

## THE SOUTHERN LIMITS OF AFRICA IN ANCIENT GEOGRAPHY

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Hellenistic scientists were well aware of the fact that Africa had once in the north-west been connected to Europe and in the north-east had not always been joined to Asia. The concepts of geological time and of the horizontal movement of continental plates were of course not within their reach, but their conclusions were nevertheless based on sound scientific observation and reasoning. Our most important source for the history of ancient geography till Augustan times is the *Geographia* of Strabo, written between 9 and 5 B.C. and partly revised in A.D. 18–19 (Dilke 1985:62). Strabo quotes the physicist Strato of Lampsacus (died c. 270 B.C.) on the existence of a submarine ridge between Spain and Morocco, and he states that excavations on the Isthmus of Suez produced seasand and shells proving that it had once been covered by a body of water that had formed a connection between the Mediterranean and the Red Sea (1.3.4). These matters were of interest to Homeric commentators when they touched upon the wanderings of Odysseus and Menelaus, since the former was thought to have sailed through the strait at the Pillars of Hercules into the Atlantic,<sup>1</sup> and the latter in the account of his travels to Telemachus had stated that his wanderings had taken him to the Ethiopians (*Od.* 4, 81–86). Since Homer recognises two groups of Ethiopians “abiding both where the sun sets and where he rises” (*Od.* 1, 24), the eastern Ethiopians were considered by some to be the inhabitants of India, and the western to be the African blacks living on the southern shores of Africa. Homeric commentators argued the case for either of these two groups as hosts of Menelaus. A contemporary of Strabo, the grammarian Aristonicus, had written a book *On the Wanderings of Menelaus* in which the problem was addressed of how Menelaus could have been able to reach either India or the southern limits of Africa by ship (Strabo 1.2.31). There were several possibilities. One was that Menelaus had travelled around Africa through the strait at the Pillars of Hercules, which would have made him the first European reputed to do so. Those who considered the Indians to be the Ethiopians visited by Menelaus, used the duration of Menelaus’ voyage—eight years—as an argument to support their theory (*ibid.*). Another theory was that the Isthmus of Suez was at that time still submerged so that Menelaus could have crossed it by ship. Strabo rejects this possibility on the grounds that in that case Odysseus could not have sailed into the Atlantic, because the lowering of the level of the Mediterranean which had resulted in the emergence of the Isthmus of Suez was supposed to have been caused by the breaking of the landbridge at the Pillars of Hercules. Therefore, if Menelaus

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<sup>1</sup> On his voyage to the Ocean stream and the Cimmerians (*Od.* 10.506–510; 11.9–19, 639–640; 12.1–2)

had been able to sail from the Mediterranean into the Red Sea, Odysseus could not have sailed from the Mediterranean into the Atlantic, and vice versa (*ibid.*).<sup>2</sup>

The division of the known world into continents probably originated in Ionia during the sixth century (Bunbury 1879:1.146). Homer knew nothing yet of such a division.<sup>3</sup> By the end of the sixth century the tripartite division must, however, have been accepted because it forms the base of Hecataeus' *Periodos Gēs*, despite the fact that he describes Europe in one book and Asia and Africa together in the second (Bunbury 1879:1.145–146; Thomson 1948:66). For many centuries afterwards there existed difference of opinion among geographers as to the true boundary between Africa and Asia. Some argued for the Nile, others for the Red Sea.<sup>4</sup> Herodotus scoffs at the former, at the same time making a case for the recognition of a fourth continent: the Egyptian Delta which, he argues, originated independently from the other continents as alluvial land (2.14–16). About the borderline between the two continents he states that “the only true boundary between Asia and Libya is formed by the frontiers of Egypt”. In this he is supported by Strabo who refers to those who took this frontier—the Red Sea—for a more natural border between the two continents as “the later” (17.1.5) and “more able” (1.2.28) geographers. Nevertheless he himself names the region between the Nile and the Red Sea as part of Arabia (17.1.21; 17.1.30) and he gives a description of this region in the section dealing with Arabia (16.4). So does Pliny the Elder (*N.H.* 6.178) who clearly still considers the Nile as the dividing line between Africa and Asia (*N.H.* 3.3).

The ancient geographer set himself as a task to study and describe only the inhabited world or *οἰκουμένη*. As Strabo states: “The geographer takes into his purview only this our inhabited world (*ταύτην μόνην τὴν καθ' ἡμᾶς οἰκουμένην*),<sup>5</sup> and its limits are marked off on the south by the parallel through the Cinnamon-producing Country (Somalia) and on the north by the parallel through

<sup>2</sup> A third theory, that there had been a man-made canal linking the Nile in northern Egypt with the Red Sea, Strabo rejects on historical grounds, because the first attempt to build such a canal had been undertaken by King Necho c. 600 B.C. (Herod. 2.158; 4.39; Strabo 1.2.31 (wrongly attributing it to Sesostris); 17.1.25). The undertaking was finally completed under Ptolemy II (Strabo 17.1.25; Diod. Sic. 1.33.1; Plin. *N.H.* 6.165–166). See W. H. Gross in *Der Kleine Pauly*, s.v. Kanal. Strabo himself is of the opinion that Menelaus had merely reached Ethiopia's northern border with Egypt by sailing up the Nile (1.2.32).

<sup>3</sup> Homer does not mention Europe or Asia, and Libya is only named as a region of great fertility west of Egypt (*Od.* 4.85–86; 14.295). Libya would keep this meaning with a later extension to indicate the whole of Africa. Asia occurs only in *Il.* 2.461 as a local appellation: “the Asian meadows on the banks of the Cayster”. Europe is first found in the ‘Homeric’ Hymn to Apollo. The appellation refers there, however, to continental Greece as opposed to the Peloponnese and the islands.

<sup>4</sup> Then named the Arabian Gulf. The name ‘Red Sea’ referred to the Gulf of Aden and the Arabian Sea.

<sup>5</sup> Elsewhere he limits the geographer's field of study to “the *known* parts of the inhabited world” (2.5.5). Ptolemaeus gives similar definitions: *Geographia imitatio est picturae totius partis terrae cognitae* (*Geog.* 1.1); ... (*terrae*) *nostrae habitabilis describere orbem* (*Geog.* 1.2).

Ierne (Ireland)" (2.5.34).<sup>6</sup> Since ancient geographers were only interested in the inhabited world, the degree of inhabitability played an important role in their deductions. Ancient geography was not restricted to the earth's surface and features, but included fields such as zoology, ethnology, and cultural anthropology. In establishing the degree of inhabitability of a country or region these factors were taken into account and inevitably Europe was normative here. Strabo therefore finds fault with those geographers who divide the *oikoumene* into three continents, because, as he says, "this threefold division indicates a division in three equal parts" (17.3.1). This conclusion, which would be a *non sequitur* to us, is only understandable in the light of the premises of ancient geography and the feelings of cultural superiority of its Graeco-Roman practitioners with regard to the rest of the world and of Europe's superiority in the eyes of Greek and Roman geographers.

Strabo begins his general description of the three continents early in his work by saying: "But I must begin with Europe, because it is both varied in form and admirably adapted by nature for the development of excellence in men and governments, and also because it has contributed most of its own store of good things to the other continents." Among Europe's qualities through which it excelled over the other continents he names its largely temperate climate, its wealth in agricultural produce and minerals and its scarcity of wild animals (2.5.26). Strabo's notions were shared by others. Pliny calls Europe "nurse of the race (i.e. the Romans) that has conquered all the nations, and by far the loveliest portion of the earth, which most authorities, not without reason, have reckoned to be not a third part, but half of the world" (*N.H.* 3.5). In the light of such prenotions Strabo's hesitation to give Africa the same status as Europe and Asia is understandable. Not only, he says, may Africa be the smallest of the continents, but it is also "much inferior in power, for the greater part of the interior and of its ocean-coast is desert, and it is dotted with settlements that are small, scattered, and mostly nomadic; and in addition to its deserts, its being a nursery of wild beasts drives people out even from land that could be inhabited" (17.3.1).

The shape of Africa as imagined by Strabo is that of a right-angled triangle, "having as base the coast opposite us, from Egypt and the Nile to Maurusia (Morocco) and the Pillars, and as the side perpendicular to this, that which is formed by the Nile as far as Ethiopia and by me produced to the Ocean, and as the side subtending the right angle the whole of the coast between the Ethiopians and the Maurusians" (17.3.1; see fig. 1). He emphatically states that he can only speak from conjecture about the vortex (*κορυφή*) of his figure "which begins approximately with the torrid zone", i.e. the region on both sides of the equator which was considered too hot for human habitation and therefore not part of the *oikoumene*. Strabo places the southernmost limit of Africa at between thirteen and fourteen thousand stadia or

<sup>6</sup> Strabo does not believe in the famous, far northern land/island of Thule (Norway? Iceland?), six days' sail north of the British Isles, where the sun at midsummer is constantly visible, and which was described c. 330 B.C. by the Massilian Pytheas. Strabo calls him an "arch-falsifier" (1.4.3).

c. 3000 km south of Alexandria (*ibid.* and 1.4.2). In calculating the maximum breadth of Africa Strabo uses the distances worked out in the third century B.C. by the great Alexandrian geographer Eratosthenes (1.4.2; 17.3.1). The most southern town known in inland Africa in Eratosthenes' time was Meroë, capital of an important Egyptianized Ethiopian civilization. From there to the parallel that defined the southern limits of the *oikoumene* and which ran through the 'Cinnamon-producing Country' was, according to Eratosthenes, a distance of 3400 stadia or 425 Roman miles or 752 km. (1.4.2). Strabo allows a maximum of one thousand stadia for the distance between the end of the *oikoumene* and the southern ocean (17.3.1), which means that he imagines Africa to end 550 miles or close to 1000 km south of Meroë approximately on the 10th parallel running through Ethiopia and Somalia. This notion seems to have been widely held by Hellenistic and Roman geographers. It would only change with the expansion of the trade routes down the east coast starting in the reign of Tiberius, i.e. during Strabo's old age. The Elder Pliny, who could already have known better but relied much on outdated sources, gives a distance of 5000 stadia or 625 miles as the one that "authorities are virtually all agreed on" for the distance from Meroë to the south coast (*N.H.* 6.196).

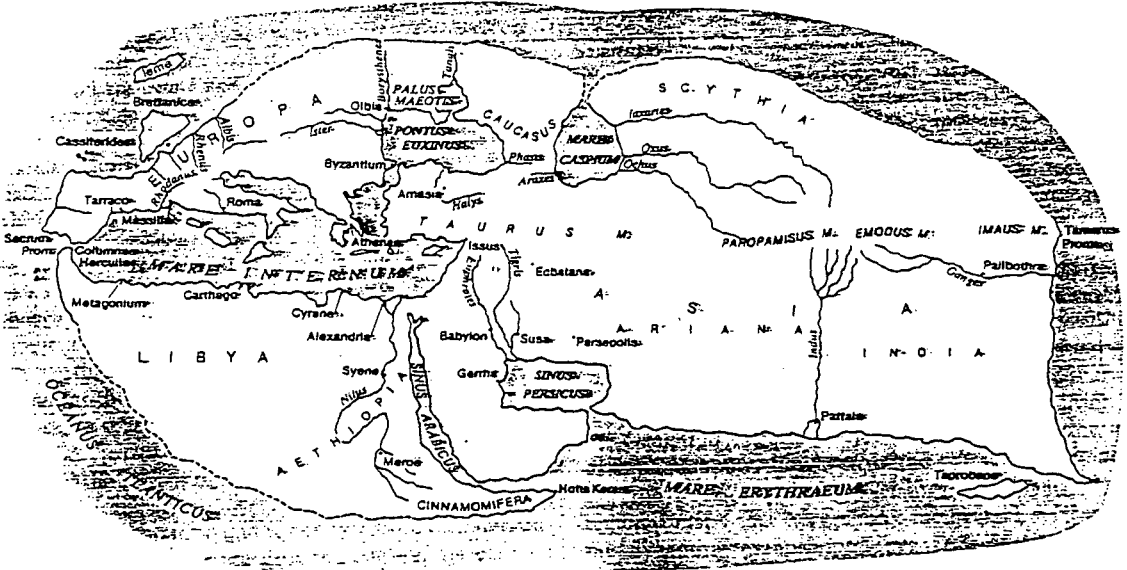


Fig. 1 The inhabited world according to Strabo

The notion that the end of Africa was to be found not very far south of Egypt was strengthened by the nature and the name of the people living there: the Ethiopians, which was the generic name for all the black people of Africa. Originally, however, the name 'Ethiopian' had nothing to do with Africa. The first Ethiopians were a purely mythological creation (Lesky 1959:29-35). They were the people living in

the extreme east, who had their faces scorched (*αἰθι-ορες*) by the nearness of the rising sun. They were credited with supra-normal qualities like extreme longevity (*Herod.* 3.23) and innocence (*Il.* 1.423)—as were other people living at the edges of the world (Lesky 1959:32–33; Romm 1992:45–81). The Ethiopian ally of the Trojans, Memnon, son of Eos, naturally came from the east, and the Homeric gods, when they retreated to the Ethiopians for hecatombs of bulls and lambs (*Il.* 1.423–424; *Od.* 1.22–25; 5.282), always went to the east (Lesky 1959:31). At a later stage, but already before Homer's time, Ionian rationalism demanded the existence of another nation of 'burnt-faces' in the west, scorched by the setting sun (Lesky 1959:34–35). Hence these two nations form in Homer "the Ethiopians that are sundered in twain, the furthestmost of men, abiding some where Hyperion sets and some where he rises" (*Od.* 1.23–24). While India was not yet known, the Greeks became aware, and this also before Homer's time, of the existence of dark-skinned people living to the south of Egypt, and these now became the third kind of Ethiopians, despite the inconsistency provided by their southern habitat. These Ethiopians also occur in Homer, as the ones visited by Menelaus (*Od.* 4.81–86). Only from the sixth century onward and especially later as a result of Alexander's expedition, did the Greeks become acquainted with the dark-skinned people of India who could now fill the place of the original Ethiopians of the east (Bunbury 1879:1.142).

Hellenistic geographers went to considerable length trying to reconcile all these different Ethiopians—of the east, the west and the south—with the geographical realities of their own time. The problems were legion for those who, like Strabo, took Homer seriously. While not going so far as to endow Homer with all knowledge, Strabo and others accepted as natural that the bard possessed vast knowledge of areas that belonged to poetry's domain, like generalship, rhetoric and geography (1.2.3). He vehemently opposes Eratosthenes' declaration that poetry is "a fable-prating old wife, who has been permitted to invent whatever she deems suitable for purposes of entertainment" (*ibid.*). An important problem for Hellenistic geographers and commentators of Homer alike was to decide what Homer meant by the Ethiopians' being "sundered in twain". Strabo discusses the different possibilities but decides for himself that Homer must have referred to the Red Sea as separating the Ethiopians living on the southern seaboard of Africa from those living in the southern regions of Asia (1.2.24–26).

The occurrence of Ethiopians in the south of Asia and of Africa seems to have led to the notion that the southern regions of the two continents were in some way connected. So did the fact that elephants are found in both continents (*Arist. De Caelo* 2.14.298a). The mystery of the sources of the Nile also favoured this misconception. Alexander the Great, when he first came to the Indus, was convinced that it was the Nile (*Arrian Anab.* 6.1; Strabo 15.1.24) and Vergil describes the Nile as "the river that has swept unbroken down from the coloured Indians" (*Georg.* 4.293).<sup>7</sup> The perception that there existed a vast *terra incognita* connecting Africa

<sup>7</sup> Pausanias connects the Nile with the Euphrates (2.5.2). Cf. further Aeschylus *Suppl.* 284–286; Polybius 3.38.1; and Seneca *Quaest. Nat.* 5.10.2.

and Asia, which turned the Indian Ocean into an inland sea, may have been furthered by the fact that Indian produce reached the Graeco-Roman world via *emporia* on the African coast of the Red Sea (Cary & Warmington 1963:122).

Since the Ethiopians were "the furthestmost of men" (*Od.* 1.23), the regions where they lived could not be far removed from the edge of the world. The calculations of the Hellenistic geographers with relation to the distance from Meroë to the shores of the ocean therefore neatly fitted their presumptions derived from Homer's utterances. Now we must look at the deductions ancient geography derived from knowledge empirically obtained with relation to the southernmost edges of Africa. The shore south of Egypt had not ever been seen by anybody. The west coast, however, had already been explored by sailors for many centuries and, by Strabo's time, also the east coast. The furthest points reached by these explorers were of importance for map-makers, because, as Strabo says, referring to cases where frontiers of the known *oikoumene* were prevented by intermediate stretches of land from being navigated: "it will suffice to fill out and complete the outline ... by joining with a straight line the extreme points reached on the coasting voyages made on both sides of the *oikoumene*" (2.5.5). The application of this principle in the case of Africa resulted in the hypotenuse of Strabo's right-angled triangle, which was formed by "the whole of the coast between the Ethiopians and the Maurusians" (17.3.1). Exploration of the east coast had by Strabo's time indeed not proceeded past the 'Cinnamon-producing Country'. The beginnings of the supposed southern shore-line on the 10th parallel through Somalia is therefore in accordance with the information available in his day. It is different, however, with Strabo's representation of the west coast. Even when we accept that Strabo's triangle is meant to resemble its geometric prototype only by approximation, it still means that Strabo does not consider the west coast of Africa as having been explored in a southerly direction very far. His description of the west coast is indeed almost totally limited to Maurusia (Morocco). He mentions the Canaries (Isles of the Blest; 1.1.5; 3.2.13) and the fact that south of Maurusia "the western Ethiopians" are living (17.3.5),<sup>8</sup> but nothing more. Most strange is Strabo's silence about the expedition of Polybius shortly after the destruction of Carthage, in which the Senegal River was probably reached (Pliny *N.H.* 5.9; 6.199). Strabo knew Polybius' work well. He made extensive use of Polybius' *Histories*, and his own historical work, which has not survived, was intended as a continuation of Polybius' work (11.9.3). Nevertheless Strabo remains silent about this unique Roman expedition down the west coast of Africa. Polybius was probably inspired by the famous voyage of the Carthaginian Hanno c. 500 B.C. of whose account a Greek translation has survived.<sup>9</sup> Hanno's expedition ended three days after seeing a high mountain called "Chariot of the Gods" (*Ὀχημα θεῶν*) by his interpreters. This mountain has been diversely

<sup>8</sup> 'Western' here as distinguished from the eastern Ethiopians south of Egypt.

<sup>9</sup> *Geographici Graeci Minores*, vol. 1.1-14; Cary & Warmington 1963:63-68; Thompson & Ferguson 1969:5-7.

identified as either Mt. Kakulima in Sierra Leone (Cary & Warmington 1963:67) or Mt. Cameroon (Thompson & Ferguson 1969:6). Carthaginian traders were going down the coast regularly to at least the Senegal basin to exchange their products for gold (Hdt. 4.196). It is possible that the Romans, after the fall of Carthage, had an eye on this trade and therefore allowed Polybius his expedition.

The 'Chariot of the Gods' and the nearby cape called 'Western Horn' by Hanno's Phoenicians, would remain the two beacons on the horizon of exploration down the west coast during antiquity. In the middle of the second century AD Claudius Ptolemaeus seems to define the mountain clearly as Mt. Cameroon by placing it almost correctly on a latitude of 5°N (*Geog.* 4.6). Ptolemy's latitudes of the west coast are, however, in many cases incorrect. The mountain and the Western Horn were probably also the ultimate points in a major geographical feat of Strabo's time about which he is totally silent, the Map of Agrippa in the Porticus Vipsania in Rome. This map of the *oikoumene*, engraved or painted on a wall, was a monument to Roman imperialism and had probably been an initiative of Julius Caesar (Dilke 1985:40-43; Harley & Woodward 1987:205-209). Its continuation had been entrusted to Agrippa by Augustus, and though it had not been completed by the time of the former's death, it must have been completed when Strabo was in Rome after 14 A.D.<sup>10</sup> The Elder Pliny uses it as a major source of geographical information, also naming the *Promontorium Hesperium* and the *Ochēma Theōn* as the terminus of exploration (5.10) while he optimistically thinks that here the halfway mark on the circumnavigation of Africa has been reached (6.197).<sup>11</sup>

If Strabo ignores the data about the west coast which had been collected by his time, his interest and belief in reputed circumnavigations of Africa is not much more positive. Of the earliest one known, by Phoenician sailors sent out by the Egyptian king Necho around 600 BC, he only says that Poseidonius says that Herodotus believes that it was accomplished (2.3.4). A similar indirect statement is made about the claim to a circumnavigation by "a certain Magus" at the court of Gelo of Syracuse (*ibid.*). Poseidonius had found these reports unsupported by testimony. Strabo then launches a lengthy attack on Poseidonius for doubting the veracity of these voyages while believing in the colourful adventures of a certain Eudoxus of Cyzicus from the second century, and his claims that he had found material proof that ships from Cadiz regularly made west to east trips around Africa (*ibid.*).

Up to today the historicity of none of these reported circumnavigations has ever been proved, and it probably never will (Cary & Warmington 1963:111-128). If they took place they certainly did not result in any understanding about the extent

<sup>10</sup> That Strabo visited or stayed in Rome after 14 A.D. is evident from his description of the Mausoleum Augusti (5.3.8).

<sup>11</sup> Pliny names the Cape first and then the mountain, as Hanno did, while Ptolemy gives a reversed order. The many capes on the west coast naturally led to confusion. It seems that Pliny may here be following Hanno and/or Polybius (J. Desanges in the Budé-edition of bk 5.1-46 *in l.c.*). Agrippa is, however, the source mentioned by Pliny for this section and it is unthinkable that the two beacons would not have occurred on his map.

and course of Africa's coasts. None of these sailors left a route description such as the (sketchy) one of Hanno. Of the circumnavigation by Necho's Phoenicians we only know what Herodotus tells us (4.42): that the Phoenicians entered the ocean from the Red Sea, put in every autumn on the African coast to sow and harvest, reached the Pillars of Hercules in the third year and, what Herodotus does not believe, that they had the sun on their right—in the north—when they sailed around the southern end of Africa. The reason why Herodotus could not accept this statement about the position of the sun at midday was not because he thought it impossible that the sun could ever be seen in the north anywhere in the world. In Herodotus' time the changes in the position of the sun when one travelled south were well known. Herodotus had visited Elephantine (2.29) near the tropic of Cancer, where the sun is almost overhead during the summer solstice and south of which the shadows sometimes fall 'the wrong way'. His disbelief of the Phoenicians' statement is therefore not a result of primitive incredulity, but stems from the fact that he, like Strabo, could not believe that Africa stretched over the equator into the southern hemisphere.

There were, however, persons who could imagine an African continent continuing further and further southwards. One of these was Aristotle who in his *Meteorologica* depicts a world with two parallel *oikoumenai*—one in the northern and one in the southern hemisphere—separated by the zone between the tropics which is too hot for habitation.<sup>12</sup> He does not indicate whether he thinks the southern *oikoumene* contains human life, only that the winds in both zones must mirror each other (2.5.362a–b). Earlier, Plato had Socrates say that outside the world known to the Greeks there are probably a great many similar regions (*Phaedo* 109A–111C). Strabo considers such theories plausible but, if these regions are inhabited, he says, they are certainly not inhabited by men such as exist in our own *oikoumene* (2.5.13). This is all he wants to advance because, as he says, such speculation does not belong to the geographer's domain, but to that of another science, i.e. philosophy (*ibid.*), thus drawing a line between the speculative and the empirical sciences. As a geographer he is only interested in that part of the world "which falls within our map".

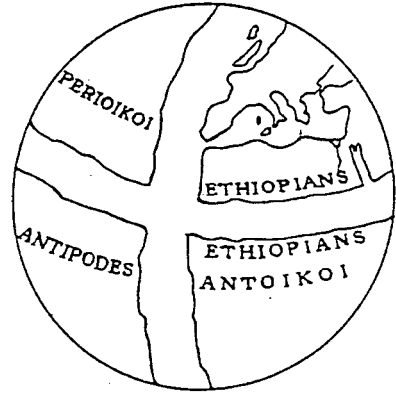
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<sup>12</sup> Strabo differs from Aristotle in that the latter believed the whole region between the two tropics to be uninhabitable, while Strabo reckons that less than half could not support human life (2.2.2).





*Fig. 2 Modern map of Africa*



*Fig. 3 Reconstruction of the world of Crates*

Speculation about worlds outside the known inhabited world are indeed mostly to be found in the works of philosophers. The polymath Crates of Pergamum (or Mallos; second century BC) pictured a world consisting of four symmetrical land-masses, of which Europe-Asia-Africa formed one, with a mirror continent on the southern hemisphere (fig. 3).<sup>13</sup> The four continents were separated by two belts of ocean, one of which ran along the equator and was equal to the torrid zone (Strabo 1.2.24). Theories like those of Aristotle, Plato and Crates that were purely speculative must be understood against the background of the persistent presupposition in Greek thinking that what is real is rational, and what is rational is real, and that geometric form and symmetry are the ideal models of reality (Wartofsky 1968:69-95).

There were others who, like Aristotle, believed in the possibility that the east and west coasts of Africa did not join north of the equator, but continued southwards over a long distance, maybe as far as the southern pole. Polybius (3.3.8.1) was one of them. Strabo describes their belief as a misconception originating from the frustration of "all those who have made coasting-voyages on the ocean along the shores of Africa, whether they started from the Red Sea or from the Pillars of Hercules". These people, he says, always had to turn back "because they were hindered by many perplexing circumstances; this left in the mind of most of these

<sup>13</sup> In this way he also provided an original solution to the problem of Homer's Ethiopians who were "sundered in twain" (Strabo 1.2.24).

people the conviction that the intervening space was blocked by an isthmus" (1.2.26). Of the "perplexing circumstances" which prevented a circumnavigation, the notorious doldrums around the equator may have been the most obvious. We find a possible reference to them in Herodotus' story of the aborted west-to-east expedition by the Persian Sataspes during the reign of Xerxes I (4.43). Sataspes gave as the reason for his failure that "his ship was brought to a standstill and was unable to make headway." On the east coast similar problems were caused by the seasonal monsoons.

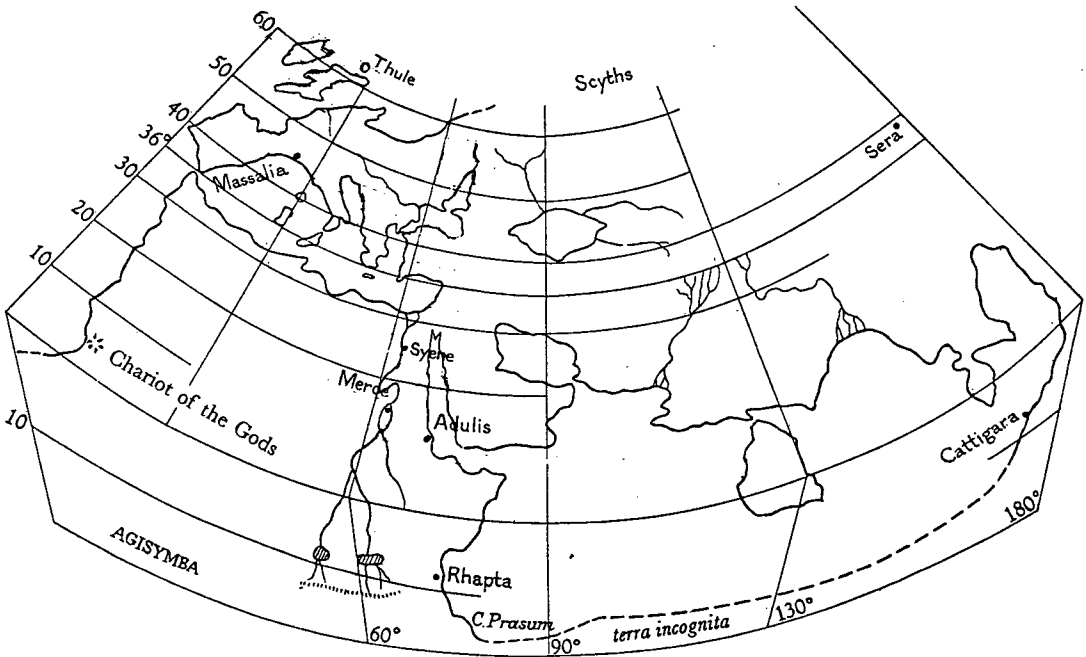


Fig. 4 A reconstruction of the world of Claudius Ptolemaeus

As we have seen, the limits of Phoenician and Graeco-Roman exploration of the west coast of Africa were indicated by the 'Western Horn' and the 'Chariot of the Gods' from the fifth century B.C. till the second century A.D. These names may at different times have indicated different natural phenomena, and the final identification of the 'Chariot of the Gods' with Mt. Cameroon by Ptolemy (*Geogr.* 4.6) is not a certainty, as we have seen. It seems that the Romans had lost interest in further exploration of the west coast after Polybius' expedition. On the east coast the first great impulse to its use as a trading route was given by the Ptolemies in their search for war elephants, ivory and other articles. According to Strabo, quoting the geographer Artemidorus (fl. c. 100 B.C.), the most eastern point of the 'Cinnamon-bearing Country' and of Africa, Notu Keras or 'Horn of the South' (Cape Guardafui in Somalia), was in his time the most southerly place known. Further down the coast "we no longer have any record of harbours and places"

(16.4.14). Ptolemaic produce must, though, have reached destinations more to the south, as coins found in Tanzania prove (Oliver-Mathew 1963:97). The trade here was, however, directed via Arab merchants who controlled it "by ancient right" as an anonymous "Periplus of the Erythraean Sea" of the second half of the first century A.D. says (*GGM* 1.270–271). The Arabs knew the secrets of the trade winds and guarded them jealously. It was only during Strabo's old age or after his death that a certain Hippalus, during the reign of Tiberius, discovered their pattern. Thereafter Graeco-Roman traders pushed southwards down the coast of Azania, as the eastern regions of Kenya and Tanzania were known (*Ptol.* 4.7), exchanging cloth, glass, iron (for spear points), and a variety of other articles, for ivory, spices, tortoise-shell and slaves (Oliver-Mathew 1963:94–95). The *Periplus* names Rhapta as the last *emporium*. Ptolemy places Rhapta on the Rhaptus river at 7°S (4.7). It may be identified as modern Pangani on the Rufu (Rhaptus!)-Pangani river slightly more north of Zanzibar (Freeman-Grenville 1988:2.6). Eight degrees farther down Ptolemy located the southernmost point ever named in ancient geography: Prason (Prasum) promontory, possibly Cape Delgado on the border between Tanzania and Mozambique. The difference of eight degrees equals a distance of 4000 stadia or 500 Roman miles or c. 885 km, which is approximately 300 km more than the actual distance between Pangani and Cape Delgado. Ptolemy's overestimation is probably an unwanted result of his dependence on his source, Marinus of Tyre, who wrote earlier in the second century. Ptolemy had a lot to say about Marinus' tendency to exaggerate distances (1.9; 1.20; Dilke 1985:72–75; Harley & Woodward 1987:178–180). His own corrections were, however, often totally inadequate.<sup>14</sup>

Trade by Graeco-Roman merchants in Azania seems to have continued until in the sixth century, though it became impeded by Persian dominance from the late fourth century onward (Oliver-Mathew 1963:98–99). A total of fifty-one coins, from Nero's reign till the early fourth century, has been found in the region (Freeman-Grenville 1962:21–24). One single coin of Constantine has been found in Madagascar. Rumours and reports about the existence of this large island to the south-east of Azania may have led geographers like Marinus and Ptolemy to believe that below Prason the coast turned sharply eastwards to form the coastline of a vast *terra incognita* connecting Africa with East Asia (*Ptol.* 7.3; 7.5 (see fig. 4)). Thus the old vision of an Africa connected to Asia in the south was recreated and the Indian Ocean once more became an inland sea, only larger than before.

<sup>14</sup> One of these was to have far-reaching consequence in the future. Marinus had calculated the length of the *oikumene* along the parallel of Rhodes from the Canaries till the known eastern limits of China as 228° which Ptolemy connected to 180° (1.11–14; fig. 4) which is still far too high. The real figure is 126°. These erroneous ideas of the ancient geographers, and some added miscalculations of his own, led Columbus to believe that the unexplored remainder of the globe along that same parallel from the Canaries to China was only 78° or 3 900 miles. This gave him the confidence for his expedition which he otherwise might not have obtained (Thomson 1948:333–339).

Ptolemy was the last of the great geographers of antiquity. His work—in Latin translations from the early 15th century onward (Dilke 1985:160–164)—formed a point of departure for the cartographers and explorers of the Age of Discovery. The voyages of Bartolomeu Dias and Vasco da Gama put paid to Ptolemy's southern land-bridge between Africa and Asia. But undeniably the southern limits of the *oikoumene* had been vastly extended in the 150 years since Strabo. Ptolemy gives Rhapta and Prasum a vast hinterland. If one could manage to get past 'man-eating Ethiopians' one would reach the Mountains of the Moon "from which the lakes of the Nile receive snow water" (4.8).<sup>15</sup> Behind these Mountains of the Moon was "a region of wide expanse" named Agisymba. The name Agysimba had in the past been used to refer to the farthest region known to exist south of Tripolitania. This Agysimba had reportedly at some time in the past been reached by a Roman, Julius Maternus, who had joined an expedition of the king of the Garamantes (*Geog.* 1.8). The travellers had gone south for four months, which means they can not have penetrated further into Africa than Chad or Sudan. Nevertheless Marinus had used this expedition to place Agisymba south of the Equator nearly on the Tropic of Capricorn. Ptolemy refused to follow Marinus here, but his corrections placed Agisymba and the sources of the Nile still far south of the Equator on the same latitude as Rhapta. From the fifteenth till the nineteenth century, till the discoveries of inter alia Lakes Victoria and Albert by Speke and others from 1857 onwards, Ptolemy's placing of the sources the Nile remained largely unchallenged. The Afrikaner voortrekkers who found the source of the Nile near Nylstroom in Northern Transvaal were therefore reacting to expectations arising from the Ptolemaic tradition.

Ptolemy's Agisymba contains several mountain ranges carrying names like Dauchis and Ion. The longitudinal degrees on which Ptolemy positions these mountains would have them as far as Angola. Though much of Ptolemy's mapping here is partly based on incorrect calculations and partly the result of "a happy guess from the vaguest hearsay" (Thomson 1948:277) it does show that by the second century A.D. at least some people in the ancient world were aware of the existence of an African continent that differed greatly from the Africa imagined by Eratosthenes and Strabo. They realised that Africa was a continent of vast dimensions stretching from the northern deep into the southern hemisphere.

Unfortunately after Marinus and Ptolemy the line of progress was broken. Their work did not become a stepping-stone for continued geographical research. The following generations hankered more for spiritual and religious revelation than for science. A few compilations of Ptolemy's work were produced, but with the exception of that of Marcianus of Heraclea (about c. A.D. 400) they show a great

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<sup>15</sup> These sources of the Nile, though, of course, placed much too far to the south, may refer to the Ruwenzori range or Mounts Kilimanjaro and Kenya, and Lakes Victoria and Albert. A garbled report by a certain Diogenes from the late first century A.D. seems to have reached Marinus and through him Ptolemy (*Geog.* 1.9; 4.7; 4.8; Cary & Warmington 1963:214–215; Thomson & Ferguson 1969:34).

lack of insight (Thomson 1948:372–373). A few authors (e.g. Ammianus Marcellinus, Martianus Capella) glean geographical facts from Ptolemy, probably obtained indirectly. More often than not he is, however, totally ignored and preference is given to older sources with obsolete ideas, especially Pliny the Elder.<sup>16</sup> Solinus, the third century geographer whose work became authoritative in the Middle Ages, wrote a rehash of Pliny's often sensational and phantastic descriptions of countries and continents. His Africa ends where that of Pliny and Strabo has ended: slightly over 600 miles south of Meroë (*Polyhistor* 30.14). Martianus Capella's figures on the dimensions of Africa (6.703) are also taken from Pliny (6.208–209). We meet again with Strabo's right-angled triangle in the description of Africa by Avienus (4th century): *trina loco frons est* (*Descriptio orbis* 3.364).<sup>17</sup> Other antiquated theories emerge again or simply persist, like that of the inhabitability of the torrid zone (Martianus Capella 6.602–607; Firmicus Maternus *Astron.* 1.4; Macrobius *Somn. Scip.* 2.8.3).

Clearly the image of the Africa of Marinus and Ptolemy, with its extension deep into the southern hemisphere, had not succeeded in impressing itself on the minds of the Graeco-Roman world of Late Antiquity. Historical developments also did not favour this. The problems besetting the Roman Empire negatively affected the potential for continued exploration of the African continent. Though North Africa reached its height of Romanization in the third century it became more and more detached from its southern hinterland. We hear no more of expeditions like those of Julius Maternus and others related by Pliny and Ptolemy. The continuing trade down the east coast was apparently too insignificant to establish wide-spread knowledge about Africa's southward extent, and it died out completely in the sixth century. The rise of Christianity was not advantageous to intellectual endeavour outside the realm of theology. Christian intellectuals had to subject the authority of the classics to that of the Bible, which sometimes created uneasy predicaments. Since the Bible speaks of the "four corners" of the world, the earth cannot possibly be round. Though the globe never disappeared totally from intellectual thinking—witness Origen, Bede and Dante—most Christian authors accepted the biblical flat earth as a revelation, or they simply evaded the problem (Bagrow 1985:41–42; Thomson 1948:384–389). The *mappaemundi* that became most current in Medieval Europe provided the means to an ambivalent interpretation by being both round and flat. Most widespread were the so-called T-O maps based on the division of the world as described by Isidore of Seville (7th century) in his *Etymologiae* (14.2.3; see fig. 5). Apart from their implied or potential flatness all the elements of these maps are classical: the island of the earth is surrounded by the Ocean; Asia, generally pictured at the top, is

<sup>16</sup> The scant attention given to Ptolemy by contemporaries and later writers, and other factors, have led to discussion and controversy about the contents and the authorship of the eight books of the *Geographia* as we know it. No Greek text of the work older than the thirteenth century exists (Harley & Woodward 1987:266–272; Bagrow 1985:34–35).

<sup>17</sup> The *Descriptio orbis* was a paraphrase of the *Periegesis* of Ptolemy's contemporary Diogenes Periegetes.

separated from Europe by the Tanais (Don), and from Asia by the Nile, both of them ancient and traditional boundaries. The Mediterranean, separating Europe and Africa, forms the vertical leg of the T. Obviously, the notion of Africa underlying the *mappaemundi* is that of Strabo, Pliny and Solinus. Variations of these T-O maps existed, and also other types (Bagrow 1985:41–50; Harley & Woodward 1987:286–370), but wherever they show Africa, it is always the truncated Africa of the pre-Ptolemaic type.

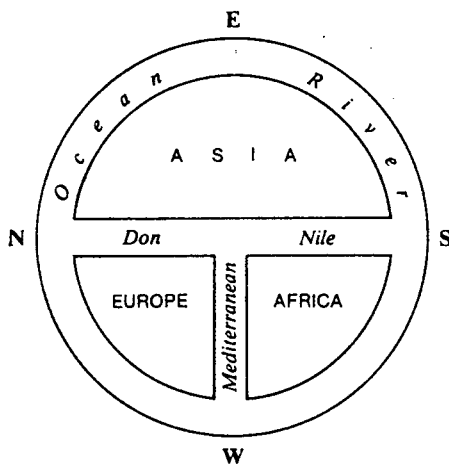


Fig. 5 The T-O type of *mappaemundi*.

Ptolemy's Africa emerged again when the *Geographia* was translated into Arabic in the ninth century. The Arab geographer Idrisi (born 1100) re-introduced the Ptolemaic world map to a small circle in the western world when he was commissioned by the Norman kings of Sicily to produce an updated description of the world. His maps show Ptolemy's Africa complete with its eastern *terra incognita* (Bagrow 1985:56–58, fig. 8 and pl.30), because the existence of that land mass had by that time still not been disproved. Arab traders did not yet venture further down the east coast than the Mozambique channel for fear of not being able to find suitable currents and winds to return (Thomson 1948:277).<sup>18</sup> Possibly inspired by the Arabs Byzantine scholars began studying the *Geographia* after a manuscript had been discovered by Planudes in 1295. A century later Byzantine refugees fleeing the advance of the Turks arrived in Italy bringing copies of the *Geographia* with them.

<sup>18</sup> At a later stage doubt about the existence of a *terra incognita australis* set in among Arab sailors and geographers, which must have reached the western world. A few maps from the mid-fifteenth century, before the Portuguese voyages around the Cape of Good Hope, already omit Ptolemy's land-bridge between Africa and Asia (Bagrow 1985:pl.42; Norwich 1983:fig. 5). Chinese maps from the 14th and early 15th century seem to indicate that the Chinese rounded the Cape much earlier than the Portuguese (Norwich 1983:15–16).

They created great excitement among the Italian Humanists, and in 1406 the first Latin translation was produced.

Though the *Geographia* was received with the reverence the Humanists extended to all classical texts, it was soon discovered that in many cases its data had to be revised. The preceding centuries had generated more correct and precise information especially about the Mediterranean and Atlantic coasts than Ptolemy had possessed. Therefore most of the printed editions of the *Geographia* were provided with modern maps (*tabulae modernae*) besides the maps based on the data provided by Ptolemy. Nevertheless Ptolemy's authority was great during the Age of Discovery. We have already seen how his mistaken ideas about the length of the Eurasian continent helped to convince Columbus that a westward voyage from Europe to Asia was feasible (n.14). The Portuguese were to test the veracity of Ptolemy's notion of Africa. It took them ten years and four expeditions to arrive (in 1446) at the Gambia River which Hanno had seen almost 2 000 years earlier. In 1482 the Congo River was reached, and in 1488 Bartolomeu Dias rounded the Cape of Good Hope and showed the way to India for da Gama's expedition (1492-1499). Thus Ptolemy's assessment of the southward extent of Africa was vindicated but his *terra incognita australis* was proven to have been a mistake. As the legend in a Ptolemaic world map printed in 1504 says: *Hic non terra sed mare est: in quo mirae magnitudinis insulae sed Ptolemaeo fuerunt incognitae*.

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