool. On one plane, it locates the known inhabited world, the celestial sphere and the underworld. As Vincent Virga sees it - "It is Map as Greco-Roman Psyche." Produced in the vocabulary of geometry that would come to dominate the upcoming Islamic world's maps, the various elements generate the same mystical quality as the Babylonian world map (#103), with its cosmic overview.

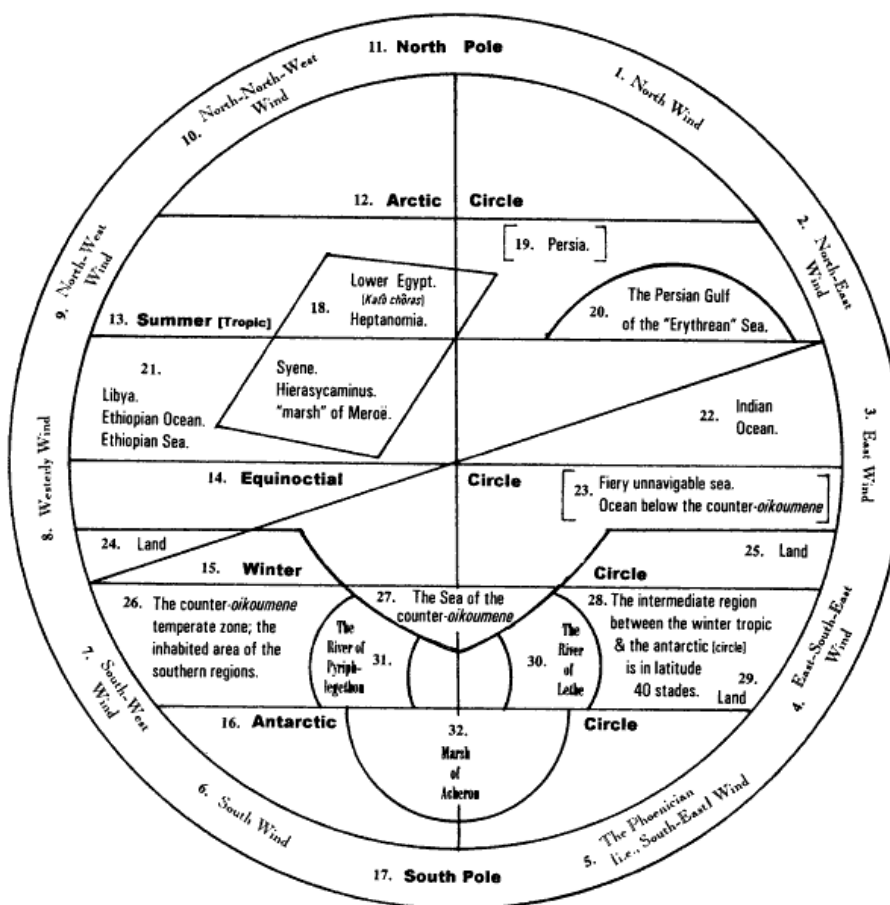
The map shows the earth framed by an outer circle containing the two poles and ten winds, and divided by five horizontal lines: the Arctic and Antarctic circles, the summer and winter tropics, and the equator. A vertical line extends from pole to pole. Geographical representation in the northern hemisphere is confined to four features: a rectangular cartouche contains the toponyms *Katō chōras* [Lower Egypt], *Heptanornia* [a Roman administrative district of Middle Egypt], the cities of *Syene* and *Hierasyaminus*, and the *marsh of Meroe*; a semi-circle represents *The Persian Gulf of the Erythrean* [i.e. Arabian] Sea. *Libya*, the *Ethiopian*

Ocean and the *Ethiopian Sea* are marked in the far west, just above the equator, and opposite them in the east appears the *Indian Ocean*. Some manuscript copies of the map also contain the toponym *Persia*. The inhabited parts of the southern hemisphere are divided from the inhabited parts of the north by an equatorial ocean, termed *the sea of the antoikoumeni* or, in some versions, *fiery unnavigable sea*. Habitation of the *antoikoumene* [outside the known inhabited world] is marked between the winter tropic and Antarctic Circle, an expanse somewhat incoherently referred to as *in latitude 40 stades*.

According to the historian Alfred Hiatt the most remarkable feature of the map is the infernal topography that forms a kind of circle around the intersection of the polar axis with the Antarctic Circle: the *River of Pyriphlegethon*; the *River of Lethe*; and *Marsh of Acheron*. There is no *River Styx*, the most obvious of the four rivers of hell, and therefore no direct connection with the poetry of Virgil, but without question this is a representation of the underworld in, or at least alongside, the *antoikoumene*. The context of the image - it is found amongst anonymous *scholia* to Theon of Alexandria's commentary on Ptolemy's *Handy Tables*, and also in an anonymous astrological miscellany - gives little clue as to what might have prompted such a juxtaposition. The underworld and inhabited *antoikoumene* are certainly marked off from one another, and it is possible that the rivers of hell may be conceived of as subterranean (there is also a suggestion that they may flow into or from the sea of the *antoikoumene*). Later medieval maps showed the terrestrial paradise either in or near to the *oikoumene* [inhabited known world], but conceptually distinct, and the same might be said for the relationship between the two types of underworld here. But there is another feature of significance. The map is obviously concerned with the relationship of land to water: in the northern hemisphere, ocean is marked in the far east and west, along with a gulf and a marsh; in the southern hemisphere the mapmaker has been careful to mark off land from sea and infernal waters (rivers and marsh), simply by using the word *yn* [land] as well as more elaborate inscriptions. Passage between the northern and southern landmasses is explicitly ruled out by the designation of the equatorial sea as *fiery unnavigable*, but the map nevertheless suggests the possibility of maritime pathways between known and unknown worlds for those whose ambition may encourage them to challenge the elements and reach beyond the *oikoumene*.



*Map from Anonymous Astrological Miscellany, originally from the third century A.D.
Staatsbibliothek, Handschriftenabteilung, MS Phill. 1479, fol. 28^v, Berlin,
undated, mid-16th century copy (#201.1).*



The map reveals a representation of the place these ancient people believed that they inhabited physically, mentally and spiritually, both in their lifetimes and after their deaths. Locating the underworld on the map makes geography exhibit the common ground between the natural and the cultural, which is the genius of cartography. Among the identified localities is Egypt, a prominent rhomboid floating on the map's upper half. The Persian Gulf is a semi-circle on its right. The Indian Ocean is a closed triangle below the Gulf. Connected by a vertical line, the North (top) and South Poles are identified in the outer rim (reminiscent of an encircling *Oceanus*) along with ten encircling winds. The terrestrial equator halves the main circle of earth, and the rest is divided into zones: two frigid, two temperate and two torrid.

Additional places identified include Persia, Libya and five spots in Egypt - all of which are also found in Ptolemy's *Geographia*. The celestial ecliptic's path, the oblique zodiac, traverses the equator. Earth and its Heavens coexist as they do in life. The *River of Oblivion* and the *River of Fire*, two curving tributaries of the *River of the Dead* (Acheron), are artfully arranged as a small circle to create a sense of a hole, or a descent to the underworld, another dimension of existence. The rivers flow "under" a reversed arc, an open triangle resembling the tip of Africa without its Ptolemaic extension; it is marked on the commentary copies of the map as "a fiery unnavigable sea", a common notion of the earth's torrid zone. As

the medievalist scholars Evelyn Edson and Emile Savage-Smith conclude, the purpose of the map was “to orient users to their place in the world, both geographically and cosmologically. Such orientation was a goal of astrology, which linked events on earth to the movements of the heavens.”

This Greek map of the world, which includes a windrose, zones, places in and around Egypt, and hell, is studied in reference to its context: an anonymous astrological miscellany. Other examples of this map have been found in a second context, among anonymous *scholia* to Theon of Alexandria’s commentary on Ptolemy’s *Procheiroi kanones* [*Handy Tables*], which were also of use to astrologers. The selection of Egyptian place-names found on the map provides some clue to its possible origin, while the omission of the Mediterranean as well as the port of Alexandria is significant. Evidence suggests that the original map (known today only through later copies) is of an earlier date than the texts surrounding it, and that it may be one of the earliest world maps preserved from Late Antiquity.

According to Hiatt, there were three crucial moments in the transmission of antipodal theory to the medieval west occurred during the first half of the fifth century. The first, Augustine of Hippo’s denial of human habitation of the antipodes in *De civitate dei* [On the City of God] (413-26), was indubitably Christian. The other two moments can be characterized with reasonable, although not complete, security as non-Christian: in Rome around 430 Macrobius Ambrosius Theodosius composed a commentary on Cicero’s *Somnium Scipionis*, in which he elaborated upon and illustrated Scipio’s cosmic and terrestrial vision; later in the fifth century, in North Africa, Martianus Capella composed an allegorical encyclopedia entitled *De nuptiis Mercurii et Philologiae* [On the Marriage of Mercury and Philology], including a brief summary of antipodal theory in the chapter dedicated to geometry. All three texts, in different ways, testify to a realignment of debate about the *Antipodes*, in which new contexts - philosophical, pedagogical, and exegetical - were beginning to take shape. All three reveal the *Antipodes* at the fault-line between Christian and non-Christian belief.

The theory of the *Antipodes* was rejected by Christian authors such as Augustine, not because it had to be - other options were possible - but because the rejection of the idea of people living beyond the word of God consolidated the space of Christianity. Theorists of Roman imperial space used the vision of peoples beyond the known world to emphasize or to urge the integrity of dominion. Augustine, and Christian commentators like him, denied the possibility of those peoples because the presence of races unreachable by the word of God threatened not only the integrity of the apostolic dispersal of Christianity to the ends of the earth, but the integrity of scripture itself, for it was there that the descent of humanity from Adam, and the spread of salvation throughout humanity, was made manifest. By contrast, for non-Christian authors such as Macrobius and his contemporary Servius, the compiler of seminal commentaries on the works of Virgil, the antipodes were an integral part of the classical culture they wished to reconstitute. To understand the works of Cicero and Virgil fully it was necessary to understand the *Antipodes*, just as, for Martianus Capella, antipodal theory was a non-negotiable part of classical geometrical learning.

Hiatt concludes that “as the map also suggests, acts of commentary could be given a visual counterpart. Just as Servius was able to hold several spaces -

real, unknown, and supernatural - within his commentary as possible referents of Virgil's poetry, so the "astrologer's map" is able to depict worlds known, hypothesized and mythologized, within its frame of zonal representation. The map is not itself, in this instance, an act of commentary, but, as the work of Macrobius was to show, the two could be aligned in order to reconfigure classical tradition".

The classical geography adopted the division of the earth into two hemispheres: the northern and the southern ones, which were further subdivided horizontally into five climatic zones. Scholars discussed the position of the climatic belts and argued about the possibility of the human dwelling. The conventional opinion assumed that the three of these bands were utterly unfit for habitation: two frigid zones around the poles on behalf of their perpetual cold, and the torrid circle along the equator due to its eternal heat. However, the two remaining segments with temperate climate were suitable for accommodation and shared the same, though opposite seasons.

Therefore it is obvious that in ancient and medieval times and contrary to contemporary popular belief most people believed the earth to be a circular globe or sphere and they devoted much of their time to discussions surrounding the *Antipodes*. It was not strictly the geographical term that was the cause of discussions because the term "*Antipodes*" was also used for people who were hypothesized to dwell there. Without a theory of gravity it seems impossible to our modern mind to comprehend that ancient and medieval people could believe

that people existed on the bottom of a globe without falling off but it did not bother the ancient philosophers and thinkers. Of chief concern to them was how people got there in the first place. The ancient Greeks had hypothesized that traversing the equator was impossible as it was too hot for humans to survive there, it was a like a ring of fire. In the eighth century Europe an Irishman named Fergal or Virgil and known to history as "Virgilius of Salzburg" championed the case for the existence of people at the southern *Antipodes*.

Illustration of the spherical Earth in a 14th century copy of L'Image du monde (c. 1246)



Virgil was a scholar with full mastery of classical mathematics, including Pythagoras, Aristotle and Eratosthenes, all of whom argued for a round earth. Pliny the elder in the first century claimed that there was general agreement on the spherical shape of the earth but disagreement about the

Antipodes. The “global” theory of the “four-cornered” earth could not pass over the issue of the extent of the habitable world. Many educated people were convinced that any form of life, including human, was possible on each of these strips of land. Such intellectual giants as Pliny the Elder kept on repeating that “men are overspread on all parts upon the earth, and stand one against another, foot to foot”. The astronomer Ptolemy argued for the round earth in the second century. Macrobius, in the 400’s, wrote about a spherical earth, including the *Antipodes*. Both of Virgil’s near contemporaries, Isidore of Seville and the Venerable Bede, wrote of the round earth. These were all familiar to Virgil. The *Antipodes* concept was more controversial than the round earth. The term, first used by Aristotle, was familiar to classical scholars including Strabo and Plutarch.

However, from the time of St Augustine, the Christian church was skeptical of the notion. St. Augustine asserted that *“it is too absurd to say that some men might have set sail from this side and, traversing the immense expanse of ocean, have propagated there a race of human beings descended from that one first man.”* St. Augustine further writes that, *“in regard to the story of the Antipodes, that is, that there are men on the other side of the earth. . . there is no logical ground for believing this.”* Augustine is here criticizing his ancient and classical authorities mainly Pliny the Elder, because the *“authors do not claim that they have learned about the Antipodes from any historical evidence, but offer it as a sort of logical hypothesis,”* As opposed to the speculation of ancient authorities, Augustine’s basis for thinking about the *Antipodes* is Biblical history, which to him has described which peoples have really existed from creation and where they have lived. His analysis derives in part from *Genesis 10* and passages about Noah’s sons who, according to lore, each received a continent: Japheth gets Europe; Shem Asia; and Ham Africa. There is no mention of a southern continent. Augustine therefore finds, it too absurd to mention that people, even descendants of Adam or Noah, might have sailed to the South from the North because *boundless tracts of ocean* at the equator-if not elsewhere-impede travel.

St. Boniface, the Apostle of the Germans, tried to make trouble for Virgil by reporting him to Pope Zacharias I (741-752), accusing him of heresy because the Church believed that Christ died on the cross to save ALL men, referring to the descendants of Adam and Eve --“Adamites.” Many believed as St. Augustine did, that men could not travel from the known world across the terribly hot “torrid climes” to the south. If men could not travel to the *Antipodes*, then Virgil’s “other men/*Antipodes*” could not have been Adamites and thus not saved by Christ – a heresy. Pope Zacharias contacted Duke Odillo, the ruling duke of Bavaria including Salzburg, and summoned Virgil to Rome to answer for his ‘heresy’. In 748 Pope Zacharias wrote a letter in response to a series of questions about ecclesiastical discipline that had been put to him by Archbishop Boniface of Mainz. One of Boniface’s questions concerned the *Antipodes*, both the place and its inhabitants. Boniface was critical of the opinions held upon the matter by one Virgil. Zacharias’ reply left no room for ambiguity:

In the matter of that perverse and evil teaching, of which he delivers himself against God and his own soul-to be specific, his declaring that there is another world and other men underneath the earth, and another sun and moon-you are to hold a council and expel him from the church, stripping him of the honor of the priesthood.

The official doctrine of the Christian Church faced a stark problem in the existence of the *Antipodes*. St. Augustine considered it necessary to discuss this issue in his famous book, *The City of God*. Even presenting the opponents' views, the bishop of Hippo tries to downplay their line of argument. He claims that the advocates of this conception believe in the habitation of men "on the opposite side of the earth, where the sun rises when it sets to us" and where "men... walk with their feet opposite ours". In other words, he mixes scientific reasoning-the theory of alternative climates in northern and southern hemispheres, with a popular picture of freaks stepping head over heels to reduce this hypothesis to absurd. The word pun of the "opposite side" and the "opposite feet" foreshadows his outcome that this doctrine is allegedly on a colliding course with the truth.

Then he puts forward his main argument. If the southern hemisphere is peopled and, according to the *Scriptures*, all men are descended from Adam, how could some of his descendants possibly reach the *Antipodes*? Only by crossing the entire ocean and settling in a foreign land. Also, how could the apostles reach their destination without perishing on the way and failing to preach among those lost sheep? For the Christian orthodox scholar this mental image is absurd since it is totally unrealistic. It cannot be confirmed by any historical evidence and satisfies the idle curiosity of intellectuals who prefer to fill in the void of the human presence in the seemingly uninhabitable parts of the earth. Before coming to this rash conclusion, we had better consider much more plausible possibilities. Either the "opposite side" is completely covered by the ocean or, if there is an occasional land, it features a stark landscape. The human logic confronts the reality of the "world upside down".

Not long after Augustine denounced the *Antipodes*, another author, Ambrosius Aurelius Theodosius Macrobius, 395-423 A.D. (see monograph #201), went to great lengths to explicate the idea and defend it against doubters in his commentary upon Cicero's *Somnium Scipionis* [Dream of Scipio]. Macrobius comments that these oceanic currents separate the people sitting astride of the equator and form "two islands on the upper face of the earth and two on the underside." Cicero's text reads:

"You see that the earth is inhabited in only a few portions, and those very small, while vast deserts lie between those inhabited patches, as we may call them; you see that the inhabitants are so widely separated that there can be no communication whatever among the different areas; and that some of the inhabitants live in parts of the earth that are oblique (*obliqui*), transverse (*transversi*), and sometimes directly opposite your own (*adversi*) ... Besides, you will notice that the earth is surrounded and encircled by certain zones, of which the two that are most widely separated, and are supported by the opposite poles of heaven, are held in icy bonds, while the central and broadest zone is scorched by the heat of the sun. Two zones are habitable; of these the southern (the footsteps of whose inhabitants are opposite to yours) has no connection whatever with your zone."

The serious discussion of antipodal theory by Macrobius - and by other late antique authors such as the commentator on Virgil, Servius, and the encyclopedist Martianus Capella - was important because it ensured the preservation of the idea and its transmission as part of a body of classical

cosmological learning. Interest in the *Antipodes* flourished wherever Neoplatonic thought was revived, first during the Carolingian Renaissance, later in the French schools of the 12th century, and subsequently as part of the medieval university syllabus. Only in one type of early medieval Christian European map does there survive, in very simple form, some concept of Greek geography. The “hemispheric maps” of Macrobius, drawn in Spain and later reproduced in the works of the Venerable Bede, Lambert of St. Omer and others, show the habitable world of the northern hemisphere and the uninhabited world of the southern, marked with climatic-zones derived from Ptolemy’s *clima*, and, unlike many other European medieval maps, they are oriented with North at the top instead of East.

In Macrobius’ maps the entire eastern hemisphere of the earth is shown, divided into the same five zones: two polar or frigid zones, two temperate, and one equatorial, torrid zone. The concept derives from the aforementioned Greek scientist, Crates of Mallos, in the second century B.C., who hypothesized that there were four landmasses on the earth, each containing a habitable zone. An impassable ocean, swept by tides, divided these lands from one another. Macrobius states that “between the extremities and the middle zone lie two belts... in these alone has nature permitted the human race to exist”. Macrobius wrote his *Expositio In Somnium Scipionis ex Cicerone* [Commentary on the Dream of Scipio by Cicero] in the early fifth century, basing it on the last part of Cicero’s *De Republica*, in which the Roman general, Scipio Aemilianus [Africanus the Younger], is transported to the heavens by the spirit of his famous grandfather. From this vantage point he is able to look down upon the earth and he saw the earth’s different climatic zones, from cold at the poles to hot at the equator. As mentioned, early Christians found this concept difficult to accept. Again, if each of these lands were inhabited, how did the descendants of Adam get there? And how was the mission of the apostles, to convert the entire world, feasible? Despite these concerns, Macrobius’ book and map circulated throughout the Middle Ages in hundreds of manuscripts and was a basic text of medieval science.

Macrobian maps have little space for geographical details, as the northern Temperate Zone is relatively small. Usually only a few place names, marking the extremes of the known world, are shown.

Macrobius preferred Eratosthenes’ more accurate calculation for the circumference of the earth (252,000 *stadia* = ~25,000 miles, vice Ptolemy’s 180,000 *stadia* = ~18,000 miles). With its postulate of a stationary round earth at the center of the universe and its contention that the environmental sea, variously called the *Atlantic*, the *Great Sea* and the *Ocean*, which ‘in spite of these big names, is quite small’, it is definitely in the Ptolemaic tradition. However, it departs from that tradition in making this ocean the boundary, in every direction, of the inhabited earth, giving it the shape of a lozenge, narrow at the extremes and wide in the middle, and in positing the existence of three other landmasses corresponding to the *oikumene* [known inhabited world], in the remaining quarters of the earth. In his territorial division, Macrobius adopts the conventional five climatic zones, and, while maintaining the existence of an *antipodean* race of men, he also maintains that there is no way by which knowledge of them can be obtained. He, like his near contemporary Martianus Capella, proposed that the known inhabited world, which lay entirely north of the Equator, was surrounded by an



ocean, which also filled the impassable equatorial zone, a theory which can in no way be reconciled with Ptolemy's catalogue of places in the southern hemisphere.

Picture from a 1550 edition of On the Sphere of the World, the most influential astronomy textbook of 13th century Europe

makes clear his belief in the theory of a southern continent or *Antipodes*. Macrobius' fifth century commentary carries further the statement of Cicero concerning the habitable character of this southern zone, specifically known as the *Antichthon*. Like Crates, Macrobius affirms that it is reason alone that permits us to assume its habitable character, for the intervening Torrid Zone prevents us from ever knowing what the truth of that matter may be.

The story of the origin and the persistence of the belief in that southern continent, of the controversies which grew out of that belief, of the centuries of exploration in search of the elusive shores of the *Terra Australis*, is one of the most curiously interesting in the record of human thought and action. The maps in which the theory found delineation are of much more than incidental interest in the present discussion. The symmetry and logic contained in the theory that if the earth was indeed a sphere as proposed by Greek philosophers as early as the fifth century B.C. then, for the equilibrium of that sphere to be maintained, it was a necessity of the laws of physics that there exist landmasses in the south and west to act as "counter-weights" to the masses of the north and east which formed the *oikoumene* or inhabited world of Europe, Northern Africa and Asia. This theory of the *Antipodes*, therefore, has haunted geographical thinkers with a persistence bridging not centuries but millenniums. The concept was continually debated in 'print', often vehemently, by the Church Faithful such as Cosmas Indicopleustes (#202) and the influential and respected scholar St. Isidore of Seville (#205); and expounded graphically on maps by Macrobius, Beatus (#207), Lambert of St. Omer (#217), the Venerable Bede, William of Conches (#205.1), and others, for more than 2,000 years. The long controversy was settled, so far as the western *Antipodes* were concerned, when America was discovered and its great extent revealed on maps. The desire to discover the southern *Antipodes*, or the *Antichthon*, became thereafter one of the impelling motives of exploration and cartography, as can be evidenced in the work of such people as the late 18th century English geographer Alexander Dalrymple and the continual efforts at Antarctic exploration that has persisted to the present day.

The author of the Norwegian book *Konungs Skuggsjá*, from around 1250, discusses the existence of the *Antipodes*. He notes that (if they exist) they will see the sun in the north in the middle of the day and that they will have opposite seasons of the people living in the Northern Hemisphere.

The earliest surviving account by a European who had visited the Southern Hemisphere is that of Marco Polo (who, on his way home in 1292, sailed south of the Malay Peninsula). He noted that it was impossible to see the star Polaris from there.

The idea of dry land in the southern climes, the *Terra Australis*, was introduced by Ptolemy in the first century and appears on European maps as an imaginary continent from the 15th century. In spite of having been discovered relatively late by European explorers, Australia was inhabited very early in human history; the ancestors of the Indigenous Australians reached it at least 50,000 years ago.



Antipodeans, or Antioeci, non-humans monsters who inhabited the Antipode region. From Margarita philosophica, 1517.

Below is an example of a Macrobian world map from a 16th century edition of *In Somnium Scipionis, Lib II, Saturnaliorum, Lib. VII. Venetis:*

Ioan Gryphius Exudebat, ca. 1560. It contains a map of the world similar to one that appeared in manuscripts and printed works for 1,200 years, the book contains the text of Cicero's *Dream of Scipio*, with Macrobius' commentary. This is one of the more detailed Macrobian *mappamundi*, showing the five climate zones and placing the *Antipodes* in the southern Temperate Zone. The question was if these legendary continents contained sizeable strips of land to account for human settlement and whether they were populated by our own species or by completely different creatures, entirely foreign to us.

Medieval scholars focused on one of these hypothetical "inhabited spots", the *Antipodes*, a strip of land in the southern hemisphere. Macrobius, a free thinker who could afford to ignore the approaching march of Christianity, takes a purely logical approach in his response to the controversy whether the life is possible beyond the edges of the known world: "since we know both East and West are inhabited, where lies the difficulty in accepting that even [the Deep South] is lived in?"

The antipodal continent was usually held to be inaccessible, was generally thought to be beyond the limits of the inhabited world, and thus would seem to be an excellent location for monsters. Yet most of the medieval discussion of the antipodes addressed the question of whether the continent was inhabited, and if so, whether the people there were descendants of Adam, and whether they could be evangelized. However, there are some maps that locate monsters in the antipodes.

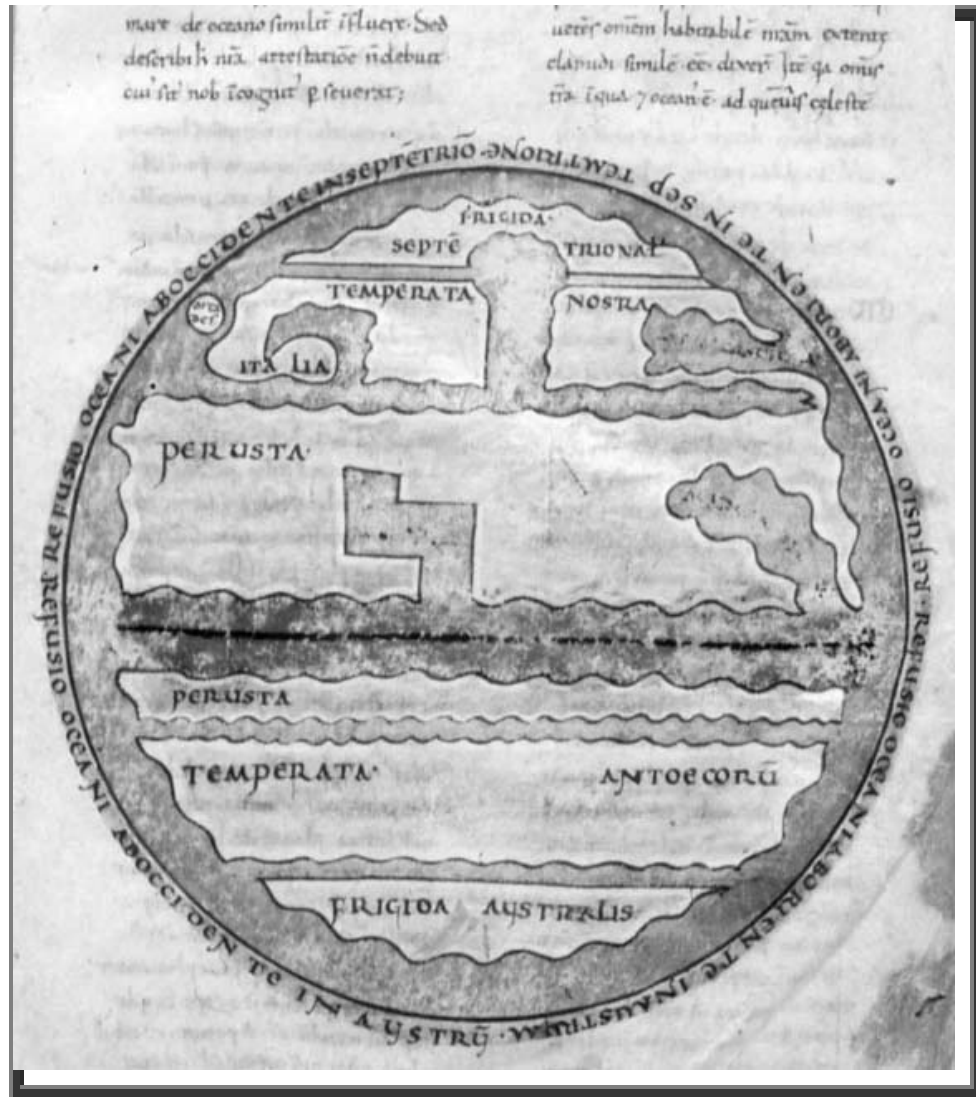


The following zonal map of the 11th century in the *Commentary on the Dream of Scipio* by Macrobius, now in the Bibliothèque Nationale de France (BNF), Paris (Ms. Lat. 6371, folio 20v), depicts in a very expressive manner the burning hot (*perusta*) central zone, polychromed in red possibly to allude to the heat of the sun, and hence its uninhabitable character. This zone and the *oceanus* which flows through the middle divides the world into two hemispheres: the northern one, in which we inhabit the temperate zone (*temperata*), and the southern one, unknown but also habitable in its temperate zone. The extreme zones remain cold (*frigida*) and uninhabitable.



The following world map from a 10th or 11th century north Italian manuscript of Macrobius, *Commentary on the Dream of Scipio*, again shows North is at the top and the earth divided into five climatic zones, with the Central Zone (*perusta*) unequally divided by the equatorial ocean. *Italia* and the *Orcades* are marked, along with the Caspian Sea, in the northern Temperate Zone (*temperata nostra*). The Red and Indian seas are shown as inlets of the equatorial ocean. The southern Temperate Zone is marked *Temperata antoecorum* (Temperate Zone of the *antoikoi*).

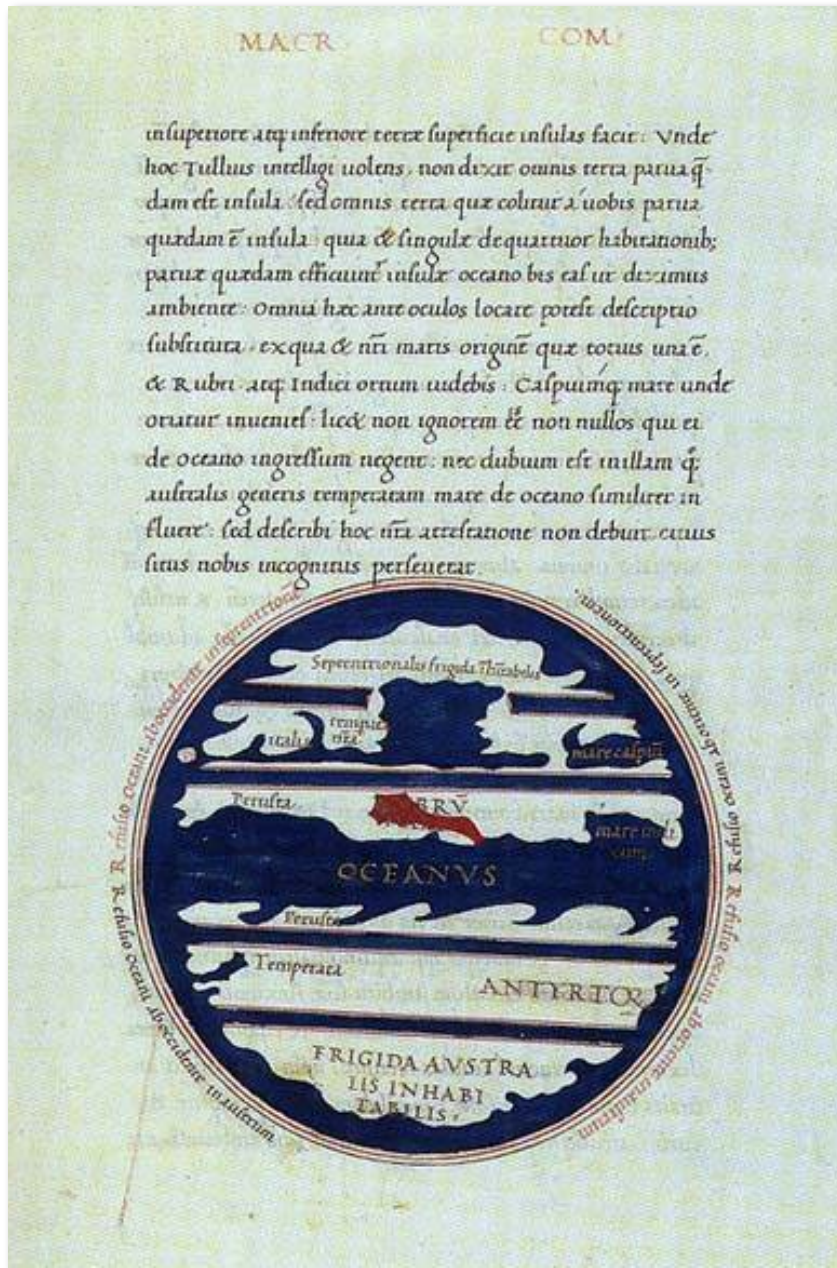
The *Antipodes* being an attribute of a symmetrical spherical earth, some ancient authors used their perceived absurdity as an argument for a flat earth. However, knowledge of the spherical earth was widespread during the Middle Ages, only occasionally disputed by writers such as Cosmas Indicopleustes of Alexandria (see monograph #202) — as mentioned above, the medieval dispute surrounding the *Antipodes* mainly concerned the question whether people could live on the opposite side of the earth: since the Torrid Zone was considered impassable, it would have been impossible to evangelize them. This posed the problem that Christ told the apostles to evangelize all mankind; with regard to the unreachable *Antipodes*, this would have been impossible. Christ would either have appeared a second time, in the *Antipodes*, or left them damned irredeemable. Such an argument was also forwarded by the Spanish theologian Alonso Tostado as late as the 15th century and “St. Augustine doubts” was a response to Columbus’ proposal to sail westwards to the Indies.



Contemporary medieval mapmakers created special diagrams to accompany their environmental theories. Zonal maps attempted to reflect an impact of the weather on habitation and to account for the existence of unknown lands and the lack of communication between our *oikoumene* and the outside worlds. On such graphs the earth was encircled by climatic bands. A zonal map illustrating "Dragmaticon", a treatise on natural philosophy written by William of Conches of Normandy, in the mid-12th century, readily marks the southern hemisphere as "habitable" leaving open the issue about the identity of species available in that far-off place.

However, two major obstacles prevented potential visitors from exploring this invisible continent: the searing "torrid" zone and the limitless equatorial ocean. Both factors discouraged any attempts of active communication.

The southern extremes of Africa bordered with the "torrid" ring, a magic firewall intended for burning everything and everybody who would dare to approach its fiery confines. The ocean was so vast that it had remained impassable throughout the whole span of human history.



Macrobian world map, 15th century, 12.5 cm diameter

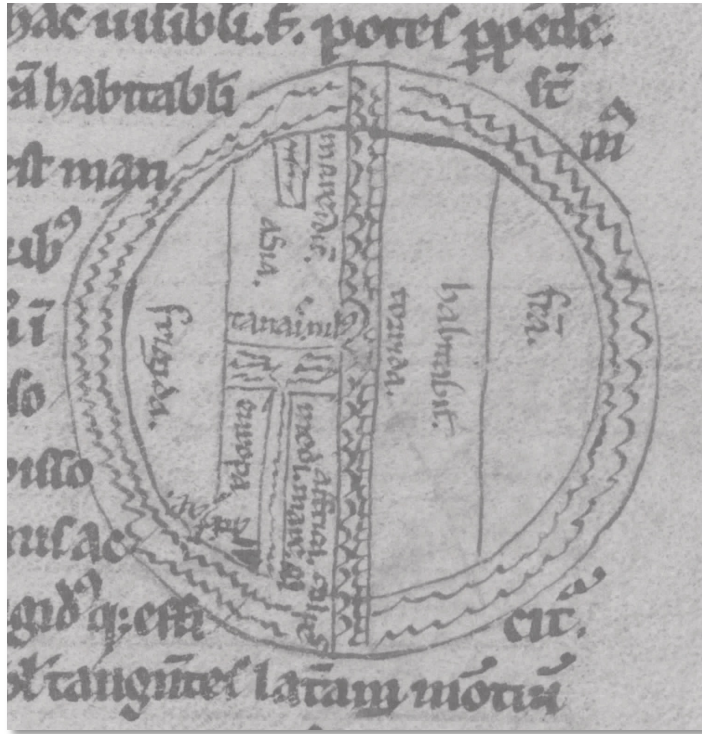
This map illustrates the zonal concept of the division of the world into the "Frigid inhabitable" Zones at the far North (*Septentrionalis frigida inhabitabilis*) and far South (*Frigida Australis inhabitabilis*); the two "Temperata" Zones (Northern one with the label "Italia" represents the known world; the Southern one "Temperata Antyrtor"). The Central Zone, split in two by the equatorial Oceanus, is labeled "Perusta" [burned up] and displays the Red Sea in its appropriate color.



Macrobian world map, 1483/1501, 10.5 cm diameter
The Huntington Library, San Marino, California (HEH 91528)

Traditions of representation of the *Antipodes* cut across boundaries of religion and time. Cicero's late antique commentator Macrobius illustrated his exposition of the *Dream of Scipio* with a world map that showed unknown, antipodal, land in the southern hemisphere. The map of Macrobius was copied from the ninth to the 15th century. Yet the scribes who copied the map altered its form, expanding ecumenical areas, occasionally juxtaposing the comments of Augustine, and from time to time relocating and reconfiguring the image. Alfred Hiatt asks and answers the question: "Is it possible to consider such a mode of representation in terms of period?" The map of Macrobius illustrates Cicero's theories; it was produced for a text written in the fifth century; there is reason to think that it was wholly or partially reconstructed in the tenth. It underwent significant adaptations in the 12th century, and a revival of interest in the 15th as a result of humanist interest in Cicero. Is the map classical, late antique, medieval, or Renaissance? Does it not rather belong to any period in which it was reproduced? Hiatt states that contemplation of the broader questions of *terra incognita* and the *Antipodes* suggests that we might do better to think in terms of dialogic relations in more than one temporal direction. To show unknown, antipodal, land on a map - whether of the third, ninth, 13th, or 16th centuries - was to show an ancient land, the product of long-held theories; it was simultaneously a land of the present, for those theories were still considered valid; and it was a land of the future, since it always carried the possibility of the contact and conquest to come. To mark unknown land on the map was to use a different order

of representation. It is not simply that such representation was fictive, or imaginative, since elements of fiction and imagination were to be found also within *terra cognita*. Rather, *terra incognita*, according to Hiatt, constituted an “a-cartographic mode” of representation within the map, uncharted land that nevertheless appeared on the chart. Such land was stripped to its raw essentials, to its fundamental idea: *terra incognita* was land unknown but not unthought.



The world map shown above is by William of Conches and is found in his *Dragmaticon*. It is oriented with East at the top. The map, again, is divided into five zones. The two Frigid Zones (both marked *frigida*) are located in the far north and far south. The southern Temperate Zone is marked simply *habitabilis*, next to an uninhabitable Central Zone (*torrida*). The northern Temperate Zone is filled with a representation of the *ecumene*, featuring division into the three classical parts (*Asia*, *Europa*, *Affrica*), the Mediterranean, *Tanais* and Nile rivers, the *mare indicum* [Indian sea] with the western extent of the known world marked by *calpes* in Africa, and *athlas* in Europe. Wavy lines mark the equatorial and encircling oceans. Similar zonal maps also appear in William’s *Philosophia*.

In the *Philosophia* William was concerned to elaborate degrees of difference: days and nights are of equal duration across the northern hemisphere, even if they occur at different times; the *antoeci* in the southern hemisphere experience day and night at the same time as the inhabitants of the known world, but seasons at opposite times; the antipodeans of the *antoeci* (those in the “lower part” of the southern hemisphere) are different in every regard – “we and the antipodeans of the *antoeci* have neither summer nor winter at the same time as each other, neither day nor night”. This exposition of antipodal theory by William leads onto a brief account of the known world, and its division between Asia,

Africa, and Europe, illustrated by a map like the one above which in most manuscripts shows an image of the world divided into zones, with an encircling ocean, a central Torrid Zone, and two Frigid Zones. The northern hemisphere is divided into the three continents, with major seas and rivers marked, while the southern is empty of topography, usually marked simply *temperata zona*, or *temperata australis*. Unlike Lambert of Saint-Orner's *Spera geometrica*, William's world map does not mark antipodal inhabitation, reserving discussion of the possibility to the accompanying written text.

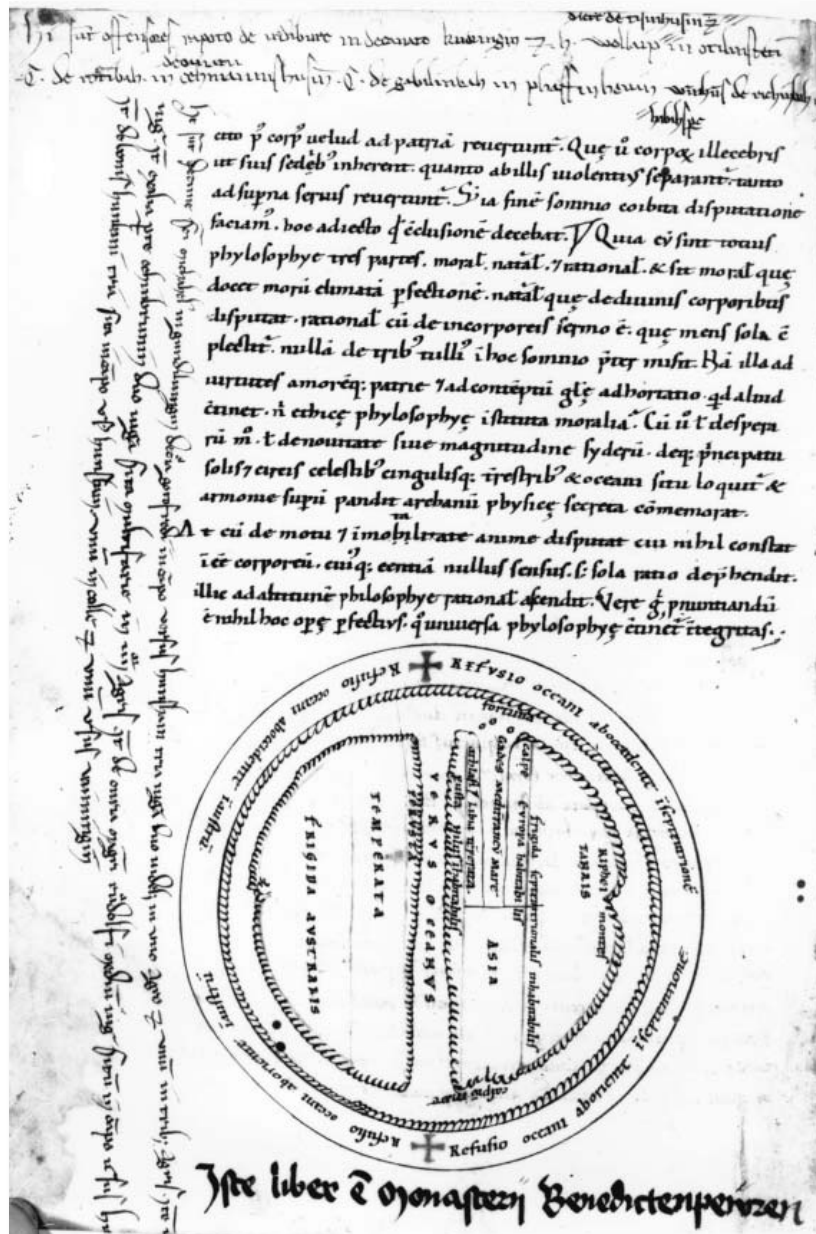
The *Dragmaticon* largely reproduces the *Philosophia's* account of the relation of the known world to antipodal spaces and inhabitants, but it adds an extended proof of the rotundity of the earth, against "certain bestial people, believing more in perception than reason, who maintain that the earth is flat". This section develops and illustrates a crucial aspect of William's discussion of the differences and similarities of the experience of peoples in different places. Two striking diagrams are used by William to prove the sphericity of the earth. The first of these, the *circulus solis*, shows the circuit of the sun passing directly over a city of the east (*civitas orientalis*) and a city of the west (*civitas occidentalis*).

Isidore, a bishop of Seville at the early seventh century and the author of the widely read first Christian Latin encyclopedia, entitled *Etymologiarum sive Originum libri XX* (see monograph #205), presented the term "Antipodes" as referring to *antichthones* (people who lived on the opposite side of the Earth), as well as to a geographical place; these people came to play a role in medieval discussions about the shape of the earth. As mentioned above, in 748, in reply to a letter from Saint Boniface, Pope Zachary declared the belief "that beneath the earth there was another world and other men, another sun and moon" to be heretical.

Isidore mentions the torrid zone barriers for the expansion of man which set a limit on our curiosity and the need for communication. The fourth part of the world, he explains, is found "beyond the Ocean, further inland toward the south", but it cannot be reached "because of the burning heat of the sun." The lack of knowledge transformed this land into the reservoir for all sorts of legends and even placed some monstrous races within its boundaries, "within its borders are said to live the legendary Antipodes." For the Iberian prelate the issue of the unknown southern land could be casually brought forward as a theoretical possibility though no hard evidence had ever been presented. As for any form of human presence, it was merely a poetic whim.

As to size, Isidore accepts Eratosthenes' estimate (via Macrobius) of 252,000 *stadia* for the circumference of the earth. One *stadia* equaled 625 feet in Isidore's calculations, but by employing the more usual reckoning of 8 *stadia* to the mile and 87.5 miles to the degree, he obtained the grossly exaggerated figure of 31,500 miles for the circumference, vice 25,000 miles. With regards to the classical tripartite division of the world (Europe, Africa and Asia):

The Ancients did not divide these three parts of the world equally, for Asia stretches right from the south, through the east to the north, but Europe stretches from the north to the west and thence Africa from the west to the south. From this it is quite evident that the two parts, Europe and Africa, occupy half of the world and that Asia alone occupies the other half. The former were made into two parts because the Great Sea (called the Mediterranean) enters from the Ocean between them and cuts them apart . . .



This map, which illustrates a 12th century copy, made in Germany, of Macrobius' Commentary on the Dream of Scipio shows the influence of maps from William of Conches' *Philosophia* and *Dragmaticon*, particularly in the omission of the Indian and Red seas, the division between Europe, Asia, and Africa (Libia), and the appearance of the toponyms *athlas*, *calpe*, and *fortuna* [the Fortunate isles]. The diagram has been turned to have West at the top, although the majority of inscriptions are oriented to the north.

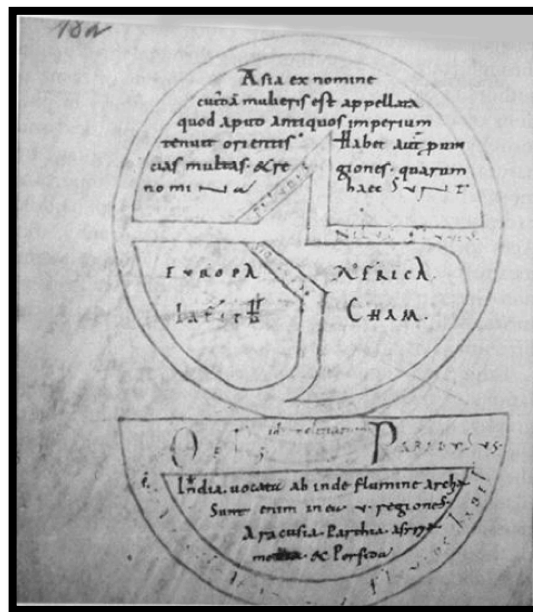
Isidore's stylized maps, that created a long-standing design called the T-in-O (T-O) maps, epitomized the European fixation on the *oecumene* that traditionally consisted of only the three landmasses in the northern hemisphere (Europe, Asia and Lybia/Africa). Isidore leaned heavily himself on classical writers, as well as the teachings of the Church Fathers. For the XIIIth and XIVth Books specifically,

Isidore's sources were primarily the Spanish presbyter Paulus Orosius and, secondarily, Solinus, who is quoted some 200 times, and Pomponius Mela. However, this is not to imply that *Origines* is the compilation of a bestiary, or that his objects are those of the fabulist in any shape. Rather, this work by Isidore is a "compilation of compilations" that resulted in a major reference work of the Middle Ages.

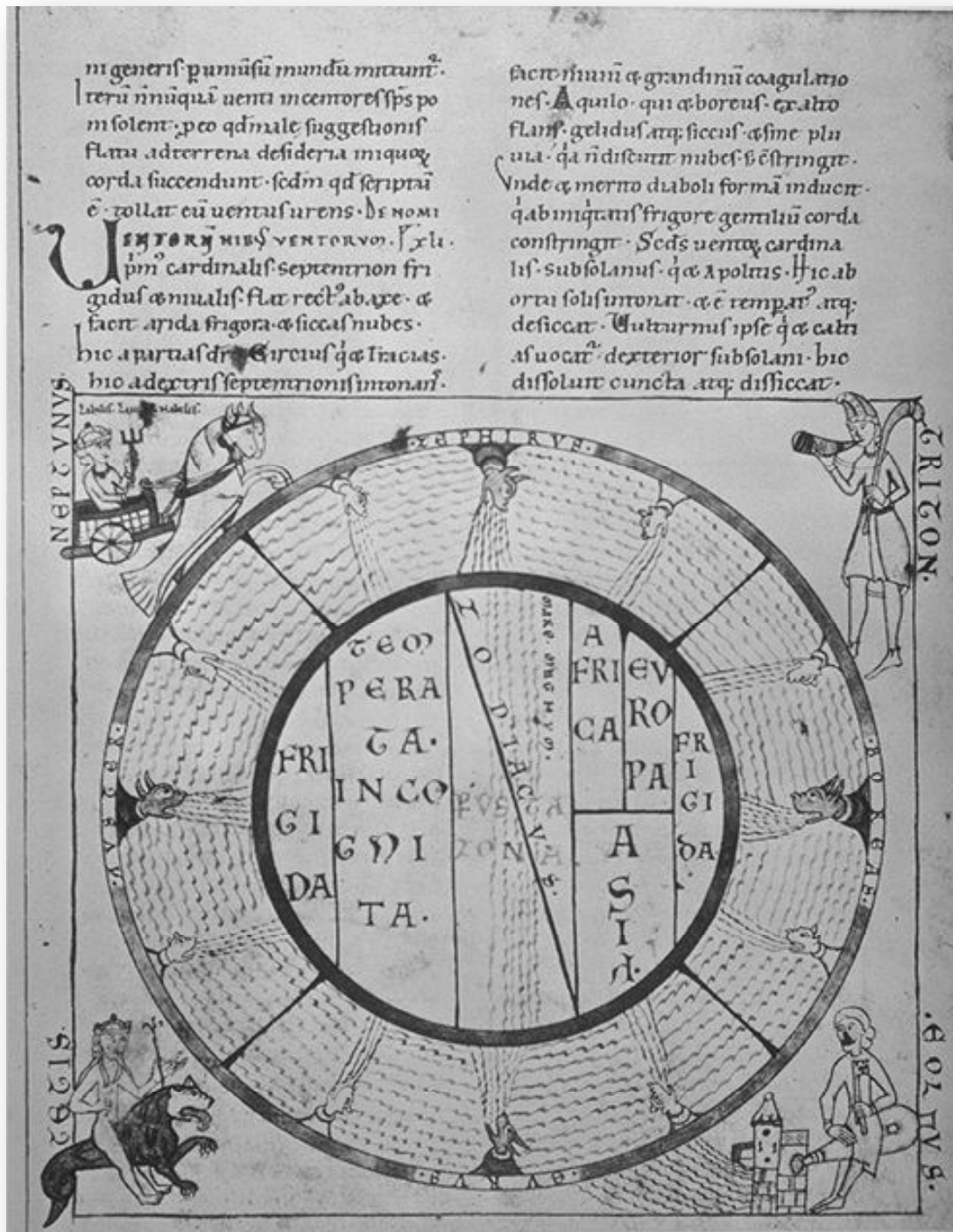
For a professed theologian, Isidore shows a noteworthy breadth of general ideas, even admitting the possible existence of *Antipodean* lands (roughly translated):

Moreover beyond [these] three parts of the world, on the other side of the ocean, is a fourth inland part in the south, which is unknown to us because of the heat of the sun, within the bounds of which the *Antipodes* are fabulously said to dwell.

This concession by Isidore as expressed in the brief quote above indicated that he more than half believed in the sphericity of the earth and quite fully in the doctrine of the *Antipodes*. While Isidore was not consistent in the affirmation of his adherence to the theory, this particular passage was repeated so often by his successors that it became the formula through which those of the Middle Ages who accepted the existence of the *Antipodes* or *Antichthon* expressed their belief. As can be seen in the many examples of Isidorean, or T-O, maps, I could but find only one attempt to depict this "fourth continent" graphically, which is definitely attempting to emphasize its location outside the tripartite *oecumene*.



T-O map showing a "fourth continent" lying west of Europe and Africa; the continent is identified as India and as the site of of the Earthly Paradise, 10th century, 11 cm diameter
Stiftsbibliothek, Codex Eins. 263 [973], fol. 182r, Einsiedeln



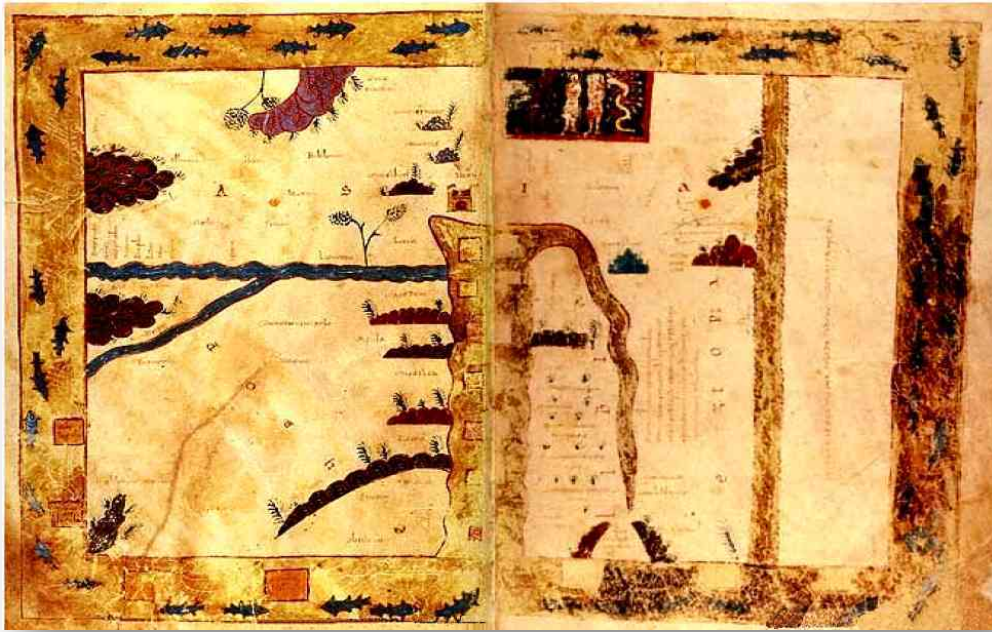
13th century map from Isidore of Seville's *Etymologiarum*, 18.5 x 18.5 cm displaying "Temperata Incognia" south of the Torrid Zone (oriented with West at the top)

Isidore's reference to the *Antipodes* as a "fourth part of the world" in his *Etymologiae* appears to have contributed to a mode of cartographic representation of unknown, non-ecumenical land distinct from the essentially zonal model

transmitted by Macrobius. Three examples of maps, dating from the eighth to the 11th centuries illustrate the emerging possibilities for representation of the *antioecumene* beyond those offered by zonal images. The different modes of representing unknown land on these maps indicate the range of expression open to mapmakers, from the acknowledgement of *terra incognita* to the south of the *oikoumene*, to the use of *antioecumenical* space as a site for theoretical and para-textual material. The blank space of unknown land invited statements about the map's content, but also about the theories the map expressed, the function it performed, and even its historical and social context.

The alternative configuration of unknown land prompted by Isidore's *Etymologiae* is found most notably in the world map contained in certain manuscripts of Beatus of Liebana's eighth century commentary on the Apocalypse (see *monographs* #207s). This influential medieval Spanish cartographer-priest is the draughtsman of the plan that is the common source of the maps of *St. Sever*, *Turin*, *Escalada*, and eleven other Beatus map derivatives of the early medieval period, executed at various times between at least the 10th and 13th centuries, but all depending on a Spanish-Arabic prototype of the eighth century. The original prototype map, now lost, originally appeared anonymously as a feature of a richly illustrated work, *The Commentary of the Apocalypse of St. John*, which has been fixed by both internal and external criticism to a date in or near the year 776 A.D, then revised in 784 and again in 786. The first version of the commentary was successively edited by the very hand of Beatus, as well as by later authors, each of whom contributed in creating different versions. There are 28 illuminated manuscripts that have been identified as having these characteristics and are, therefore, named "Beatus of Liébana" and are conserved in various libraries around the world.

Beatus seems to have followed Isidore in his limiting of Africa to the north of the equator, this was also the practice of many of the classical geographers such as Cicero, Pliny and Mela. As noted above, Isidore conceded the probable existence of the southern *Antipodes*, and, based upon a single sentence or two from his pen, all of the Beatus copies (except the *Navarre mappa mundi* of 1180), portrayed an unknown continent south of Africa and the Indian Ocean. Even the *Navarre mappa mundi*, however, gives a relic of the 'Australian Continent' by indicating, in a corner, the *sciapod*, a shadow-footed monster whom the *El Burgo de Osma mappa mundi* of 1086 shows in the 'Southern Land'; this last was doubtless the original position.



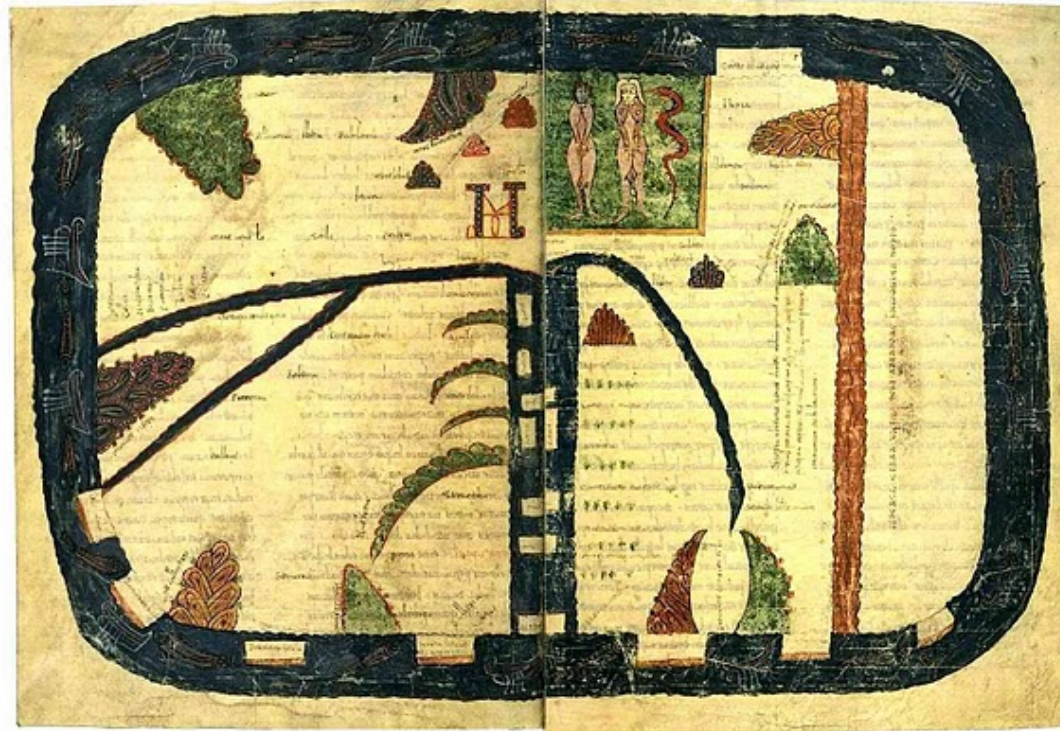
The Escalada, a.k.a. Ashburnham, Morgan 644, New York I, and/or Magius (#207.2), Beatus mappamundi, 926 A.D., 51 x 36 cm (20 x 14 inches). Oriented with East at the top with the earthly Paradise with Adam & Eve and the "Southern Continent" on the right-hand side.

The most unusual feature of this map, and this is a characteristic of all Beatus maps, is the existence of a southern continent, land representing the northern littoral of an austral continent. It is separated from Africa by a band of water, here labeled the *Mare Rubrum*. A legend upon that strip of land reads (in translation) as follows:

Deserta Terra vicina solida ardore incognita nobis.

Desert or wilderness land, neighboring [and] firm, unknown to us [because of] the burning heat.

Longer inscriptions appear on other versions of the Beatus map, and their variety reveals the confusion about the location of this fourth continent. The conventional interpretation is that it indicates the presence of a continent in the southern hemisphere, as was shown on zonal maps (see #201, *Macrobius*). The confusion is heightened by reference to the *Antipodes*, which properly speaking should be located in the Western Hemisphere, not the Eastern. This feature has earned the Beatus maps a special category within the medieval map classification, that of "quadripartite maps".



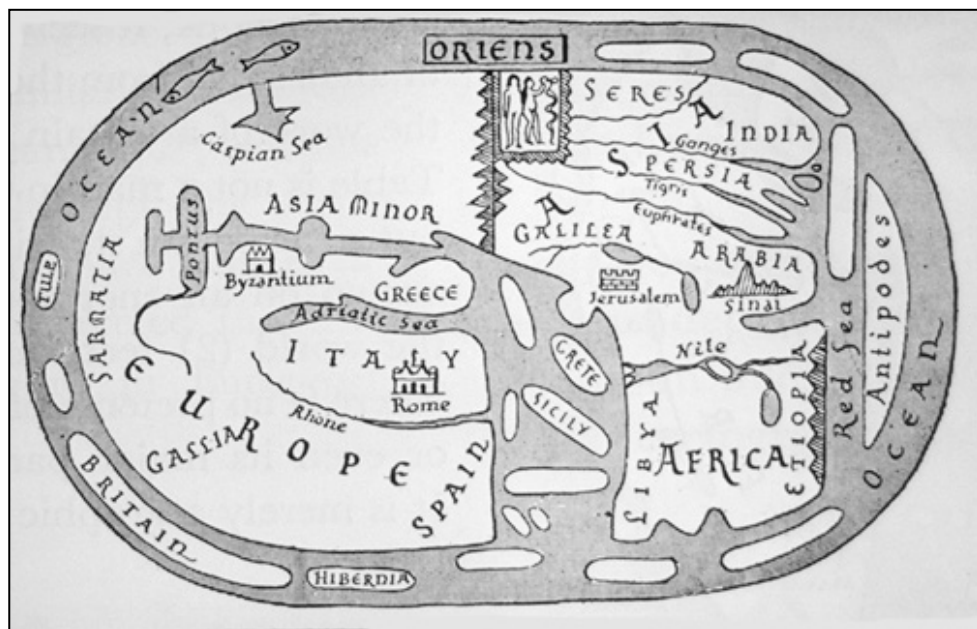
The Valcavado Beatus derivative, ca. 970, Biblioteca Universitaria (#207.4), MS. 1789, fols. 36v-37, Valladolid, Spain. Oriented with East at the top and displaying the Garden of Eden with Adam and Eve. The "fourth part of the world" is shown on the right, separated from Lybia [Africa] by a narrow sea.

Below is the *Girona Beatus mappamundi* (#207.6), ca. 975, Museo de la Catedral, MS. 10, Girona, Spain oriented with East at the top, displays the Garden of Eden, Adam and Eve, and on the right-hand side, "fourth part of the world", the antipodean region, south of the African region and separated from the other three by the Red Sea and another east-west body of water that runs parallel. Here there is the long caption derived literally from the *Etymologiae* of St. Isidore: *Apart from these three parts of the world there exists a fourth part, beyond the Ocean, further inland toward the south, which is unknown to us because of the burning heat of the sun; within its borders are said to live the legendary Antipodes.*





*Saint-Sever a.k.a. Paris I, 1060, Bibliotheque Nationale, Paris, France
Oriented with East at the top, displaying the Garden of Eden with Adam and Eve
(#207.13)*





The *St Sever* map showing the *Antipodes*, boats and fishes re-oriented with North at the top



*The Beatus mappamundi known as the El Burgo de Osma, 1086,
 Archivo de la Catedral Cod. 1, ff.34v-35 [I] (#207.14)*

Oriented with East at the top and *Paradise* indicated in the box with the four sacred rivers. The "fourth continent" is cut off from *Libia* [Africa] by water and has a red sun-disk on it to illustrate its torrid climate. Another unusual feature of this Beatus derivative is the presence in this continent of a *sciopod*, a naked one-legged man, shielding himself from the red sun (*sol*) with his single enormous foot. The inscription tells us that: *This region remains uninhabitable and unknown to us on account of the heat of the sun. It is said that the sciopods live there, who have single legs and [travel] with amazing speed. The Greeks call them sciopods, because, lying supine on the ground during the summer, they are shaded by the great size of their feet.* A *sciopod* appears on one other Beatus *mappamundi*, the *Navarre*, now in Paris, but without the text, and a text combining *sciopods* and the *Antipodes* is also in the *Lorvão* Beatus manuscript in Lisbon. In this map one of the major Beatus themes is illustrated by displaying the distribution of the twelve apostles throughout the known world in their evangelical missions.



The Turin Beatus map, Biblioteca Nazionale Universitaria, MS. I.II.1, fols. 38v-39, Turin, Italy. Oriented with East at the top (#207.15)

Isolated for good by the burning "torrid zone" and the perilous boundless sea, the disconnected worlds of oikoumene and the Antipodes the were exposed to the same temperate climate and even stayed the chances for habitation but, alas, were doomed to be detached forever. A legend on the Turin map adds a nostalgic tune of separation to its deplorable outcome:

"none of us can come to them or none of them to us".

To the south of Africa and Asia (on the right), and separated by the Indian Ocean, a fourth part of the world is represented beyond the Equator. This fourth part of the world bears the following Latin legend written right across it: *Extra tres aut partes orbis quarta pars trans oceanum interior est qui solis ardore incognita nobis est cuius finibus Antipodes fabulatore inhabitare pduneur* [Besides these three parts of the world there is a fourth part beyond the interior ocean (Indian Ocean, supposed by some to be a Mediterranean ocean, hence the term interior ocean), which on account of the heat of the sun is unknown to us, and where may live the fabulous antipodeans]. The inhabitants of this part of the world, the antipodeans, are described textually, but not illustrated.

This then is the origin of the *terra Australis incognita*; at least it is so far the first representation we have of it on a map. Nor can we argue that because it is roughly set down, it was not known, because Asia, Europe, and Africa are set

5.5

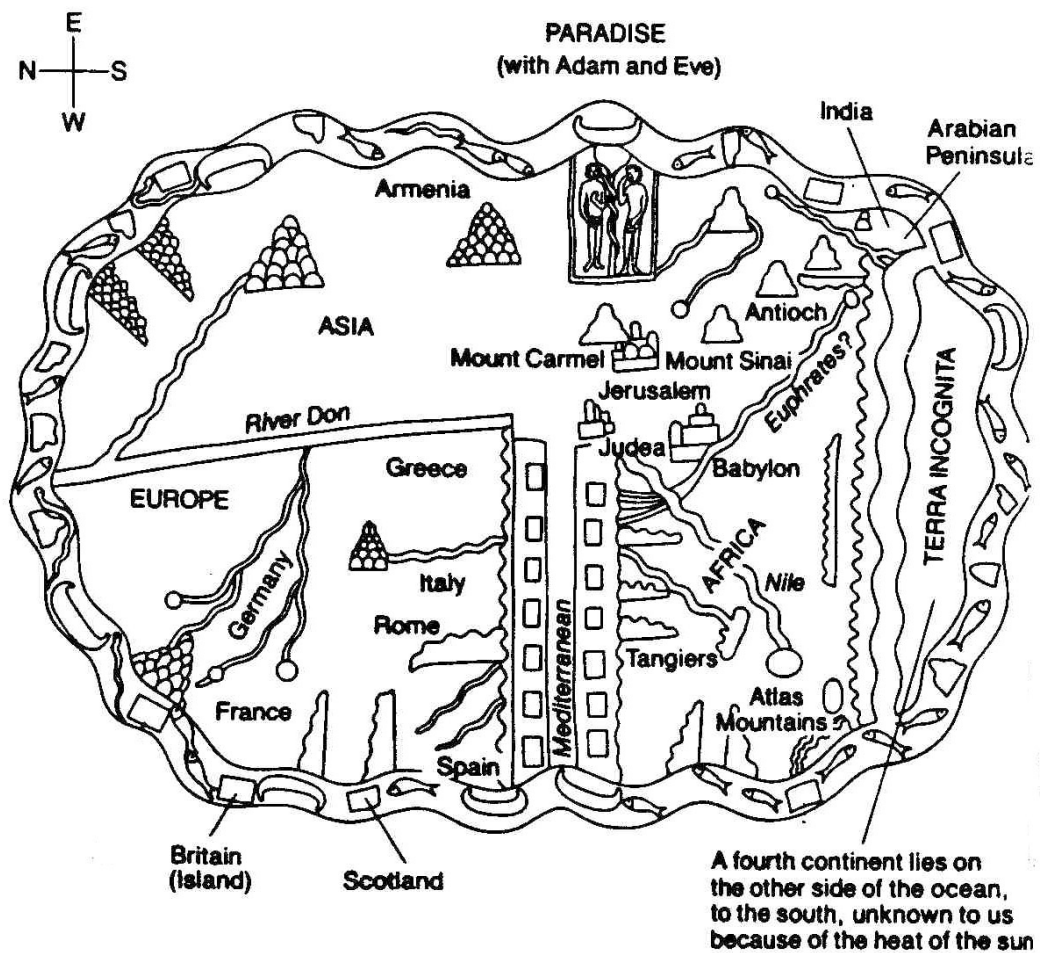
[illegible]

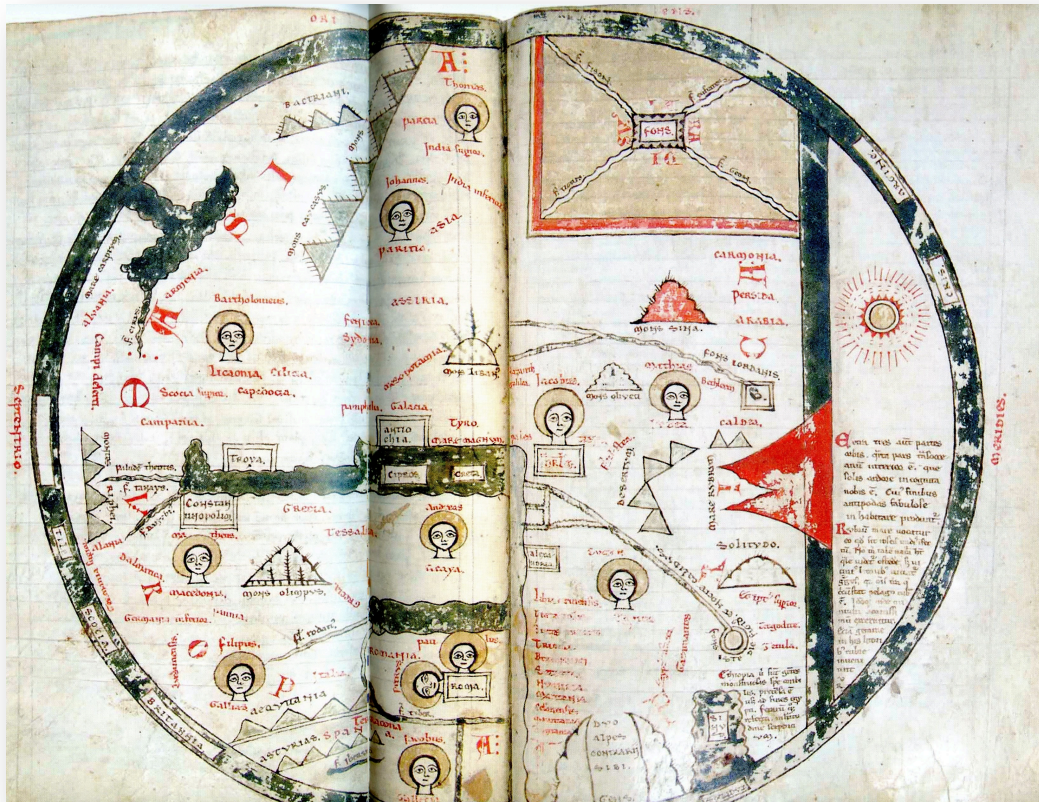
The *Antipodes* or *Southern Land*, shown on the far right, is explained by only a single sentence. The Alps and other mountain ranges are difficult to distinguish from the Persian, Arabian and other Gulfs or inlets, due to the cartographer's use of rather confusing symbols for bodies of water and mountains. The *Pillars of Hercules* are shown in western Africa (not on the Iberian peninsula and northwest Africa) and titled *Dvo Alpes contrari sibi* [two mountains confronting each other].



The Las Huelgas, a.k.a. New York II Beatus, 1220, oriented with East at the top (#207.24)

Again on this Beatus derivative is the “fourth part of the world”, the *antipodean* region, south of the African region and separated from the other three by the Red Sea and another east-west body of water that runs parallel. Here there is the long caption derived literally from the *Etymologiae* of St. Isidore: “Apart from these three parts of the world there exists a fourth part, beyond the Ocean, further inland toward the south, which is unknown to us because of the burning heat of the sun; within its borders are said to live the legendary *Antipodes*”.





The Milan or Mapa de Oña Beatus derivative, 12th century, MSS F. 105 sup.
 Dela Biblioteca Ambrosiana, Ms. F. 105. SUP., folios 71v-72r, Milano, Italy (#207.26)

The "fourth part of the world", the antipodean region, is located south of the African region and separated from the other three by the Red Sea and another east-west body of water that runs parallel. Here there is the long caption derived literally from the *Etymologiae* of St. Isidore: *Apart from these three parts of the world there exists a fourth part, beyond the Ocean, further inland toward the south, which is unknown to us because of the burning heat of the sun; within its borders are said to live the legendary Antipodes.* To emphasize the extreme heat a yellow sun with red rays is portrayed in this inaccessible part of the world. Here again the twelve apostles are shown conducting their evangelical missions.

Several attempts have been made to explain the paradox of the appearance of *terra incognita* on a map apparently designed to show the apostolic mission to the ends of the earth. One school of interpretation of this space has argued that it represents a "fourth continent" introduced in order to represent the world in its entirety, with unknown depicted alongside known. More recently, it has been suggested that it is intended to show the southernmost part of Africa, rather than

an *antoecumenical* space. It is certainly the case that on at least some of the maps the stretch of water that divides the *terra incognita* from the known world is either explicitly or implicitly (by use of color) designated the Red Sea, rather than an equatorial ocean. Further, there is evident identification of this unknown area with the Torrid Zone: not only do several exemplars term the land *deserta* due to its extreme heat, two describe it as *nobis inhabitabilis* [uninhabitable for us], rather than temperate. Above all, this image underlines the difficulty of interpreting Isidore's reference to the *Antipodes* in *Etymologiae* 14. It is not clear, for example, how Isidore's phrase *quarta pars trans Oceanum interior est in meridie* should be understood: does this mean that the fourth part of the world is across the Ocean [and] deeper, i.e. further in the south - or inland in the south? Or should 'interior' be understood as a descriptor for *Oceanum* (the least grammatically satisfying option)? If so, what 'interior ocean' did Isidore have in mind? The different means of inscribing *terra incognita* in the *Beatus corpus* (quotation, pictorial representation, blank) seem to result from attempts to interpret the contradictory references to the *Antipodes* in Isidore, above all his blurring of ethnographic and geographic reference, and his association of antipodeans with the southern part of Africa. Crucially, the transformation of written description into visual image has led to the representation of *terra incognita* in unusual proximity to the known world.

How was it possible to represent the unknown, either alongside or in opposition/apposition to the known? Alessandro Scafi's *Mapping Paradise*, a study of the representation of the earthly paradise on maps from the early Middle Ages to the present, asks the same question of a sacred, rather than secular, space. He describes mapping *Paradise* on earth as "one of the most powerful expressions of the fundamental tension between the locative and utopian tendencies in Christianity", an act that "pointed to both the reality and the loss of a perfect human nature in paradise". Precisely the same answer cannot be given for the *Antipodes*, however, because this was a space without the biblical and patristic authorization possessed by *Paradise*. The terrestrial paradise may have been located in the *Antipodes*, as some 13th and 14th century theologians dared to propose, but this was a solution to the question of the representation of *Paradise*, not to that of the *Antipodes*. Instead, states Hiatt in *Terra Incognita*, the representation of the *Antipodes* should be explained not in terms of tendencies in Christianity, but in terms of the political, historiographical, and literary appeal and necessity of the idea. Consolidation of political or religious identities depends on acts of representation: in their Ciceronian deployment, lands beyond the known world must be seen - and seen to be seen - in order to focus attention on *patria*; even to deny unknown lands and peoples, in the manner of Augustine, was nevertheless to advert to their theoretical presence.

Francesc Relaño states that within the Christian culture, the idea of Paradise at the equator was also present in a number of authors. So much was this so, that Thomas Aquinas (1224-74) felt the necessity of considering this possibility in his *Summa Theologica*, though in the end he did not commit himself to either being for or against this view. But others, like his contemporary Bonaventure of Bagnorea, were fully convinced of such a location. It should be noted however, that the latter two tended to be exceptions to the rule. Again, in line with the

zonal theory of Antiquity, the most commonplace belief during the Middle Ages was that the heat would scorch those seeking to dwell in equatorial latitudes.

The fact that it was not generally agreed that the equator was the most suitable place where the fair nature of the Garden of Eden could thrive did not prevent a number of medieval scholars from projecting the location of Paradise still further southwards. As is well known, two of the main conditions to be observed for the location of Paradise were remoteness and difficulty of access. Few places would therefore seem more appropriate in this regard than the world of the *Antipodes*, separated and unreachable from the *ecumene* by the presumed existence of a fiery scorching belt. On the other hand, there is also the "argument of reversal." Since in the final analysis, if Christianity is no other than the resultant off-spring issuing from the forerunner ancestors Adam and Eve after the Fall, it makes sense, from a symbolical point of view, to place the Garden of Eden at the *Antipodes* of the place where mankind was compelled to live after committing original sin. This explains, at least in part, Dante's location of Paradise at the summit of a mountain diametrically opposite Jerusalem. But Paradise was not imagined at the *Antipodes* only from a poetic or metaphorical point of view. Gervase of Tilbury (c. 1160-1235) and Robert Grosseteste (c. 1175-1253) echoed this hypothesis from a purely geographical perspective.

Another famed medieval writer, Lambert, a canon of St. Omer, France, (#217) combines the two restraints on the further research, in the following picture: "The equatorial sea...was not visible to the human eye; for the full strength of the sun always heated it, and permitted no passage to, or from, this southern zone".

While containing a less detailed Europe, both the *Wolfenbüttel* and *Paris* manuscripts from Lambert of St. Omer's *Liber Floridus* possess a complete *mappamundi*, together with a special and interesting addition. Nowhere else in medieval cartography do we find greater prominence assigned to the unknown southern continent - the Australian land of the fabled *Antipodes* (termed *Antichthon* by the ancients). On the *Paris* manuscript, where this land occupies half of the circle of the earth, a long inscription defines this 'region of the south' in terms not unlike those used on the *St. Sever - Beatus* map shown above:

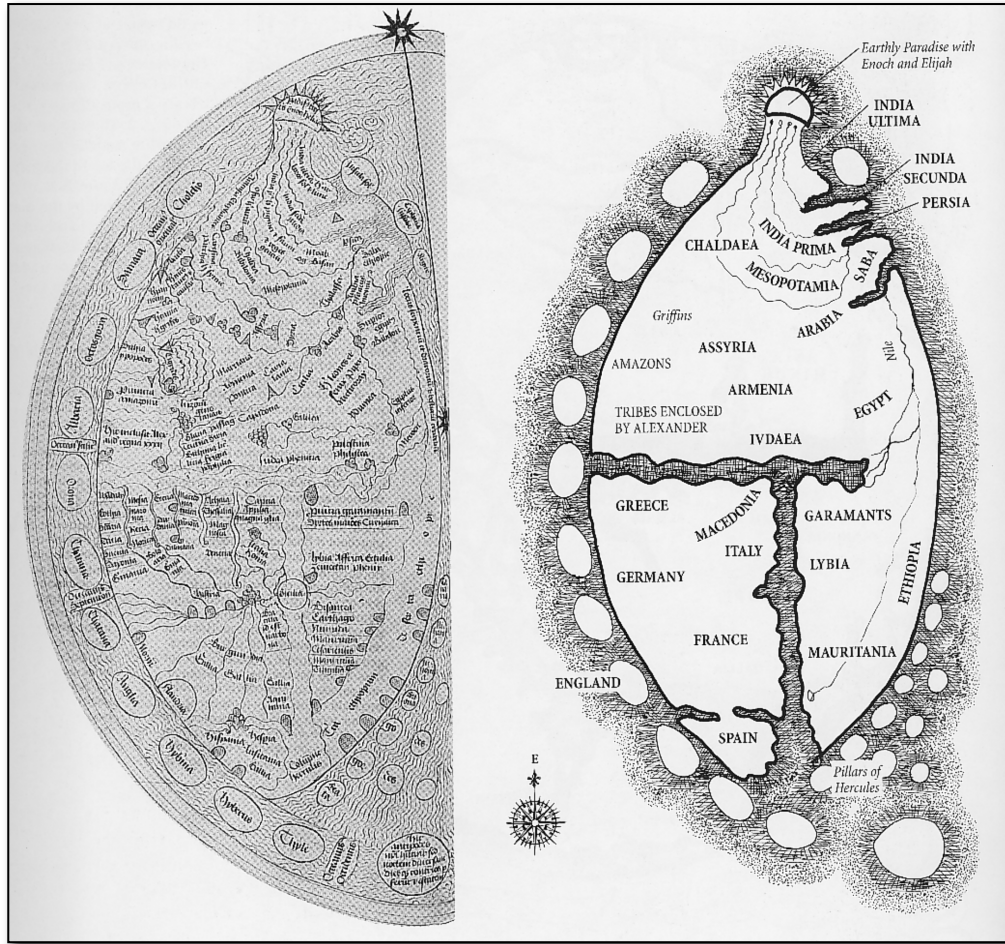
. . . temperate in climate, but unknown to the sons of Adam, having nothing that belongs to our race. The Equatorial Sea [Mediterranean] which here divided the [great land masses or continents of the] world, was not visible to the human eye; for the full strength of the sun always heated it, and permitted no passage to, or from, this southern zone. In the latter, however, was a race of *Antipodes* (as some philosophers believed), wholly different from man, through the difference of regions and climates. For when we are scorched with heat, they are chilled with cold; and the northern stars, which we are permitted to discern, are entirely hidden from them . . . Days and nights they have one length; but the haste of the sun in the ending of the winter solstice causes them to suffer winter twice over.

To the south of this temperate 'Australia', Lambert places a zone of extreme cold, uninhabitable by living creatures.



Zonal world map from Lambert of St. Omer's *Liber Floridus*
(Herzog-August Bibliothek, Wolfenbüttel, Cod. Gud. Lat I, folios 69v-70r),
12th century, 41.3 cm diameter, oriented with East at the top. (#217)

The Wolfenbüttel map aspires to present at one and the same time not only the eastern half of the northern and southern hemispheres but also the western half, or the reverse face of the longitudinal section. At the lower rim of the circle, just left of the manuscript's spine, the largest of a string of islands contains the label, *Here live our Antipodes, but they endure night and day opposite from ours, and summer*. The inscription, implicitly identifying the antipodal island in relation to the *oikoumene* [known inhabited world], pertains to the southwestern quadrant of the globe diametrically opposite the known world. The image, however, does not quite correspond to the textual reference. While the underside of the western hemisphere is floated into view, it is displaced in the process from south to north. Thus, in the context of the *mappamundi* as a whole, the island appears as the *Antipodes* not of the *oikoumene* but rather of the *anteioi*, or southeastern quadrant, depicted on the right-hand page the opening.



The seeming disparity between what the inscribed phrase says and what the image shows has its source in the underlying principle of the map's composition. If we regard only the half of the planisphere on the left-hand page, we have before us a map of the tripartite *oikoumene* to which the antipodal island has been correctly annexed at the southwest. Overlaid, as it were, on this scheme is a north-oriented zonal or hemispheric map rotated a quarter-turn counter-clockwise to an eastern orientation; this operation leaves the southern hemisphere, the right-hand half of the map, entirely confined to one page of the opening. The conflation of the two map types (*ecumenical* and *hemispheric*) hinges on the one antipodal island, which consequently does double duty as the diametric opposite of both the *oikoumene* and the *anteoikoi*. Far from posing as a mimetically equivalent representation of geographic reality, the map in the *Wolfenbüttel Liber floridus* methodically works out a conceptual model by means of a purely pictorial logic. With the shift of the *Antipodes* to a position where the island serves a dual purpose, the map achieves a comprehensive display of the quadripartite terrestrial sphere that more fully illustrates, or evokes, Lambert's late-antique sources, Macrobius and Martianus Capella.

The *Wolfenbüttel mappamundi* aims not merely to reconcile two cartographic formulae. More importantly, it seeks to resolve the tension between scientific and theological truths by harmonizing the earth, of which the *oikoumene*

is but a tiny portion, with the world, the stage where the history of salvation is played out. The *Antipodes*, the western pole of the globe according to the map, has the *Earthly Paradise* as its counterpart at the eastern pole (likewise off-center). The island of *Paradise* surrounded by flames is, thanks to the Fall, inaccessible to “us”, that is, to humanity. Yet *Paradise* remains connected to the inhabited world through the four rivers flowing from their source in Eden. Just as the *oikoumene* seems visually to pour out of Eden, so too are its populations generated from Adam and Eve. In contrast, the *Antipodes* are completely cut off.

Christian authors disputed the ancient proposition that lands beyond the *oikoumene* could be inhabited, for the existence of peoples not descended from the sons of Adam contradicted scripture. As St. Augustine reasoned and as mentioned above, even if on the other side of the earth the ocean waters had receded to allow the emergence of land it does not then follow that such land was populated. He found it patently “too ridiculous to suggest that some men might have sailed from our side of the earth to the other, arriving there after crossing the vast expanse of ocean, so that the human race should be established there also by the descendants of the one first man”. The cartographic image in the *Wolfenbüttel Liber floridus*, leaving the *anteoikoi* and *Antipodes* blank and unarticulated, pictorially defines the non-ecumenical continents as the antithesis of the known world and thereby acknowledges their emptiness.

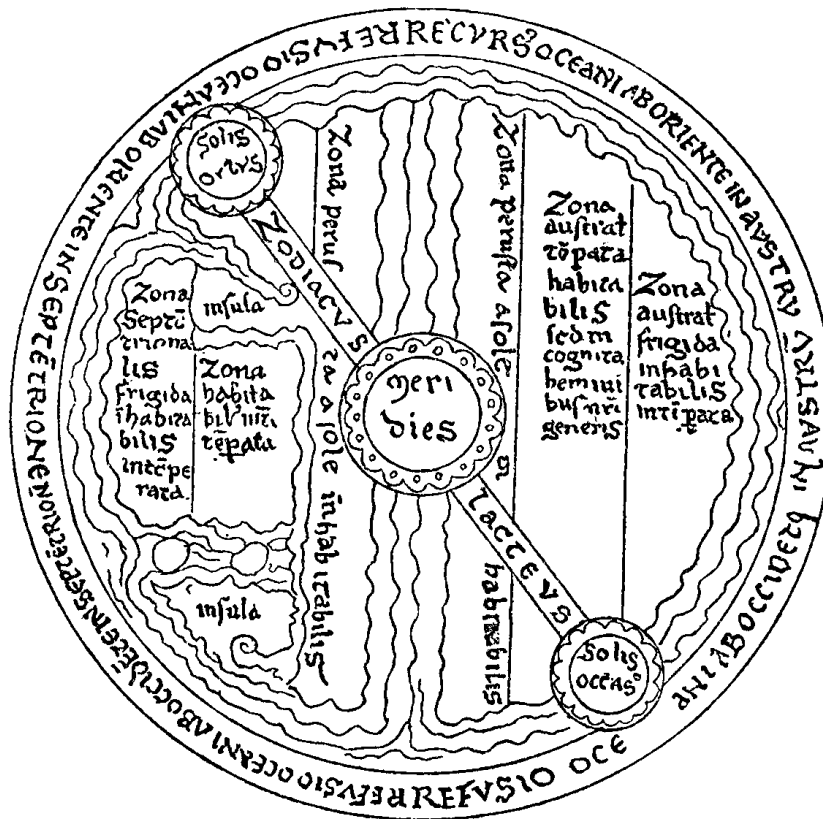
However, the texts inscribed on both the small antipodal island and the southern shores in the right-hand half of the planisphere are more equivocal. The one-line caption on the former treats the word *Antipodes* as the grammatical subject of the verbs “live” [habitant] and “endure” [perferunt]. The extensive legend on the latter admits that the southern Temperate Zone is unknown to the sons of Adam, but instead of refuting the possibility of the land’s habitation it impugns the humanity of whatever populations might exist there: *Nothing belonging to our race*. The passage goes on to say, *Scholars affirm that the Antipodes inhabit this land*. The usage of the word *Antipodes* in these contexts registers a semantic shift harking back to Isidore of Seville discussed earlier, who blurred the geographic distinctions of classical terminology and made it into an umbrella term for the fabulous peoples of the unknown southern part of the world. Text and image work together as a unit, the picture eliminating those whose humanity the longer of the two inscriptions negates.



Lambert de Saint-Omer, *Liber Floridus*. Diocèse de Cambrai, 48.5 x 31 cm
BNF, Manuscripts (Latin 8865, f. 62 v°), oriented with East at the top (#217)

The ideas expressed here are supplemented by the suggestion of two more unknown continents or 'earth-islands', one in the Northern and the other in the Southern [Western] Hemispheres, lying in the expanse of an all-encircling and dividing great ocean. Four landmasses therefore are assumed; of these, the first two were made up of the ancient *oikoumene* and the *Australian* region just described. The other two landmasses were on the reverse side of the globe (corresponding in some respects with the North and South American continents of later discoveries), and were divided by a tropical arm of the great ocean, in the

same way as the two 'islands' of the Eastern Hemisphere. This concept reflects, in full, the theory of the ancient geographers such as Crates of Mallos, the Greek philosopher discussed earlier. The present maps by Lambert, however, only indicate the 'third' and 'fourth' continents (those of the Western Hemisphere) by placing little circles in the margins of the *Roman World*, or *Habitable Earth*, respectively entitled *Paradise*, to the northeast, and *Our Antipodes* to the southwest. The idea of an undersea course of rivers from a trans-oceanic *Paradise* to the *oikoumene* was a common belief during the Middle Ages (see Cosmas Indicopleustes, #202). "*Our Antipodes*" is clearly to be understood as the continental masses exactly opposite to Europe and Africa on the other side of the globe, inhabited by living (but apparently not human) beings, and having a day and night in an 'opposite relation' to those living in Europe; while the *Paradise* island is probably to be interpreted, in the same way, as precisely antipodean to the Australian continent. The graphic expression of these ideas in Lambert's maps derives from several sources. First there is the suggestion of a T-O form in the general contour of 'Our World'. Speculations of a much higher antiquity can be traced in the apparent indication of the Ecliptic in both the *Ghent* and *Wolfenbüttel* world maps (in the form of a crooked line running over the Equator and marked by three star-pictures), the obliquity of the sun's path is clearly suggested. Thirdly, of course, is the probable source of earlier world maps by Macrobius and/or Martianus Capella.

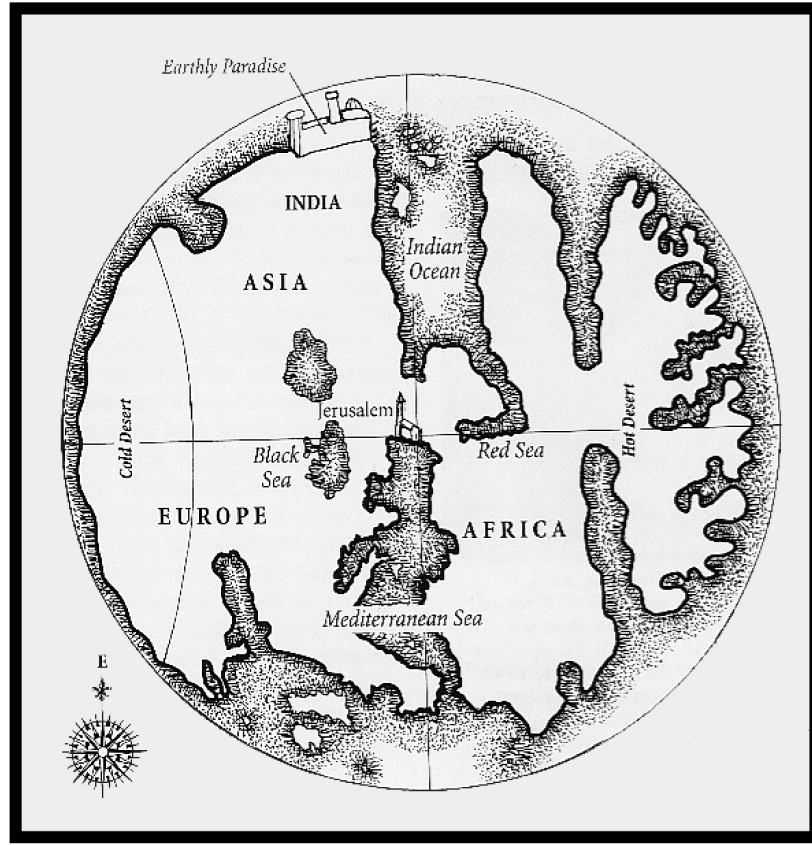


Zonal world map, Lambert of St. Omer, Martianus Capella,
Ghent copy, 1120 A.D. (#217)

On the following map by Giovanni Leardo in 1442, one could almost make the argument that this “fourth part of the world” displayed in earlier medieval maps as the *Antipodes* has been re-conceived as the most southern part of Africa that is subject to extreme heat.



Mapa Mondì Figura Mondì, 1442 world map by Giovanni Leardo, 34.7 x 31.2 cm,
Biblioteca Comunale Library, Verona, Italy (#242)
(oriented with East at the top)



In Greek and Roman science, the *Antipodes* are the most remote location in relation to where one happens to be, a region inhabited by “those whose feet are opposite ours” The idea of the *Antipodes* encouraged the ancients to imagine a world larger than their tangible experience and to consider fundamental global qualities such as the earth’s symmetry and habitation. Potential communication with antipodean people further suggested the possibility of circumnavigation. The Middle Ages inherited this ancient scientific interest in the *Antipodes* and, in the earlier medieval period, theologians, philosophers, and others compared the ancient texts with passages from the Bible. This additional historical sense complicated ideas about the *Antipodes* because writers attempted to reconcile Biblical depictions of the world with ancient wisdom. Yet it would be a mistake to characterize the entire medieval period’s writings about the *Antipodes* and related imaginings of the globe as a working through of this interpretive tension. After all, Armand Rainand, in *Le continent austral*, says of the *Antipodes* that they were “one of the most serious preoccupations of medieval science and theology,” and Alfred Hiatt, in *Terra Incognita: Mapping the Antipodes before 1600*, has argued that they are not so much *anti-oecumene* as an *ante-oecumene* that “precedes” the known world (*oecumene*), “signifying land itself, the fundamental basis of habitation, and the precondition for cartographic representation”. That is, something much more occurs during the period. Indeed, in the Middle Ages, we find a great variety of ideas about the *Antipodes*, and in the 12th and 13th centuries, as with so much other knowledge at this moment in history, people revisited and changed global epistemes. These transformations appear in many different kinds of text: scientific

and encyclopedic writings and artworks, as well as poetry and prose literature.

By inheriting the ancient tradition and further thinking through the nature of the earth-inspired, in part at least, by new contact with previously unknown distant regions-medieval mapmakers came to believe more firmly that there was reachable lands beyond the classical *oecumene*.

The Latin treatise *Imago Mundi*, compiled by cardinal Pierre d'Ailly around 1410 (#238), was especially prominent among Christopher Columbus' known readings, and the most heavily annotated among his preserved books. A compendium of medieval cosmographic knowledge, the *Imago Mundi* collects materials excerpted from various sources on the subject, aiming to provide a complete "image of the world." Its sixty chapters deal with topics ranging from the position of the earth in the heavens to specific geographical features like mountains, lakes, or islands. Cardinal d'Ailly's work is marked by great erudition, although he seldom pronounces any positive opinion of his own. The learned prelate, otherwise so orthodox, often allows a doubt to glimpse forth as to the geographical dogmas of the Church. He expounds on controversial theories and supports various arguments by quotations from famous Greek and Latin writers such as Aristotle, Ptolemy, Seneca, Pliny, Orosius, Augustine, Esra; "modern" sources such as Sacrobosco, Roger Bacon and Nicholas Oresme; and even Arab authors like Averroes, Hali, Alfragan and Avicenna - obviously a remarkably well read scholar. A singularly significant literary source frequently quoted by d'Ailly, often verbatim, is the *Opus Majus* by Roger Bacon. Although d'Ailly compiled his *Tractatus de Imagine Mundi* 140 years after the time of Roger Bacon, the Cardinal chooses not to name a single medieval explorer, whether Asiatic or African. That all knowledge of recent explorations should have escaped his notice is hard to believe. The whole work, with the exception of a few Arabic citations, mainly from Latin translations of the works of Avicenna and Averroes, might have been composed a thousand years previously. Indeed, some of it had. For instance his discussion of the *Antipodes*. In approaching this controversy, d'Ailly states it with such clarity that we expect to hear him assert the truth. But as a good theologian he finds himself confronted by the arguments of St. Augustine, Cosmas and others, as well as the biblical texts upon which it was founded. Overpowered by the weight of this authority, d'Ailly takes refuge in hearsay.

Some say that it (i.e. the zone between the winter Tropic Capricorn and the Antarctic Circle) is a temperate and habitable as our own . . . However, according to them, there can be no communication between the Antipodes and us because of the impossibility of crossing the intervening Torrid Zone and the Tropics. According to this opinion, the population of this region would be ignorant of the teachings of Christ and the Apostles, which is contrary to the sacred affirmation that 'their sound went into all the earth and their words unto the ends of the world'. In the sixteenth chapter of his *City of God*, St. Augustine refutes this opinion. However, certain writers maintain that it is a fable and that the fourth zone (i.e. the southern zone) is for the most part covered with water, and this view is supported by highly probable reasons . . .

The reasons given, however, such as the claim that the elevation of the sun there makes life impossible, presumably because it scorches the earth, are highly improbable. For d'Ailly's personal opinion on this subject, or for that matter on any other, one is hard put to find them within his writings. Probably the most significant passages of d'Ailly's writings are those in which he discusses the extent of the habitable globe. Some extracts from these will provide some insight to his ideas of cosmogony (from the seventh chapter of his *Imago Mundi*):

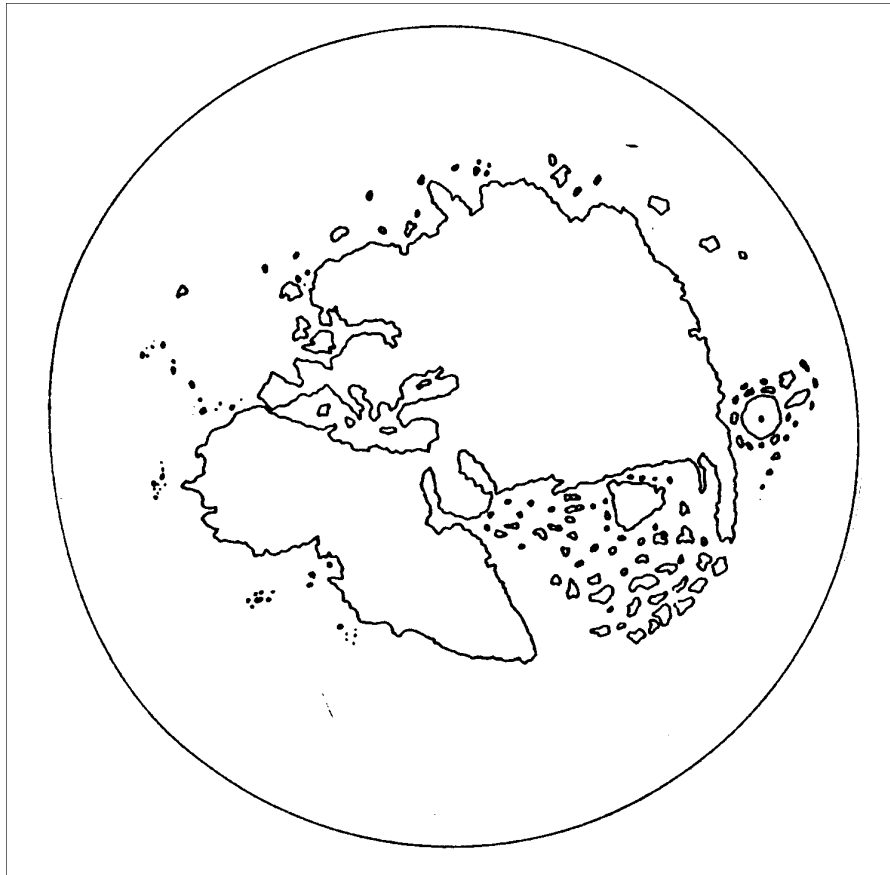
The earth is spherical and the Western ocean is relatively small. Aristotle pretends, contrary to Ptolemy, that more than a quarter of the whole globe is inhabited, and Averroes sustains the same opinion. The Stagyrte affirms also that the extent of sea is small between the coast of Spain in the West and the shores of India in the East. We are not concerned here with the actual Spain, but with the *Further Spain*, which is Africa. Seneca asserts that one can traverse that sea in a few days if the wind is favorable. Again, Pliny teaches us that ships from the Gulf of Arabia can arrive in a short time at Gades in the South of Spain. Whence we conclude that the sea is not big enough to cover three-quarters of the globe. Esdras affirms in his fourth book that six parts of the earth are habitable and inhabited and that the seventh part alone is covered by the waters. The authority of that work has been recognized by the saints, who have made use of it for confirming the sacred verities. Beyond Thule, the last island of the Ocean, after one day's sail the sea is frozen and stiff. At the Poles there live great ghosts and ferocious beasts, the enemies of man. Water abounds there, because those places are cold, and cold multiplies humors [or vapors].

As the Age of Discovery in the late 15th and early 16th centuries produced an increasing number of bold explorations that continually expanded the limits of the known inhabited world. The Portuguese began by successfully crossing the "impassible" Torrid Zone, proving that the heat was not impenetrable and that humans did live in areas not visited by the twelve apostles.

One set of the true *Antipodes* was established with the Spanish, Portuguese, English, Dutch and French exploration of the southern portions of Africa (the *Antoeci* of Crates), North America (the *Perioeci* of Crates) and South America (the *Antipodes* of Crates), and Australia (the *Antipodes* of Crates) in the 16th century and Antarctica (the *Antoeci* of Crates) in 1820, forcing mapmakers to accept a new global configuration of seven continents instead of the classical three. That mapmaking transformation though, took over 300 years of exploration. For 250 years some mapmakers continued to link North America to Asia and Australia to Antarctica.

Among the authorities followed by Pierre d'Ailly was Roger Bacon, particularly Part 4 of the *Opus Maius*, which included notes on the application of mathematical principles to geography, astrology and biblical matters. In Columbus' copy of the *Imago Mundi*, chapters 7 and 8, largely copied from Bacon's work and providing different opinions on the extent of habitable land on Earth, are particularly rich with handwritten notes. These annotations show the Admiral's interest in the question of the existence of the *Antipodes*, and the possibility of crossing the *Torrid Zone*. They include references to the recent Portuguese explorations in Africa, and Columbus' own recalling of his presence at court in Lisbon in December 1488, when Bartholomew Diaz made his report to the

king on the Cape of Good Hope – thus establishing that the southern waters were indeed navigable. The *Imago Mundi*, accompanied by several charts and diagrams, included a climate zone map of the Macrobian type. Unlike other Macrobian maps, Pierre d'Ailly's map does not mention the *Antipodes*, nor does it refer to the inhabitability of land south of the equator. On the contrary, it features a caption vaguely referencing the existence of "many habitable lands" towards the equator and beyond.

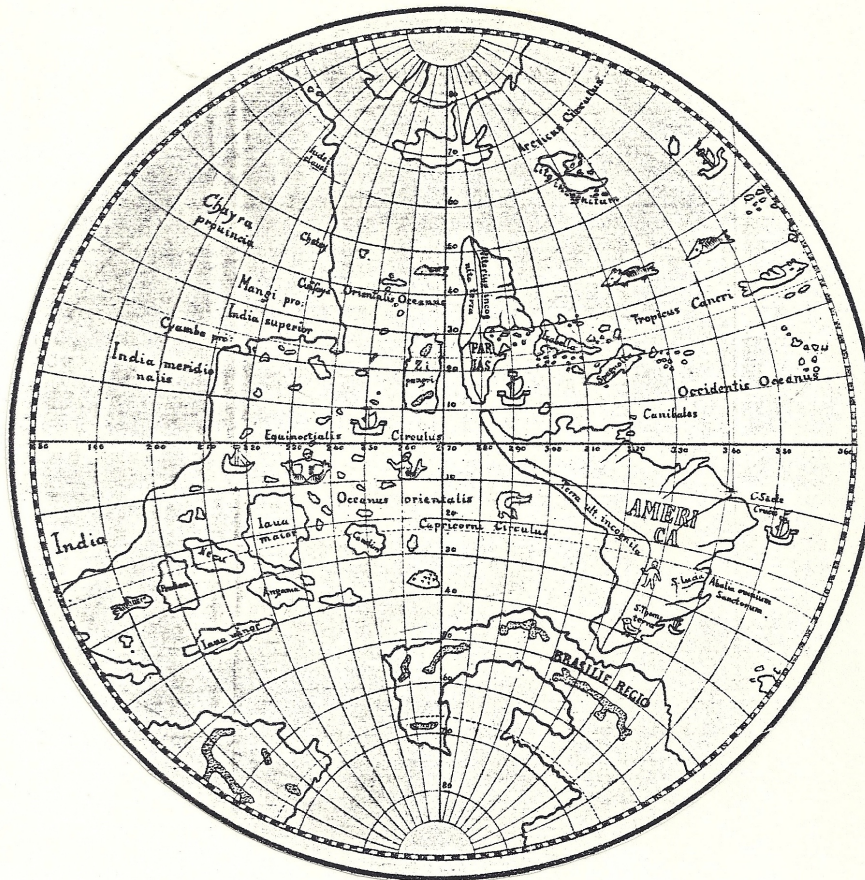


Outline of a world map attributed to Christopher Columbus showing only the classical three-continent world prior to 1492 (see monograph #257)

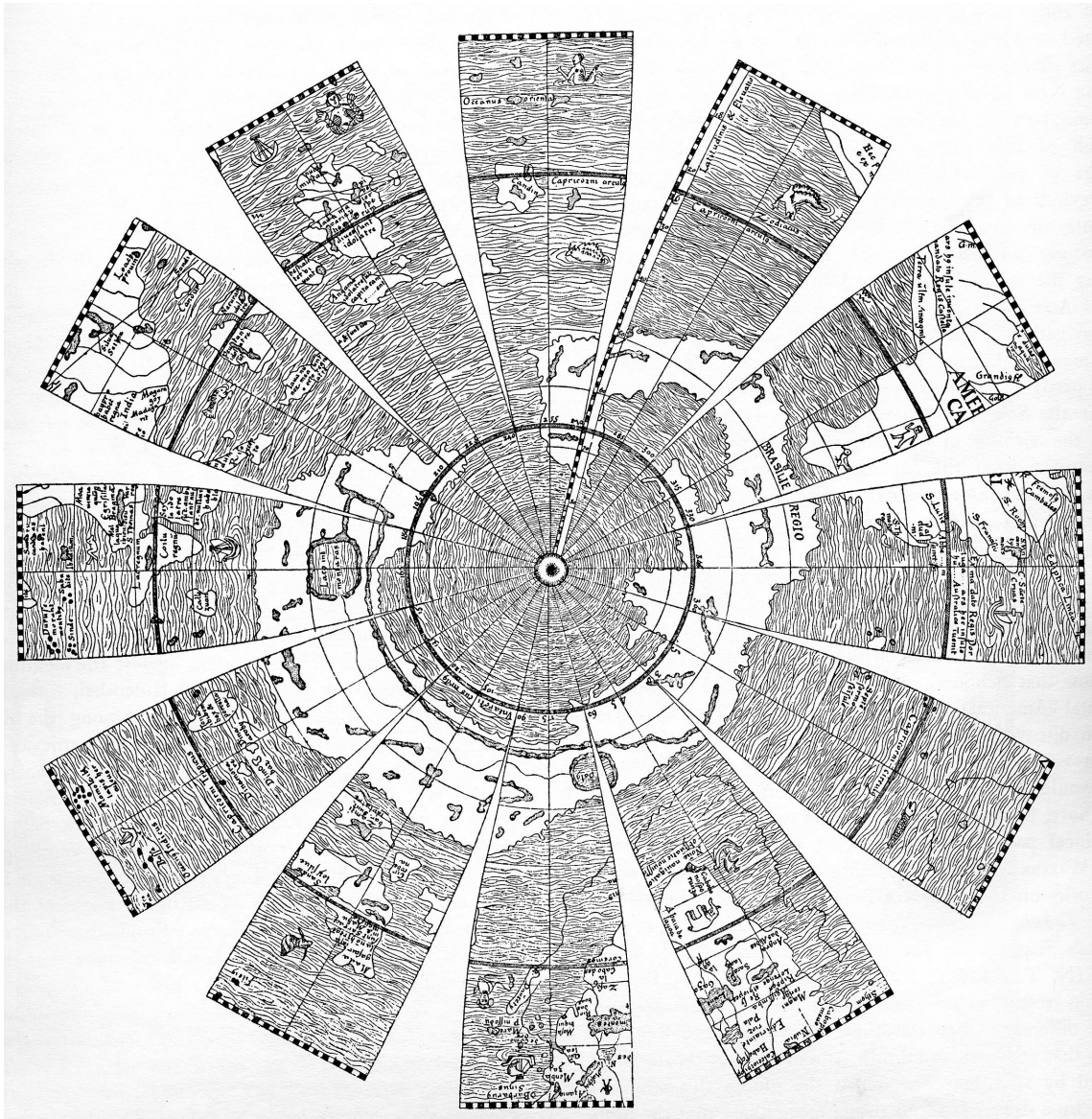
The mythical southern continent has always loomed as one of the most intriguing and most significant imaginative geographies of the recent past. Anyone with a passing interest in early modern cartography will have seen it at the bottom of ornate Renaissance maps—enormous, elusive and transfixing. The continent's list of names and guises suggests a pedigree that spans multiple ages and empires: *Antipodes*, *Magellanica*, *Beach*, the *Great South Land*, *Australia del Espiritu Santo*, *Gonneville Land*, *Jave la Grande*, *Terra Australis*, and the list goes on. In its various iterations, the mythical southern continent has been the single most potent receptacle for European geographical expectation about the southern hemisphere, and one of the shaping forces of early modern history. It pushed men to the farthest reaches of the earth in search of fame, riches, kingdoms, souls, and ultimately truth, in the process revealing worlds hitherto unimagined.

As discussed in Avan Judd Stallard's book *Antipodes, In search of the Southern Continent*, the question is why. To apprehend what happened in the search for a southern continent is nigh meaningless without understanding why it should have been so—why these people sought this imagined geography, why they so often failed to see the realities they encountered, and why this mythic continent held the gaze of an era famed for breaking free the shackles of superstition. To understand all of this is not merely to compare the real with the imagined, or discovery with expectation, but to try to understand the society, the era, and the individual as perceivers and constructors of reality.

Around the beginning of the 16th century, in the span of just a few decades, the *Antipodes* transitioned from a subject of occasional conjecture—as it had been throughout ancient and medieval times—to a geography proclaimed real. Powerful, influential people started believing not just that a southern continent might exist, but that a southern continent does exist.



A redrawing of the Western Hemisphere of Johannes Schöner's 1515 globe showing the Brasilia Regio south of the South American continent (#328)



Facsimile globe gores from Johannes Schöner's 1515 globe showing the yet-to-be-discovered (*Nondum cognita*) Antarctica labeled *Brasilie Regio*, 87 cm diameter (#328)

If it is a vast landmass spanning the breadth of the southern hemisphere that is sought, then the first printed map that can be verified to have depicted such a geography is Johannes Schöner's seminal globe of 1515. It would be natural to describe Schöner's southern landmass as unusual in its composition, given that it forms a broken ring of land encircling an Antarctic sea, rather than filling the entire space with land. On reflection, however, a better word would be unique, because the image of *Terra Australis* in its Mercatorian guise—the image most familiar to moderns in which a continent occupies the entirety of the more southern latitudes—is the product of years of evolution of this concept. As best is known, Schöner had no specific cartographic predecessor to draw upon (though, of course, the concept of a southern continent in one form or another was already established) when constructing his prototypical southern ring continent. In his

pamphlet Schöner describes the southern continent that he labels “*Brasiliae Regio*”:

It is but a little distance from the Cape of Good Hope, which the Italians call Capo de Bona Speranza. The Portuguese have circumnavigated this region, and found a crossing there quite similar to the configuration of the land in Europe, which we inhabit, and situated between the east and the west.

By comparing Schöner’s pamphlet with the 1514 German edition of a pamphlet titled *Copia der Newen Zeytung aus Presillg Landt* (roughly equivalent to “Tidings out of Brazil”), it is clear that Schöner relied on the German pamphlet for key tenets of data which formed the basis of his depiction of a southern continent. The following passage from that pamphlet inspired Schöner to conclude that there existed a strait around the south of Brazil, leading into the oceans of eastern Asia:

When they came to the [latitude of the] Capo de Bona Speranza [Cape of Good Hope] ... they found Brazil with a cape that is a point or place extending into the ocean. And they sailed around or passed this very cape and found that the same gulf lies as Europe does, with the side lying *ponente levante* [west to east], that is, situated between sunrise or east and sunset or west.

Then they saw land on the other side as well when they had sailed a distance of sixty miles along the cape in the same manner as when one travels toward the east and passes the Strait of Gibraltar and sees the land of Berbers. And when they had come around the cape as stated and sailed or traveled northwestward toward us, there arose so great a storm and also such a wind that they were unable to sail or travel further. Hence they had to sail through *tramontana*, that is, northward or midnight, and back again to the other side and coast which is the land of Brazil.

Based on the comments in this pamphlet indicating a strait had been found to the south of Brazil, Schöner considered he had empirical evidence of the existence of a southern landmass—given that the notion of a strait necessarily implies some form of neighboring southern land. Interpreting it to be of continental magnitude, Schöner named this land *Brasilie Regio* on the basis of his misinterpretation of references in the pamphlet to “lower Brazil”. For example, the pamphlet states, “They do not eat one another as is the custom in lower Brazil”, which Schöner took to be a reference to a second—lower—Brazilian continent.

Duarte Pacheco Pereira was a true Renaissance man: cosmographer, geographer, explorer, soldier. He wrote the geographical treatise *Esmeraldo de Situ Orbis* around 1508. Pereira begins by emphasizing his knowledge of classical authorities, and he endorses much of that knowledge, except where more recent discoveries have allowed him to rene it. He provides in his opening chapter a sketch of the earth’s system of zones; citing Strabo, Pliny and Pomponius Mela, Pereira elaborates on the question of habitability:

[Of the temperate zones] it is said that the Antipodes inhabit one part and we the other; they dwell on the opposite side of the earth, where the sun rises when it sets for us, and their feet are over against our feet, for which reason they are called Antipodes.

He goes on to acknowledge the ancient opinion that land is everywhere surrounded by sea, but disagrees. He quotes Genesis in support of his argument:

“Let the waters under the heaven be gathered together unto one place,” the words “unto one place” showing that the earth is not surrounded by the sea, for if it were so these words would not have been used or required ... It follows, therefore, that the earth contains water and that the sea does not surround the earth, as Homer and other authors affirmed, but rather that the earth in its greatness surrounds and contains all the waters in its concavity and centre; moreover, experience, which is the mother of knowledge, removes all doubt and misapprehension ...

From this foundation, Pereira then draws upon medieval authorities to interpret the discoveries in the Americas. To do so he must reconcile two potentially contradictory tenets. First, Pereira believed in antipodal lands over and above the discovery of land in South America. Second, he endorsed the notion that there are four parts of the world. He reconciles these premises by linking them in the most straightforward way possible:

Such is its [America's] greatness and length that on either side its end has not been seen or known, so that it is certain that it goes round the whole globe ... Many years before this land was known or discovered Vincent in the first book of his *Mirror of Histories*, chapter 177, said that “besides the three parts of the earth there is a fourth part beyond the Ocean to the South, where the Antipodes are said to dwell.” Since this land beyond the Ocean is so large and on this side we have Europe, Africa and Asia, it is clear that the Ocean is placed between these two lands, with land on either side of it, and we can therefore affirm that the Ocean does not surround the earth as the philosophers declared, but rather that the earth must surround the sea, since it lies in the concavity of the earth and its centre. Therefore I conclude that the Ocean is only a very large lake set in the concavity of the earth and that the earth and sea together form a sphere.
... [Indeed,] the water only occupies a seventh part of the earth, as is shown in the fourth book of the prophet Esdras ...: “On the third day Thou didst command the waters to be gathered together into a seventh part of the earth but six parts Thou didst dry up.”

In Pereira's cosmography, every mainland—imagined and real—is linked: the northern and southern American lands are one, and in turn they join with the Antarctic continent in the south, and the *oikumene* in the north. You can see just what this cosmography would have looked like in the 1519 map of Lopo Homem (see below). The Antarctic aspect of Homem's mega-continent is labeled, like Brazil, *Mundus Novus* [New World].

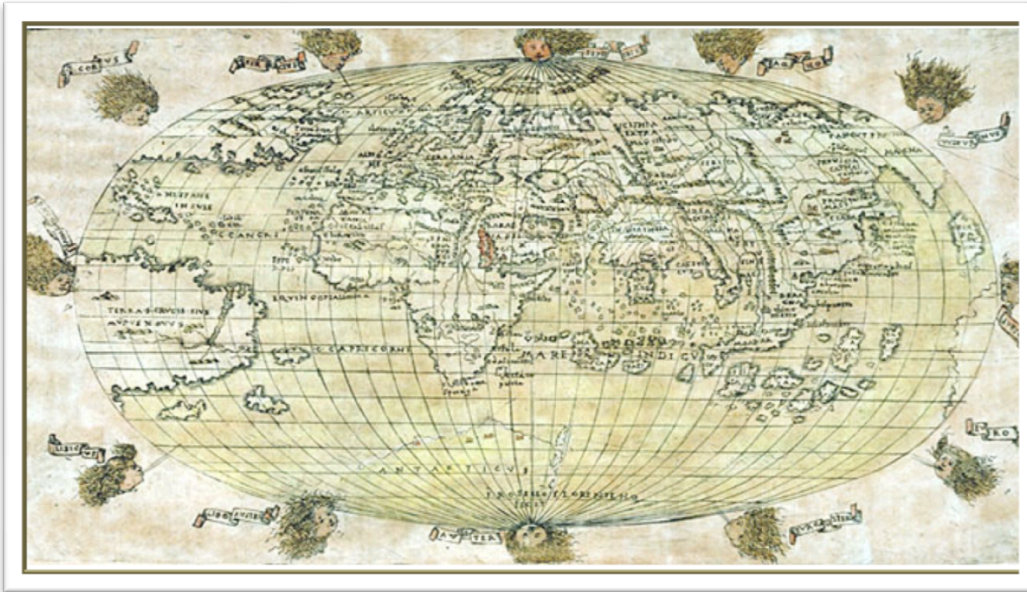


Planisphere world map in the Miller Atlas by Antonio de Holanda and Lopo Homem, 1519 tried to keep the classical tripartite continent concept alive by linking the new discoveries with Asia via a Ptolemaic-type southern land bridge.



World map by Francesco Rosselli, 1508, 14.5 x 28.5 cm showing an ambiguous Asian/new discoveries relationship and a yet-to-be-discovered southern continent that is pure speculation (#315)

With all this intrigue about the first map to depict South America connected to an Antarctic landmass, left in our wake is the first extant early modern map to unambiguously depict a southern continent: Francesco Rosselli's world map of 1508. The Greenwich version of this map is stunningly hand-colored, and there is, plain to see, a modest southern continent located to the south of the Cape of Good Hope. This is the first map that has passed down which shows a southern (not South American) continent depicted on a map which utilizes a latitudinal-longitudinal grid. Early maps like the medieval *Macrobian* type show a southern continent (#201), but it is generic and figurative—depicted conceptually, without any particular form or characteristics, because the only information being conveyed concerned the general theory that southern hemispheric lands might exist. In early modern maps—starting with Rosselli—the southern continent unavoidably acquires magnitude, location and geographical characteristics, in keeping with the rest of the map.



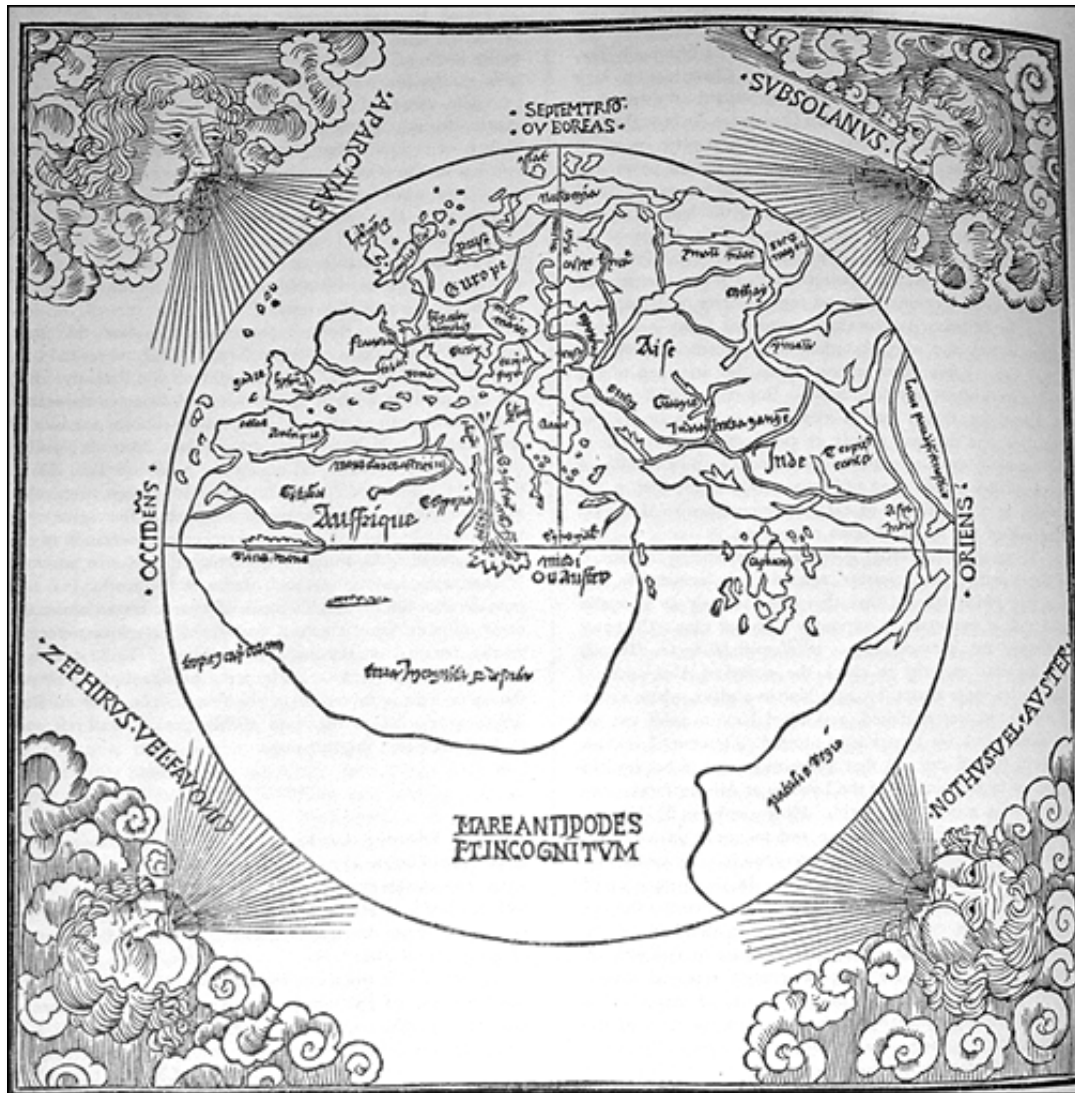
World map by Francesco Rosselli in Biblioteca Nazionale Centrale, Florence, Italy (#315)

Even more interesting is the Florence version of the Rosselli map which reveals a different kind of manuscript modification: the northerly coast of the southern continent has been extended east and west to the borders of the map, making the southern landmass circumfluent around the South Pole and turning it into an enormous continent filling the higher southern latitudes. Assuming the manuscript additions are contemporaneous with the map, it means that all of a sudden there exists a fully formed instantiation of the southern continent—a southern continent that approximates to the size and magnitude of the imaginary land that will come to be known in later years as *Terra Australis*. Of course, it is unclear exactly when the manuscript additions were made, but if they are anything like contemporaneous with the map then this would be evidence of the currency in the first decade of the 16th century of the notion that a vast continent existed in the unexplored southern latitudes of the globe.



*World map by Francesco Rosselli in the
National Maritime Museum, Greenwich, England*

The coastline cannot be confirmed as part of empirical lore, but what about non-empirical lore? In support of this possibility it is worth noting that the modest size of Rosselli's southern land is more in keeping with the ancient quadripartite cosmography of multiple non-oikumenical landmasses than if he had depicted a mainland sprawling right across the bottom of the map. However, not all is as it seems with this map. The stunning and most well known Greenwich version of Rosselli's map is not, in fact, faithful to the original print: it contains manuscript additions—meaning it has been altered by hand after being printed. Indeed, of the four extant copies of the 1508 Rosselli map, all contain different manuscript modifications to the original cartography. Thanks to the Holzheimer copy of the Rosselli map, a version that has not been colored, it is evident that the original print contained the northern border of a southern continent, but no southern border to complete the landmass. It was, then, in the first instance, a lot less suggestive than the bold image seen on the Greenwich version. Whoever colored the Greenwich version—as with the Zwickau version—added in a southern border to make a complete, insular landmass.



World map in Antoine de La Sale, *La salade*, 1521

The tripartite form of this image is consistent with that of a T-O map: circular, with a division into one half and two quarters. A rather standard representation of the northern hemisphere in the top half of the map that includes the terrestrial Paradise in the Far East. Africa is extended beyond the equator into "terra incognita et deserta" and Asia extends almost to the south pole thanks to "Patalis regio". The subequatorial sea is labeled "Mare Antipodes et Incognitum".



The western hemisphere in the Noua et integri universi orbis descripti, the Paris Gilt or De Bure Globe, 1528, which is post-Magellan, also labeling the southern continent Regio Patalis. Redrawing of this globe is shown below. (#344)



*A drawing of the Western Hemisphere on the Gilt Globe.
Note the joining of the New World discoveries with Cathay (China) and the display of
Magellan's historic circumnavigation. From Harrisse*



The South Pole on the Paris Green (Quirini) Globe. 1507-1528 (#342.1)



*1533 Anonymous world map in Vatican City from a copy of Ptolemy's Geographia with a highly detailed extensive southern continent, Terra Incognita australis.
MS Urb. Lat. 274, folios 73v-74r*

That this knowledge still retained currency at the turn of the sixteenth century is because, in the early modern period, ancient knowledge was venerated

for its antiquity and pedigree. Wherever new could be reconciled with old, it was. As seen above, the history of cartography contains other examples of the mapping of hypothetical or mythical geographical features, but the southern continent in the anonymous manuscript world map of c.1530 that is in Biblioteca Apostolica Vaticana MS Urb. Lat. 274, folios 73v-74r, surely ranks as one of the most extraordinary instances of cartographic invention. For here there is not only an entire hypothetical continent, but also a profusion of named rivers, capes, cities and ports within it. By giving names to these invented features, the mapmaker evidently hoped to lend an aura of verisimilitude to his creation. It is worth noting that although many rivers are marked on the known continents, relatively few are named, in contrast with the situation in the unknown southern continent.

This unusual feature forms an extravagant ring of land around the South Pole and is full of toponyms despite its designation as *Terra Inchoznita Australe*. Chet van Duzer's *Imago Mundi* article 59:2 2007: "Cartographic Invention: The Southern Continent on Vatican MS Urb. Lat. 274, Folios 73v-74r (c.1530)" includes a discussion of the map's toponyms in the known world and provides a comprehensive transcription and analysis of those of the southern continent. Many of the latter names seem to have been pure invention on the part of the mapmaker, but some are identical with those given by Columbus to features in Central America during his Fourth Voyage to the New World. The reasons for the placement of New World toponyms on the land to the south of Asia are also discussed.

As shown above, three globes that are earlier than the Vatican map portray an annular southern continent: Johann Schöner's 1515 and 1520 globes (#328), and the anonymous *Green* globe of c.1515 (#342.1). The southern continents on these globes are all similar, but the 'ring continent' on the Vatican map differs in both the abundance of named features and its shape. On the globes, the continent has a large break or opening south of eastern Asia, while on the Vatican map the continent is unbroken. Moreover, the northern coastline of the continent on the Vatican map is much more sinuous and varied, with several peninsulas, including a large peninsula jutting northward toward the *Catigara* peninsula in Asia and a second northward-jutting peninsula labeled *Regno Patalis* near the eastern edge of the map. Neither of these features appears on the globes. Thus it seems clear that the maker of the Vatican map was not directly inspired by these globes, and either gave his southern continent a shape of his own devising or was using a source which is now lost. Chet van Duzer believes that the depiction of this continent on the Vatican map is based on theories, like those of ancient Greece, that called for a balancing of land masses in the northern and southern hemispheres, and it is also possible that the continent was intended to represent the bounds God set on the waters during the creation of dry land (*Genesis* 1:9-10) and/or after the Noachian Flood (*Genesis* 7:11 and 8:2-5).

New worlds were opening up and, for those driven to make sense of it all, the idea of Antipodes became a crucial tool as they set about organizing the chaos of geographical fragments foisted upon them into some sort of cosmographic order. During this period empirical data was eagerly sought after, but it must be kept in mind that these early cartographers, cosmographers, raconteurs and entrepreneurs operated in a paradigm where conjecture and adherence to tradition was an accepted part of intellectual culture. That was, indeed, the very

nature of the cosmographical enterprise: to extrapolate and postulate based on available empirical evidence combined with theory, tradition and desire. Where data was wanting, other forms of knowledge were sought and trusted. The rigid delineation between the verifiable and empirical on the one hand, and the conjectural and unfalsifiable on the other—so common and important in modern times— simply did not exist in earlier times.



Nova et Integra Universi Orbis Descriptio, Ornce Fine, 1531, 16 x 11.5 inches, a polar projection (#356)



Recens, Et Integra Orbis Descriptio . . . , Oronce Fine, 1534, 51 x 57 cm

In his study of Schöner's globes, Franz von Wieser, found that the derivation of Fine's heart-shaped mappemundi from them was "unmistakeable"; he said "Orontius Finaeus took from Schöner not only the Brasilie Regio, but the whole Austral continent, the Strait of Magellan, and above all the whole arrangement of lands; in a word, the mappemundi of

Oronce Fine is a copy of Schöner's". The great continent dubbed Terra Australis recenter inventa sed nondum plene cognita [Southern land found recently but not fully known] and thought to extend up to the Magellan Straits to South America might appear to also comprise Australia, which is just to southeast of Java and Timor. The great gulf depicted in Terra Australis could then be a sketchy layout of the Carpentaria Gulf, in which the two islands of Groote and Wellesley are recognizable, or the Bonaparte Gulf, near Java and Timor. (#356)

A serious issue relates to the inevitable result of belief in a geography that does not exist: people set out to discover it, only to find it is not there. Yet from the 16th through 18th centuries, people kept on believing anyway, despite coasts of the southern continent being sailed through and disproved time and time again. Until the voyages of James Cook, there was no amount of violence that could be done to the imaginary southern continent sufficient to stop people believing. So why did people believe, and why did people continue believing, in a great southern continent? According to Stallard at the heart of it all is a simple

proposition. People believed in the southern continent because they wanted it to be real—it was a geography worth believing in. People then continued to believe in the southern continent in the face of overwhelming proof of its non-existence because authorities on the matter had always taught that it was real, and people still wanted it to be so.

Based on contemporary knowledge, there were, after all, only three likely possibilities for the composition of the southern hemisphere: land, water, or land and water. The prospect of unknown lands carried the potential fascinations of new worlds; the prospect of endless seas promised nothing.

As Hiatt states in his book, the history of cartography is not simply a narrative of the gradual documentation of the earth's surface; it is also the story of non-places, of lands that are not and never were, but that - often for considerable periods - existed on maps. The disappearance of *terrae incognitae* from the world image in the first half of the 20th century marked the conclusion of a process of predominantly European-sponsored exploration and colonization, underway since the 13th century, which resulted in the mapping of large portions of the globe. But the cartographic record makes it possible to consider the nature and significance of *terrae incognitae* in their historical contexts - as spaces integral to world maps, located outside of geographical experience, yet not beyond the bounds of geographical reasoning and imagination.

"Will your grace command me any service to the world's end?

I will go on the slightest errand now to the Antipodes..."

(William Shakespeare, *Much Ado about Nothing*, Act II, Scene 1)

Another map that profusely populated the seemingly unknown/unexplored southern continent is the 1597 world map by Giuseppe Rosaccio, now in the Liechtenstein Map Collection (Houghton Library). Another example of *horror vacui* [fear of empty spaces]. Below are some extracts from this world map. Many of the images appear to be those from the New World of the Americas. This world map can be seen at the Harvard Library website.

A real, but unknown southern continent. It brings to mind the phrase coiled across countless southern continents in the cursive script of irony-free cartographers: *Terra Australis nondum cognita*. The translation varies with the specific Latin phrasing, but the message was consistent: the southern continent not yet known, the southern continent not yet discovered. The implication is unambiguous: while it may not be known, it is known to exist. While it is not yet discovered, it awaits discovery. These were not suggestions of possibility; they were promises of reward to the suitably industrious and bold. Just what form existence would take, nobody could be completely sure. Nevertheless, more than a few offered suggestions. Reasoning by analogy, extrapolating from the known and nearby, projecting from understandings of climatic zones, postulating based on latitudinal determinism, enlarging rumor, employing deductive reasoning based on fragments of geographical data, resorting to imagination precipitated through the filter of desire—that is how the southern continent came to take form. It was not a form fixed and unchanging like the geocentric earth of God's creation; the southern continent would change based on what was known and desired, and was the more potent for it. Even better, the form was tangible, the sort of form

The Concept of the Antipodes as Displayed on Maps

5.5

that could be described in instructions to explorers and navigated toward with the maps of cartographers.



The Concept of the Antipodzs as Displayed on Maps

5.5



Captain James Cook is famed for discovering the eastern coast of Australia in 1770. That he should have done so was by no means inevitable, for on that first expedition his instructions were not to reconnoiter the emerging land of *New Holland* (Australia), but to discover the region of *Terra Australis* thought to lie in

the southern Pacific. Cook eventually reached the Australian coast only because he had an insatiable geographical curiosity, and he had already completed the expedition's main objective, having found no evidence of a southern continent. Contemplating this hierarchy of objectives for Cook's expedition helps bring into relief the very real distinction between Australia and *Terra Australis*. In modern times Australia is often referred to as *Terra Australis*, the Great South Land, or any one of the many names associated with the mythical southern continent. It is a practice that conflates two entities into one when, within the discourse of the 17th and 18th centuries, *Terra Australis* and Australia were considered separate geographies. Both before and after Australia was known to exist, *Terra Australis* operated as a distinct geographical entity. Hence, while *Terra Australis* and Australia share parts of a history, they are no more synonymous than *Terra Australis* and New Zealand, *Terra Australis* and Tierra del Fuego, or *Terra Australis* and Vanuatu. It is no spoiler to this history to note that the corporeal entity of *Terra Australis* did not and does not exist. But in other ways the southern continent did exist. It existed as a concept, as an idea, as a geographical entity as real to its advocates as if it was rock and dirt. It was part of the intellectual landscape of the early modern period, its presence in cosmography determining many of the maritime exploits of the Age of Discovery. It was a defining influence right up until Cook sailed to the South Seas to declare, "I refute it thus!"

Alfred Hiatt summarizes the discussion with the following. Traditions of representation of the *Antipodes* cut across boundaries of religion and time. To take perhaps the most significant example, Cicero's late antique commentator Macrobius illustrated his exposition of the *Dream of Scipio* with a world map that showed unknown, antipodal, land in the southern hemisphere. The map of Macrobius was copied from the ninth to the 15th century (#201). Yet the scribes who copied the map altered its form, expanding ecumenical areas, occasionally juxtaposing the comments of Augustine, and from time to time relocating and reconfiguring the image. Is it possible to consider such a mode of representation in terms of period? The map of Macrobius illustrates Cicero's theories; it was produced for a text written in the fifth century; there is reason to think that it was wholly or partially reconstructed in the tenth. It underwent significant adaptations in the 12th century, and a revival of interest in the 15th as a result of humanist interest in Cicero. Is the map classical, late antique, medieval, or Renaissance? Does it not rather belong to any period in which it was reproduced? Contemplation of the broader questions of *terra incognita* and the antipodes suggests that we might do better to think in terms of dialogic relations in more than one temporal direction. To show unknown, antipodal, land on a map - whether of the third, ninth, 13th, or 16th centuries - was to show an ancient land, the product of long-held theories; it was simultaneously a land of the present, for those theories were still considered valid; and it was a land of the future, since it always carried the possibility of the contact and conquest to come. To mark unknown land on the map was to use a different order of representation. It is not simply that such representation was fictive, or imaginative, since elements of fiction and imagination were to be found also within *terra cognita*. Rather, *terra incognita* constituted an a-cartographic mode of representation within the map, uncharted land that nevertheless appeared on the chart. Such land was stripped to its raw essentials, to its fundamental idea: *terra incognita* was land unknown but

not unthought.

The horror of the void. This is a borrowed phrase used to describe the geographical and cosmographical imaginings observed in older societies; societies that go to great lengths to fill the unknown spaces of the world with places, whether they are the subject of conjecture, myth, or the whim of imagination. It is the anthropomorphic version of Aristotle's *horror vacui*: it is not nature, but mankind who abhors a vacuum. There is some obvious truth to this, for all societies attempt to make sense of their world, no matter how limited their knowledge or intellectual tools. But is this filling of the void the manifestation of a horror of that void – of anxiety and loathing – or something else? Perhaps it is not a sense of repugnance which makes humankind fill these voids, but a response to opportunity – the opportunity to affirm existence by creating an idea or an image that reflects how one sees self, community, civilization.

However, as noted, throughout history imaginative geographies have proved to be of profound durability. For centuries an imaginative geography can undergo revision after revision to make that geography compatible with new data; only once that process is exhausted, or once the geography is so diminished as to no longer be worth believing in, is an imaginative geography likely to be discarded. This response to geographical dissonance is a predictable product of the specificity that characterizes empirical data for, whereas empirical data is usually tied to a particular space, even spatially explicit imaginative geographies like the North-West Passage remain largely indeterminate within broad parameters. Indeed, the key to the resilience of imaginative geographies against evidence of their non-existence lies in the dissociation of spatial location from ontological verity. So long as there remains a space on the map which is *nondum cognita* and that space conforms to the basic requirements of the given geography – perhaps being in a certain hemisphere or continent, or of a certain size, or in a certain climatic zone – geographical fictions may be revised, uprooted, or redeployed as required, allowing them to survive the repeated rigors of empirical falsification. For *Terra Australis*, it was in the wake of the Spanish and then the Dutch voyages that this process began in earnest.

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