RENAISSANCE MAPS OF THE WORLD AND THEIR PRESUPPOSITIONS

By WALTER OAKESHOTT, M.A., LL.D., F.S.A.
RECTOR OF LINCOLN COLLEGE, OXFORD

THIS lecture must begin with a disclaimer. It makes no pre­
tence to authority, for, though long interested in the subject,
I am the veriest amateur. It arises out of a piece of good fortune
I had some years ago when I acquired, in a country house sale in
Kent, a copy of the Imago Mundi. I bought it in the conviction
that some of its marginalia—not, alas, extensive (some seventy
words in all), nor in themselves with one possible exception of
real importance—were in the hand of Sir Walter Raleigh. Mine
is indeed, without doubt, the copy which appears in the library
list compiled when he was writing his History of the World; and
the copy to which he is referring in several passages where he
mentions the author by name; all of which gives it some con­
siderable interest apart from its text. But when I bought it
I did not realize how difficult it is to find any copy of this work.
Unlike most important medieval texts, having been once printed
(in Louvain, perhaps in 1483) it did not reappear for many
years, and one hardly ever encounters it. The John Rylands copy
consists of the diagrams only. That at Cambridge lacks the dia­
grams so that these might be disjecta membra of the same book.
Yet everyone has heard that Columbus owned the Imago, and owed
to it some of the confidence which set him out on a westerly course
from Europe to find the shortest way to Asia. And since compara­
tively few of us have had the good fortune to be able to pull the
book out of our shelves to see what Pierre d’Ailly, its author,
actually said, it occurred to me that in studying it, I might follow
up an article on “Classical and Medieval ideas in Renaissance
Cosmography” which was published in the Saxl memorial
volume in 1957. That article was finished in 1953, some time before
I bought my Imago, and was written therefore without reference

1 A lecture delivered in the Library series of public lectures.
to it; accordingly, I attempt here to trace the progress which some of the classical ideas there examined had made when they appeared in Pierre d'Ailly's work. Such a procedure has to me the advantage of giving greater precision to my original enquiry. But I should warn you again that I am unfortunately not necessarily familiar with what has been written already on this topic. If anyone is sufficiently interested to want to follow up the matter, he would be well advised to look up the books and articles concerned with these things that have appeared in recent times. I confess that I have had little opportunity to do this. My failure to do it does not stem from any lack of recognition of their importance.

In the article mentioned I contrasted the map of the world drawn by Ptolemy in the second century A.D. with one drawn in a copy of Higden made for William of Wykeham (or at least made in his day) and given by him to Winchester College, where it still is. The latter is a simple diagram, in shape a pointed oval, the band of green which bounds it representing the ocean. It contains some hundred odd names, and it is in the relative placing of these names one to another, rather than in any outlines, that the usefulness of the diagram lies. The only outlines indeed indicated are the peninsula of Arabia, with the Red Sea marked along the south west side of it and Mt. Sinai inland; Mons Atlas, with regard to which it would not be clear, from this map, whether perhaps the west coast of Africa was intended, or an outline or profile of the mountain itself—analyses with one of the *Imago Mundi* diagrams show, I think, that it is the latter; and the river Rhine. Jerusalem, at the centre of the map, is ringed with red simply to draw attention to it, and Paradise in the far East similarly marked. In the Ptolemaic world map, antedating this by some 1200 years (though the actual examples we have of it are all of course much later), the outlines, while there are obvious mistakes, are informative. In the Mediterranean region the chief mistakes are the broken back of Italy and the exaggerated size of Greece north of the Isthmus. In the Atlantic, Scotland is given a singular twist towards the east. Other important errors leap to the eye; the enlarged sea of Azov; the huge hammerhead of Arabia; the vast island of Ceylon; the failure to understand
the shape of the Indian peninsula between the rivers Indus and Ganges. But what is above all noticeable here is the scientific method of statement, as contrasted with the vague items of information in the William of Wykeham map. Ptolemy begins his cosmographical work with a discussion of the methods of projection. The problem is that of stating clearly the facts about a surface which forms part of a sphere, on a flat piece of paper. As the map shows, he uses the method of dividing the sphere up into 360° of longitude (of which he needs only 180° to cover that area of the globe which he reckoned to be inhabited).
great circle lines through the poles. The lines of latitude are represented by equidistant segments of circles drawn about the same centre, fixed according to a scheme which he sets out in detail. All this, with a warning of the distortion involved, has been explained to the reader before he begins on the maps themselves.

In my 1953 article, I said that a Latin translation of the cosmography of Ptolemy appeared in the 1420s. The date may be too late. The *Imago Mundi* itself (the first tract in the early printed edition) was finished according to the colophon, in 1410, on 12 August. In Chapter IX of it, Pierre d'Ailly refers by name to Ptolemy's views as to the 'division' of the habitable earth. But this does not of course necessarily mean that when he wrote in 1410 he had first-hand access to Ptolemy's geographical ideas. In another tract, the *Compendium Cosmographiae*, printed in the same volume, he refers explicitly to a translation recently made of Ptolemy's *Cosmographia*: "Hic nempe vir egregius magnum illud et perutile opus nuper de Greco in Latinum sermonem translatum octo librorum distinctione ornatissime decoravit." Unfortunately there is no date to the explicit of this later tract. It seems likely, however, that the Ptolemaic notions mentioned in Chapter IX of the *Imago* itself do not come from a first-hand reading of Ptolemy's *Cosmographia*, and that when an actual translation at last came into Pierre d'Ailly's hands he was moved to write the new tract, making extensive use of it. In Chapter X of the *Imago* he quotes largely from Alfraganus giving Alfraganus's estimate for a degree of latitude, and attributing to him what are in fact Ptolemy's *climata*. This may give us a clue to the source of the allusions to Ptolemy in Chapter IX, and to the notion implicit already in the *Imago* of a sphere divided up into degrees of longitude and latitude. We may guess, in other words, that Pierre d'Ailly was at this stage drawing directly on an oriental source, itself supplied originally by Classical Greek ideas. It is incidentally of interest to see that Ptolemy was not infrequently supposed popularly to have been an oriental. A charming miniature in the Eton manuscript of the *Cosmographia* shows him presenting his book to a patron, and he has oriental features and wears a turban.
It seems unlikely that the Latin copy of Ptolemy's *Cosmographia* which eventually thus came, after 1410, into Pierre d'Ailly's hands, included the maps. Probably it contained only the text, tables of longitude and latitude (or gazetteer as it might be called) and diagrams. The word *tabulae* which he uses certainly does not necessarily imply the maps themselves. It often means simply the enumerative tables of longitude and latitude which precede each map. Many of the manuscripts, like that at Eton already mentioned, and some of the early printed editions of Ptolemy took this form, lacking the maps and including only the tabular material for them. The world diagram of Pierre d'Ailly to which we shall return, gives no indication of the use of Ptolemy's maps. And the probability is that the great series of diagrams and the map with which the printed edition opens were part of the original *Imago Mundi* itself, written as we have seen before the author had direct access even to the text of Ptolemy's *Cosmographia*.

All this means, however, that, in the later form of Pierre d'Ailly's work, he digested not only certain geographical information, fixing the relative position of cities, rivers, capes, mountains and so forth, some of it indeed wrong information and some recognised by Pierre d'Ailly, as we shall see, to be wrong—but also a technique. Pierre d'Ailly is continually insisting, with his diagrams both of the universe and of the earth, on the misleading nature of a flat representation: "Omnis difficultas quae contingit describendo habitabilem in plano, excluderetur describendo eam in spherico." He reproduces (fo. 84) one of Ptolemy's suggested schemes of projection, and proposes an alternative to it. He includes a number of tables of longitude and latitude, recast for his purpose, but the figures themselves taken from Ptolemy. Here, then, we have the emergence of an enormously important geographical idea—the notion of scientific map making, taken direct from a classical author by a western scholar of the early fifteenth century. Is this its first emergence in medieval times? I think so—but would like to make these qualifications. Pierre d'Ailly sometimes quotes Grosseteste—Lincolniensis, as he calls him. The only references I have at present are to geographical facts, not to
ideas. If anyone had a text of Ptolemy in the thirteenth century it would have been Grosseteste (who could himself have read it in Greek, as he did his Dionysius, now in Oxford); or his pupil

Roger Bacon. My tentative answer is that so far as I have noticed in Pierre d'Ailly, there is no evidence of Grosseteste having used the *Cosmographia* of Ptolemy (as opposed of course to the book on astronomy which he certainly knew). Roger Bacon is rather a different matter. He does talk in a fragment of the *Opus Tertium* of the need for a concerted attack on the problem of mapping the world. But this is simply a project. "The regions of the world", he wrote in the *Opus Tertium*, "can be set before our very eyes both by descriptive writing and also by maps, following the rules of astronomers and scientists, men who have actually made the journeys by land or sea throughout
Diagrammatic map of the world, from a Renaissance edition (Brescia, Boninis, 1485) of the Roman writer Macrobius. It shows the unknown Southern Continent of the Antipodes.

To face p. 386.
A Renaissance printed version of the Ptolemaic world map (from the Rylands Copy of Ptolemy, Rome, Buckinck, 1478). The map, which belongs to the manuscript tradition of the Cosmographia, is drawn in the projection illustrated in fig. 1.
the habitable world and have recorded them in person or can rely on credible witnesses." If he had had the *Cosmographia* of Ptolemy (as opposed, let me remind you again, to the astronomical work, the so-called Almagest, which was familiar to the scholars of his day) he would surely have included in his descriptive geography something like the tables of longitude and latitude, drawn from Ptolemy, that are to be found in Pierre d'Ailly's writings. Incidentally Roger Bacon, like his contemporary Sacrobosco, recorded a calculation for the extent in miles, or stades, of a degree of latitude. This calculation had the great importance of leading to an informed estimate of the size of the globe. It might be taken indeed as the first appearance of any precise classical idea in western cosmographical writing. It comes from the text of Macrobius, to be discussed again later. Sacrobosco gives Macrobius's name specifically among his authorities for it. But with these thirteenth-century writers it is a single and isolated notion, though along with it there comes for the first time after the so-called Dark Ages some degree of definition into a formless and boundless world picture. What happens, however, in the work of Pierre d'Ailly is more than this: namely the emergence of the idea of basing a map on a definite scheme of projection, and so the revival of the idea of scientific map making. This proved to be altogether wider in its implications and results, and the impact it makes on fifteenth-century cartography is of great significance.

Another classical notion which I discussed in the article, and which needs no more than an allusion here, is the division of the globe into five climatic zones, two frigid and uninhabitable zones at the poles, and within them two temperate and inhabited zones, divided one from the other by a hot zone, not habitable. I mentioned in that article the curious form which the diagram of these zones took in the early Middle Ages, when ideas of a spherical earth were at a discount. But because the work of Macrobius (which was copied throughout the Middle Ages; in my own College library, for example, there is an eleventh-century manuscript of it) expounds it, this notion of the five zones was continuously available, and though Sacrobosco gave it fresh currency in the thirteenth century, we cannot credit him with a rediscovery
in this matter. It may be useful here, however, to examine a rather different point, that is to say the doubts which Pierre d'Ailly has regarding the climatic zones, and the uninhabitable hot zone in the tropics. His doubts are part of a wider doubt which he emphasises strongly, doubts about the limitation of the inhabited region of the northern hemisphere to only 180° longitude, as indicated by Ptolemy. Pierre d'Ailly goes indeed beyond doubting. He roundly denies the validity of both hypotheses, grounding his refutation not on theory but on information from travellers whose word can be trusted: “in his rebus non tam ymaginationibus quam experientiis et probabilibus historiis refuto certitudinem aliter adhaerendum.” If we examine his world diagram we find that it embodies a considerable modification in the zone theory. In the region of the Sahara desert the legend still reads according to the old pattern: “regio inhabitabilis propter calorem”: “a region uninhabitable on account of the heat.” In the same latitude further east, however, comes the note: “India fere terciam partem terrae habitabilis continet, usque meridiem se extendens.” “India which includes approximately a third of the inhabited land surface, extends towards the south.” And in a note to be taken as referring to the southern hemisphere in general we read “Ante climata usque equinoctialem et ultra multas habitaciones continet ut ex historiis autenticis compertum est.” The climata are certain lines of latitude established by Ptolemy, within which he confines his inhabited region; the southernmost drawn through Meroe in Egypt, the most northern through the Riphaean mountains. (I should make it clear that Ptolemy does extend his map of Africa not only south of Meroe but also 10° south of the equator. But these arbitrary “climata” are an important part of his framework, those through Alexandria and Rhodes having no doubt been fixed by observation.) In my own Imago Mundi Raleigh who was deeply interested in geography and maps—we have indeed a number of maps drawn by his own hand—has copied out the list in the margin. What Pierre d'Ailly says on his world diagram, is that both ante and post these climata, that is to say, both to the south and to the north of Ptolemy's framework of the “terra habitabilis,” “land which is inhabited is in fact to
be found, according to well-established testimony, from travellers who have actually been there". On the world diagram he mentions by name Arym which he specifies elsewhere as south of the equator. And there is an interesting note in the hand of one of the earlier English owners of my copy, made perhaps about 1550, in which the annotator mentions islands north of
the *climata* which have been found "etiam hoc nostro aevo:" "in our own day." It would be of the greatest interest if we could discover what precisely that owner had in mind. In general, however, the point is clear, that Pierre d'Ailly is not prepared to accept either the southern, or the eastern limit, of the habitable region as fixed by Ptolemy. The passage above quoted from the *Imago* is indeed closely followed by the famous eighth chapter, *de quantitate terrae habitabilis*, in which he discusses the various authorities for the view that the inhabited Eurasian region extends, not simply half round the globe, through 180°, but so much further that the eastern Asiatic coast is within easy sailing distance from Spain. As usual he quotes classical authorities, including Pliny and here also Seneca to support his argument. It need not be doubted that, as this latter passage in the *Imago* was of cardinal importance for Columbus, so the view that there was inhabited land south of the equator, and that the torrid zone was not so hot as to constitute an impossible barrier between the northern and southern hemisphere was of similar significance for Prince Henry the Navigator's mariners. It is worth drawing attention to the supplementary tract on cosmography by Pierre d'Ailly which is also included with the *Imago* itself in the 1483 edition and which I have already mentioned. Here, on leaf K2, Pliny's view: "oceanus qui extenditur inter finem Hyspaniae ulterioris, id est Africæ a parte occidentis et inter principium Indiæ a parte orientis non est magnæ latitudinis" is further discussed. Pliny whose *floruit* is about 80 years earlier than that of Ptolemy, was not a professional geographer but an encyclopaedist. But evidently his views—and the "facts" which he quoted to support them—were a formative influence on Pierre d'Ailly's thinking. The surest way to demolish one classical view was to find another to set against it. Here, however, we are concerned with no rhetorical exercise but with a determined effort to establish the truth so far as it could be known. And Pierre d'Ailly prefers the view of Pliny on another point also—that the Indian ocean was part of the main ocean itself—to that of Ptolemy, who considered it to be a huge landlocked sea, with the tip of South Eastern Asia curving round westwards eventually to join up with the coast of Africa. This second
departure from a Ptolemaic view obviously has important implications for the projects which Henry the Navigator planned; while his setting out of those classical passages which suggest an easy westward voyage to Asia (coupled with his adoption of Alfraganus's very short estimate of the length of a degree of latitude, which meant of course a considerable under-estimate of the size of the globe as a whole) were as we have seen a formative influence on the thinking of Columbus.

The last point I propose to discuss here is one in which the views expressed in the *Imago* have come as a surprise to me. In the Saxl article, I mentioned that the notion of a vast southern continent, the *Terra Australis*, came from antiquity, and I had assumed, without, however, making the point in that article, that it had a fairly continuous history in medieval geographical thinking. Traces of it certainly occur in one family of twelfth-century map diagrams. Pierre d'Ailly has, however, no trace of this notion in what one might call the Classical form. He is indeed concerned, as we have seen, to push the extension of India southwards even beyond the equator. But the essence of the Classical idea, as it was expounded in the *de Republica* of Cicero, for example, and explained later by his commentator Macrobius, is of a great southern landmass,1 divided from the northern by the stream of ocean and "balancing" it, keeping it in equilibrium. "Paria in utraque parte sunt omnia", says Macrobius. It now appears that this feature is absent from fifteenth-century world maps, except for the few world diagrams that occur in early printed editions of Macrobius himself. There is no trace of it for instance in the world map of Henricus Martellus in the British Museum, dated by Mr. Skelton in the recent Henry the Navigator exhibition catalogue to 1489 or thereabouts. "The Austral continent is not marked on any dated map", says Norden- skiold, "previous to the return to Spain of the earliest circum- navigators. . . . After the discovery of Tierra del Fuego the existence of such a continent was regarded as fully proved." Nevertheless, it takes some time to appear regularly in print. It

1 The text of Macrobius makes clear what is not apparent from the diagrams that he is in fact thinking of *four* great habitable land masses, in the *four* quarters of the globe. For the standard Macrobius diagram see Pl. I.
does not appear in the map of the world signed by L. F. which was cut in 1522, the year when the survivors of the Magellan voyage returned to Spain, nor in the Holbein map of the world printed in Grynaeus, *Novus Orbis*, in 1532, nor in the map of the world done for the Lyons Ptolemy, edited by Servetus in 1535. In the manuscript atlas made for Henry VIII by Jean Rotz in 1542 there does appear, in the far east, an indeterminate landmass which has sometimes been called the first representation of Australia. The vast continent of *Terra Australis* begins to feature in a big way on world maps done in the mid-sixteenth century, like that of Pierre Desceliers in 1546 or the maps of Mercator and Ortelius, and in them it has assumed the balancing character which we noted in the Macrobius diagrams, while the name chosen *Terra Australis*, is not likely to be mere coincidence.\(^1\) In the letterpress to the map of the world in Ortelius's *Theatrum Orbis Terrarum*, he names a large number of classical authors among his authorities, though not Macrobius. Yet I do not doubt that Macrobius was the source of this particular feature in sixteenth-century world maps, and I believe that here may have been a rediscovery of a forgotten idea at a time when classical texts were being ransacked for information about unknown regions. We sometimes lose sight of the importance which classical geography had right into the seventeenth century. Raleigh used extensively Ptolemy's fourth map of Asia when he was writing the History of the World. Modern maps could give him better information than Ptolemy about the coastline of Arabia or of the Persian Gulf or of India, but not about the interior.

The absence then of any mention (so far as I have been able to discover) of the *Terra Australis* in its Macrobius form, by Pierre d'Ailly, suggests that this highly theoretical notion was

---

\(^1\) In Macrobius's text, however, we only get I think "homines Australes"—the Australians—not "Terra Australis", Australia. The normal legend in the diagrammatic map is *Temperata Antipodum nobis Incognita*. The legend in Ortelius's world map is *Terra Australis nondum Cognita*. Pomponius Mela (in the MS. tradition of whose text there are no maps or diagrams) speaks of 'Antichthones', but with reservations about the existence of such a landmass: see the phrasing of Bk. I, ch. X. Nordenskiöld noted the connection of the name with Macrobius... the continent "generally designated with a name borrowed from maps of a Macrobius type, *Terra Australis incognita*" (Periplus, p. 188).
RENAISSANCE MAPS OF THE WORLD

temporarily forgotten by the geographers of the fifteenth century. What Pierre d'Ailly does consider is a variety of views about the location of the Earthly Paradise. Here his comments are characteristically down-to-earth. He examines the likely climatic conditions for the site of such a region, and contradicts the extravagant notion that the earthly paradise reached up beyond the sphere of the moon—one of the notions which we know at one time influenced Columbus. But here we are moving away from our subject, since the conception of an Earthly Paradise, modified though to some slight extent it may have been by legends of the Garden of the Hesperides or of the Fortunate Islands, is primarily medieval, not classical.

"Faith in the S. Polar continent", says Nordenskiold, "was founded partly on theoretical speculations, partly on Ptolemy's drawing of the land south of the Indian ocean, on the Regio Pathalis in Plinius, Roger Bacon, and d'Ailly, and partly on vague accounts of some Portuguese skipper."

Nordenskiold's statement about the "regio Pathalis" in Pliny perhaps needs amplification. There are two passages in which more than a passing mention to "insula Pathalis" (as Pliny calls it) are made. In one he makes the point that the shadows fall towards the south (this region being south of the equator). In the other he is talking about the development of regular commercial voyages to India and he mentions the island as "in ipsis faucibus Indi." Beyond it are Chrysae and Argyrae, "fertiles metallis, ut credo." The mouths of the Indus are in fact north of the tropic of Cancer. To get to a region south of the equator we must go much further east, to Sumatra and Java. The term "India" is of course often used to mean simply 'the far east', and there is little doubt that considerable confusion existed in Roman geographical writings as between Ceylon (normally assumed to be meant by the name "Taprobane"), and other islands further east, which, being far larger, in that way at least fit the descriptions of "Taprobane" better. And when Pliny goes on (following the second passage about the "insula Pathalis"), to say that "Taprobane alterum orbem terrarum olim existimatum est antichthonum appellatone" he seems to show that what he would mean by an "alter orbis
terrarium" would be another vast continental landmass south of the equator, the existence of which he regards as not proven, "Taprobane" having been shown to be an island. Pierre d'Ailly seems to have concluded that for practical purposes at least the existence of an independent southern continent could be disregarded, there being on the other hand good evidence that part of our own inhabited landmass extended south of the equator. It need cause no surprise that Pliny should be taken so seriously as a geographer in the fifteenth century, seeing that as late as the second half of the sixteenth geographers were using him as a source of information about the northern coast of Asia; the promontory named by him Tabin being one of the obstacles which ships attempting the north-east passage would encounter. If Raleigh found the reference in the *Imago* to "insula Pathalis" interesting (and it is one of the names he notes) we can imagine that it interested Columbus and his predecessors at least equally. At the time Raleigh planned his first Guiana voyage, an expedition to the east was also in his mind, and conceivably the idea recurred during his second imprisonment, as did that of another Guiana attempt. At any rate, the notes in his copy of the *Imago* are linked firmly with the writing of the *History of the World* during this second imprisonment, and there is no reason to suppose that he studied the book earlier.

In summary then, it may be said that the *Imago* seems to be the first geographical work in Western Europe to be deeply influenced by the Geography of Ptolemy, and to assimilate both his technique of map projection and also some of his data of longitude and latitude. It is established—and has of course long been recognised—that Pierre d'Ailly adopted the Plinian view, which rejected the idea of an equatorial zone so hot that it could not be crossed, and accepted evidence of travellers about regions they had visited south of the equator. He adopted also, from Pliny and other classical authorities, the notion that Asia stretched so far round the globe that its eastern coast-line was within comparatively easy sailing distance of Spain. There can be little doubt that in these three matters his work influenced deeply both many of the theoretical geographers, and also many of the navigators, of the fifteenth and sixteenth centuries.