TITLE: *The Leardo World Maps*
DATE: *1442 -1453*
AUTHOR: *Giovanni Leardo*
DESCRIPTION: During the late Middle Ages a Venetian by the name of Giovanni Leardo compiled a series of wall-maps that were based, in their general arrangements, upon earlier cartographic designs. All of the four world maps attributed to Leardo have characteristic features of both the T-O diagrams of Isidore *(Book II, #205)*, and the zonal maps of Macrobius *(Book II, #201)*. However, Leardo's use of a more precise delineation of the Mediterranean area based upon contemporary nautical or *portolano* charts and place names culled from the accounts of medieval travelers to the Far East, combine to make these maps significant improvements over many of the more stylized *mappaemundi* of the period.

The oldest, as well as the crudest and simplest, of these four *Leardo* maps is preserved in the Biblioteca Communale Library at Verona, Italy and carries the date 1442. The second, dated 1447, is known only through references in literature. The third, from 1448, is somewhat more elaborate in design and belongs to the Museo Civico at Vicenza. The fourth and largest *Leardo* world map (23 x 28.5 inches), belonging to the American Geographical Society, bears the signature in the lower right-hand corner: *Johanes Leardus de Venetiis me fezit abano domini 145[?].* The last digit in this inscription is partly mutilated; however, considering cartographic evidence, the associated calendars and other pertinent data, most scholars have agreed that the date is either *1452* or *1453*.

This monograph will primarily address itself to the last of the *Leardo* maps. This map does share a special feature with the others, namely the exceptional addition of a series of rings surrounding the circular map-disk, which constitute an elaborate calendar. The description and explanation of these rings or circles is found as part of a broader text in the frame or panel located below the map itself. The inscription on this particular *Leardo* map is somewhat awkwardly phrased in the Venetian dialect of the 15th century; but, although the beginning of each line is missing, the meaning is fairly clear, especially when certain of the missing lines are reconstructed from the corresponding inscription on the map in Vicenza of 1448.

The parchment on which the map is drawn is 60 cm wide (23.75 in) and 73 cm from top to bottom (28.75 in.). At the top is the chevron of the Trevisan family. At the bottom of the parchment a strip, 3.5 in. high, contains the legend, with the signature of the author and the date. Above this strip is a parallelogram, enclosing ten concentric circles drawn around the map, which occupies the center. The inscriptions are not easily read, the writing having faded in many places and the parchment having suffered in others. The legend begins with a reference to the Creator and the Passion, and then gives the diameter of the earth, *according to the excellent astrologer and geometrician Macrobius*, as 6,857 miles, which happens to be not far from the actual measurement of 6,876 nautical miles.

Leardo then gives the diameter of the Moon, of Mercury, Venus, Mars, the Sun, and Saturn, as well as that of the universe and the crystal sphere; all wholly fanciful. The innermost of the ten circles shows Easter Day for 95 years, beginning with 1452. The second circle marks the months of the year, with the signs of the zodiac. The third circle gives the phases of the moon, according to the cycle of 19 years, distinguished by 19 letters of the alphabet. The fourth circle is that of the days of the months. The fifth circle is that of the hours. The sixth circle is that of the points of the hours; each hour being divided into 1,080 points, or instants. The seventh circle gives the dominical letter. The eighth circle gives the length of the days throughout the year, and in the ninth the variation from day to day is marked. The tenth circle contains the name of the titular saint for each day of the year.

The map drawn within these circles is 15.75 inches in diameter. The east is at the top of the map and the south at the right hand of the observer. Jerusalem is in the center. The earth, which is quite symmetrical, is surrounded by the sea. The Gulf of Guinea on the west and a similar gulf in the east under the same parallel through Africa form pendants to two smaller gulfs in the north, the Bal- tic and the Sea of Okhotsk.

The names of the continents are written in red on a white ground and the islands are in red and yellow, with the exception of Ireland and England, which are green.

In the first two lines the cartographer makes an excursion into the realm of theology. This passage exposes the fact that Leardo was definitely not a theologian. He misquotes the *Nicene Creed* and runs the Trinity and the person of Christ together as if they were the same thing. This passage is followed by a statement that the map shows how the land and islands stand in relation to the seas and how the many provinces and mountains and principal rivers are distributed on the land. Then, on the asserted authority of Macrobius, *a very excellent astrologer and geometrician*, figures are given for the dimensions of the earth and various heavenly bodies. These estimates are quite fanciful, bearing little relation to the corresponding figures actually cited by Macrobius.

Commentaria in somnium Scipionis, 20:20, a treatise by Macrobius, gives the diameter of the earth as 80,000 *stades*, which might, if converted into Arabic miles, be approximately 6,857 miles of Leardo, other figures are even more at odds.

The astronomical details are followed in the third paragraph by the explanation of the calendar. The latter consists of eight concentric circles, of which the innermost gives the dates of Easter for ninety-five years, from April 1, 1453 to April 10, 1547; when Easter falls in April, the letter **A** is written in the small compartment; when in March, **M**; leap years are designated by **B** (bissextile years).

The second circle shows the names of the months, beginning with March, which was officially reckoned the first month of the year in the Republic of Venice until as late as 1797; it also tells the day, hour, and minute when the sun enters each of the twelve signs of the zodiac.

The third, fourth, fifth and sixth circles enable one to calculate the phases of the moon. In the third circle the first nineteen letters of the alphabet represent, in order, the years of the *Metonic Luni-solar* cycle. These years were usually designated by the golden numbers, but before the Gregorian reform letters were frequently employed in place of the numbers. Leardo explains that **C** *(golden number 10)* stands for 1453, **D** for 1454, and so on until **T** is reached, after which we begin over again at **A**. A letter is placed opposite the figures (in the fourth, fifth and sixth circles) showing, respectively, the day of the month, the hour of the day and the point of the hour at which the conjunction of the moon (i.e. new moon) will take place in the years to which the letters refer. For example, there will be a new moon on April 8, 1453, at 16 hours, 200 points. Leardo adds that there are 1,080 points in an hour.

The seventh circle gives the *dominical*, or *Sunday*, letters; these are indicated opposite the days of the month (fourth circle) on which Sunday falls in the years designated by the first letters (seven) of the alphabet. If we know the dominical letter for any particular year, i.e., **G** = 1453, we may thus determine the days of the week. However, Leardo does not specify the years to which the dominical letters in his calendar refer.

The eighth and ninth circles give the lengths of the days in hours and minutes. From this we see that the vernal equinox fell on March 11, inasmuch as the calendar was constructed before the Gregorian reform. Finally, in the tenth circle saints' days and other religious festivals are shown.

The four figures in the spaces between the calendar and the outer edge of the parchment represent the four evangelists: the lion for St. Mark, the bull for St. Luke, the angel for St. Matthew and the eagle (of which only the head shows) for St. John.

THE MAP DISK

Leardo draws a circular landmass, or *oikoumene* [known world], surrounded by a narrow strip of water. One cannot, however, question his belief in the sphericity of the earth, for otherwise he would hardly have held the views expressed in the panel below the calendar. Furthermore, his two legends relating to the fiery and frozen deserts echo a theory that was propounded in classical times and based upon the hypothesis of a spherical earth. Briefly, this theory, ascribed to Crates of Mallos *(#113, Book I)*, states that around the equatorial circumference of the globe is a fiery zone so intensely hot that no man can cross it. This zone cuts off all communication with the southern hemisphere. The north and south polar caps are uninhabitable because of the extreme cold. An ocean encircling the globe from the north to the south intercepts communication with the half of the northern hemisphere that lies opposite the *oikoumene*. Many other maps of the world made in the Middle Ages also illustrated this concept, i.e., those of *Macrobius, Beatus, Vesconte, Bianco, the Catalan-Estense*, etc. Therefore, in his world maps Leardo did not intend to represent either a flat disk or a complete hemisphere, but merely display a circular portion of the earth's surface lying north of the equator.

In its orientation, with East and the *Terrestrial Paradise* at the top and with Jerusalem at the center, the map follows the Christian tradition of the earlier Middle Ages, hence the long axis of the Mediterranean runs vertically up the southern half of the disk. Other features reflecting the religious or scriptural influence are Noah's Ark resting on top of Mt. Ararat, Mt. Sinai, the exaggerated length of the River Jordan and an inscription in the far northeast referring to *Gog* and *Magog*.

Leardo, like others of his time, finds place in his map for the legends current in the Middle Ages. Almost under his Terrestrial Paradise are three inscriptions: Here they eat human flesh; and to the left: *Desert where there are many griffins;* and on the right: *The Thirty Day's Desert* (possibly the Gobi desert).

Later medieval contacts between Europe and remote lands are revealed in names derived from Western travelers such as Marco Polo who had visited the Far East, as well as in the Arabic names in Asia and Africa.

In contrast to the earlier medieval cartography, such as the T-O maps *(Book II, #205)* that were symbolically drawn, in the *Leardo* map the contours of the Mediterranean and of Western Europe are surprisingly well drawn and easily recognizable, obviously being based upon sea-charts known as *portolanos*.

This *Leardo* map, which was painted on parchment, displays the seas as a uniform blue color, with of course the exception of the Red Sea that is appropriately colored. The lands are left the natural color of the bleached parchment except for a fiery red region in the far south bearing the legend: *Desert uninhabited because of heat*, and a dreary brown waste in the far north marked: *Desert uninhabited because of cold*. Islands are tinted either red or yellow, with green patches in the interior of Great Britain and Ireland. The only other

natural features depicted are mountains, rivers and lakes, although certain deserts are mentioned in legends. Mountain ranges are represented by rows of mounds, alternately red, green and blue, and each rising symmetrically in two or three steps. Rivers are blue and, as frequently on medieval maps, sometimes connect one sea with another, or at least have common sources. A yellow lake, labeled *Sandy Sea*, lies in the midst of the Sahara.

On the map disk Europe contains 47 cities, Asia 75, Africa 74 and Ceylon (*Taprobane*) 4, all colored green and red. Mountains are barely indicated; the seas are blue, except the Red Sea, which is deep red; the lakes are blue, yellow, and rose, and the rivers green and blue. Latitude and longitude are not marked. The Mediterranean is made too long and the western coast of Europe is badly drawn, but Scotland and England form one island. The Scandinavian peninsula has a western inclination and the northern parts of Europe and Asia are depicted as the desert uninhabited on account of cold.

The Black Sea is fairly well drawn, though it is in the latitude of England; the Caspian has much the same shape as the Black Sea, but it is correctly shown as a closed sea and without the supposed communication with the *Icy Ocean*. The Red Sea, as in all the older maps, makes an angle towards the east, but it is made to begin east of Jerusalem, almost at the point of commencement of the Persian Gulf, and it reaches to Cape Guard-afui. No account is taken of the strait of Bab-el-Mandeb.

The rivers are badly drawn, but less so than by Bianco and preceding cosmographers. Leardo, like others of his time, finds space on his map for the legends current in the Middle Ages. Almost under his *Terrestrial Paradise* are three inscriptions: *Here they eat human flesh*; and to the left: *Desert where there are many griffins*; and on the right: *The Thirty Days' Desert* [possibly the Gobi Desert]. Further north, near the line of the frozen region, is a turreted temple with the legend: *This is the sepulcher of the Great Khan and they do this: when he is born to his burial, he comes accompanied by many armed men who kill those whom they meet on the road and they say that the souls of these persons are blessed because they go with the soul of the Great Khan to another life*.

Vignettes of castles, walled towns and churches symbolize cities, kingdoms and regions. In most cases the names have been written upon the vignettes themselves; since the latter are also colored pink or green, the letters are frequently obscured and quite illegible. Many towns and districts are shown by red dots beside which the names are written in ink, once black but now faded with age. These names were inserted after the vignettes were drawn, for in many instances they are tilted or compressed to fit the available space. The draftsman did not venture to write any name to the left of the dot to which it belongs; as he could not write on the blue of the seas, he was obliged to invert the map in the case of places on south-facing coasts. Names of islands and seas, which had to be written on water surfaces, are enclosed in small yellow panels. The names of the continents, the two inscriptions relating to the polar and equatorial deserts, and the words *Terrestrial Paradise* are in red capitals; but all other names are in minuscule, usually without an initial capital. Besides place-names there are a few longer legends.

Winds blowing from the four cardinal and four intermediate points of the compass are shown by eight faces around the edge of the disk. Those to the north, northwest and northeast are blue, suggesting cold blasts from these quarters; the other faces are ruddy.

Although decorative, the *Leardo* map lacks many of the pictorial elements such as animals, birds, preposterous monsters that enliven the blank spaces on other medieval maps. With the exception of the eight wind faces and the symbolic figures of the evangelists no living creatures, whether animals or men, are graphically represented.

Among the existing maps dating from the 14th and early 15th centuries this *Leardo* map of 1452 is very closely related to the group of maps drawn by the famous Catalan cartographers of Majorca in the Balearic Islands. In its general outlines it is so similar to the *Catalan-Estense* map of 1450 *(#246)* that we may assume a common cartographic ancestor of recent vintage. There are certain legends and place names that are found on one and not the other, however, their real similarity lies in their coastal outlines.

A brief discussion of each of the four major geographical areas, Asia, Africa, the Mediterranean and Europe, will reveal some of the salient points of this map as outlined in the enclosed numbered sketch-map (from J.K. Wright's analysis). For a more detailed account of all of the numbered features of this outline map see Wright's monograph.

ASIA: In Asia, Korea, China and India are incorrectly shown and without Japan and Formosa. On the far eastern coast a castle with two towers marks the site of the *Terrestrial Paradise.* In southern Asia the Indian peninsula is less incorrect than in the Bianco map, and a noteworthy progress in knowledge is the disappearance of the great gulf between India and an eastern prolongation of Africa, still found in Bianco. With this gulf disappear also the traditional twelve thousand islands of Marco Polo. In the extreme north (left-hand side) there is a large structure that looks like an Italian church with its campanile *(#13)*. The legend beneath, suggested ultimately by a passage from Marco Polo, runs about thus: *[This is] the sepulcher of the [Grand Khan] and they do this when he comes to be carried for interment: he comes accompanied by many armed men who kill those whom they find on the roads, and they say that the souls of these are blessed because they accompany the soul of the Grand Khan to another life.* Marco Polo adds that at the time of the funeral of Mongol Khan 20,000 persons were thus slain. The actual place of burial of the Mongol Khans was in *Cathay*, far away from northern Russia where Leardo, following the model of Catalan maps, draws it. European cartographers of the 14th and 15th centuries seem to have known and cared little about the relative positions of places in Asia; as Italian merchants by this time had established contacts with the Mongols in southern Russia, what was more natural than to place the Mongol overlord's tomb in the hinterland of the Black Sea? Here there was more available space than in the Far East, and here also, on the *Leardo* map, the Grand Khan's tomb could

be made symmetrically to provide balance for Prester John's palace on the other side of the map in Africa *(item #299).*

South of the sepulcher can be seen the River Volga *(items #6, #7)* flowing into the northwestern corner of the Caspian *(item #250).* A branch from the east *(item #8),* perhaps the Kama, joins the Volga where the latter bends at a right angle to the south. East of the lower Volga is a *desert of thirty days (#10),* Polo's mysterious demon-haunted desert of *Lop*, where the traveler hears ringing bells and other uncanny sounds (possibly 'singing sands'). Like the Grand Khan's tomb, this desert is also woefully misplaced, since the actual desert of Lop lies in eastern Chinese Turkestan. This mis-location error is also to be found on *the Catalan Atlas of 1375 (#235)* and the *Catalan-Estense* map of 1450 *(#246).*

Farther east, beyond a row of six castles representing towns on the borderlands of China *(#35-40),* we come to a gulf of the encircling ocean and to a great system of mountains. The gulf *(item #11),* which contains three islands, appears in almost the same position and form on the *Estense* map, where there is a legend explaining that on the islands griffons and falcons are found and that the natives are not allowed to kill them without the permission of the Grand Khan of the Tatars. This is also from Marco Polo, who writes that "*the islands where these birds are bred lie so far north that the North Star is left behind you in the south*". The mountains southeast of the gulf make an enclosure shaped something like a ø *(items #42-47).* Inside the northern half of this ø a legend tells us that *this is the province of Gog and Magog*, *where many tribes of the Jews were shut in (item #70),* referring to the medieval tradition that Alexander the Great enclosed *Gog and Magog*, the terrible hordes of the Anti-Christ, within the Caspian Mountains. On maps the mountains of *Gog and Magog* in the Far East are named thus. Leardo, however, places *M°Gaspio [Caspiae Montes] (item #4)* north of the Caspian Sea somewhat nearer the position at which Ptolemy had placed them. To the mountains of *Gog and Magog* he assigns names derived from Ptolemy's northeastern Asia. Running westward from the southern basin formed by these mountains Leardo has added a river *(item #49),* the *Oechardes* of Ptolemy. Near the point where this river emerges from the mountain rim there is a red spot labeled *Iron Gate (item #72)* and, immediately to the west, two short red marks, the *Statues of Alexander (item #73).* The *Iron Gate* was built by Alexander in the wall enclosing *Gog and Magog*, and the statues represent trumpeters set up to keep guard over these unclean hordes. On the Catalan maps the trumpeters themselves are shown with their trumpets.

Immediately west of the statues appears *Mount Tanacomedo (item #48),* apparently Leardo copied *Montana Comedorum* from a Ptolemaic map, combining the last part of the first word with the first part of the last. At the extreme eastern edge of the world disk lies the *Terrestrial Paradise (item #63)* surrounded by an enormous wall to keep out curious intruders. The river Indus *(item #84)* flows southwestward to a great delta near the entrance of the Persian Gulf. Many of the place-names in India correspond with those of the Catalan maps and in turn were derived from Marco Polo. The scene of St. Thomas' mission and of the early introduction of Christianity into India is indicated by the inscription: *Here preached St. Thomas (item #113).*

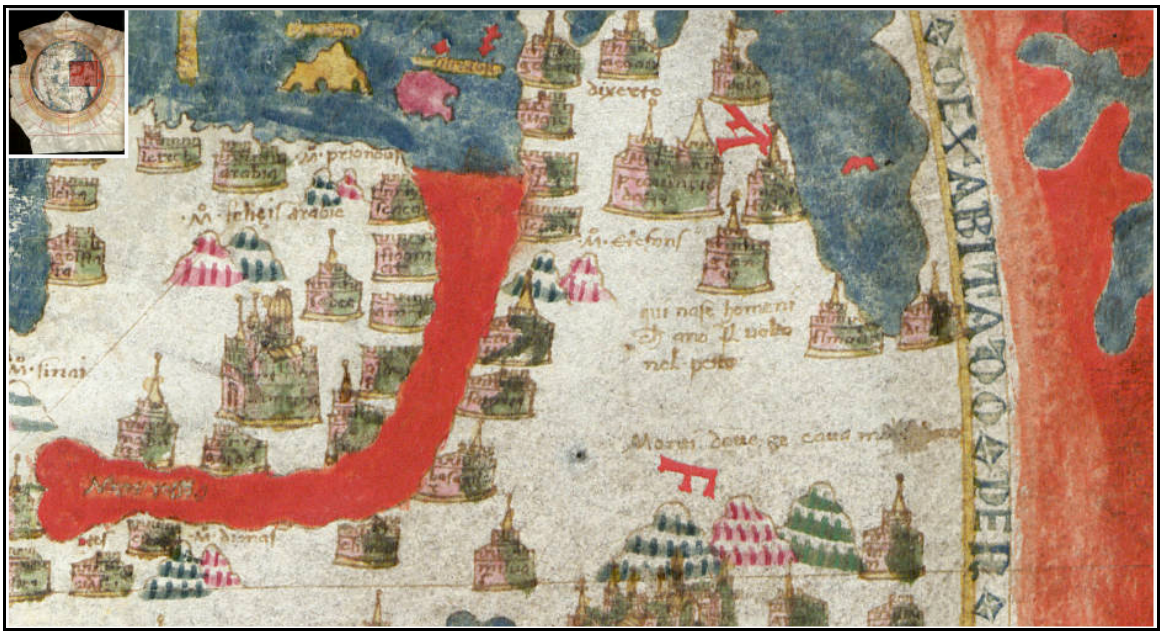
In central Asia there are two rivers entering the eastern side of the Caspian Sea, the *Jaxartes (item #117)* and the *Oxus (item #118).* The *Lake of Aral*, in which these great streams actually have their outlet, seems to have been wholly unknown to the geographers both of antiquity and of medieval Europe. Moslem scholars, however, were aware of its existence. Leardo places the castles of *Organa* and of *Organzia* [Urganj] *(items #120, #121)* at the mouth of the *Jaxartes* and his place-name *Orcania (item #132)* on the *Oxus*.

The Tigris and Euphrates *(#165, #166)* join, reaching the Persian Gulf *(#267)* as a single stream flowing between two large edifices that represent *Susiana (#172)* and *Babylonia (#173).* To the east of the Tigris a nameless river *(#139)* having its headwaters in a large lake *(#138)* also enters the Persian Gulf. This same stream on the *Catalan Atlas* and on the *Catalan-Estense* map rises in a double source, two bodies of water that have been identified with Lakes Van and Urmia. Leardo connects the Euphrates with the Mediterranean through the *Orontes (#168)* and with the Red Sea *(#268)* through the Jordan *(#167).*

Detail: The Caspian Sea, Asia and the sepulcher of the Grand Khan

The most prominent feature in Arabia is *Mecca (#211),* a large domed and towered building in good Italian Renaissance style and presumably representing a mosque. Several corrupted Turkish place-names, along with classical names appear in Asia Minor.

The Indian Ocean is filled with yellow and red islands. A legend asserting that pepper and spice are found in these islands *(#275)* comes from Marco Polo's description of the East Indian archipelago. The largest of these islands, lying off the coast of India, is marked *Taprobana (#269)* and probably represents Sumatra.



Detail: the Red Sea, Arabia and Africa

AFRICA: On *Leardo's* map, this continent, like that of the *Catalan-Estense* map *(#246),* has a very unusual shape *(see outline map comparisons below).* Africa is indented by a deep gulf on either side, while the southern part of the continent is fanned out as it is on the *Catalan-Estense* map, producing an Indian Ocean with an opening to the east. Prester John inhabits a large castle on this southeastern extension of Africa. The Persian Gulf runs from east to west, cutting off the Arabian peninsula on the north, while the Red Sea has a right-angle bend in it, oriented north-south in Egypt and turning to run into the Indian Ocean from the west. There are several references to the spice trade in the Indian Ocean, and in the Sahara are some of the towns that began appearing on Catalan maps in the previous century. The southern part of Africa is a work of pure fancy, painted a fiery red beyond a band which divides the inhabited part from the desert uninhabitable because of heat. The Gulf of Guinea is made mediterranean, and on the Atlantic coast of Africa the Canary Islands are shown, with the first Portuguese discoveries.

Two gulfs reach inland from the Indian Ocean and from the Atlantic, partially cutting off the southern extremity of the African continent. On the *Estense* map the eastern gulf is not as prominent as that of Leardo's map, but the western gulf is even deeper. The historian Konrad Kretschmer suggests that these features have sprung from a combination of the ancient doctrine of a vast austral continent with Ptolemy's theory that the Indian Ocean is surrounded by land. Certain Arabic maps show an eastward projection of Africa like those of the *Estense* map and *Leardo*, although they do not indicate anything corresponding to the western gulf.

Prester John's castle *(#299)* looms large in the interior of Africa. In the 12th century, reports spread through Europe of the vast realm of a fabulous Christian monarch in the heart of Asia. By the 14th century, however, Prester John's empire had been transferred to Africa, where it became associated with the Christian kingdom of *Abyssinia*. The elaborate edifice with which Leardo represents Prester John's empire may be intended for the sumptuous palace described in the 13th century *Letter of Prester John*. South of Ethiopia we find the empire of Prester John and these two inscriptions: *Here are four-footed animals with human faces*; and *Here are men with faces in the breasts.*

There are two Niles. One flows from Ptolemy's *Mountains of the Moon*; the other branches from the first, forms various lakes and finds its way to the Atlantic. Like most medieval cartographers, Leardo makes the Nile *(#312)* rise in West Africa *(#338).* In this he follows Herodotus, Pliny, Mela and other ancient authorities. Ptolemy, however, seems to have had a more correct view, placing the sources of the river in the *Mountains of the Moon* in eastern Africa. Nothing daunted, most of the 15th century cartographers who used the writings of Ptolemy boldly transferred the *Mountains of the Moon* to West Africa to suit their theory of the river's course. Thus, on the *Leardo* map the *Montes Lunae (#334)* are located on the north coast of the West African gulf. Thence four streams flow north into a lake, out of which the Nile makes its way eastward and another stream flows westward into the Atlantic. The latter stream represents, perhaps, a combination of the Niger and Senegal, of which some faint knowledge may have been gained through traders who had crossed the Sahara. The lower Nile is joined by the *River Stapus (#313),* doubtless the *Astapus* of Ptolemy or the modern Blue Nile. On the *Catalan-Estense* map this tributary rises in the *Terrestrial Paradise*, there placed in East Africa. To the mountain range of North Africa, the *Carena* of the Catalan maps, Leardo has added Ptolemaic names.

The Red Sea, as in all the older maps, makes an angle towards the east, but it is made to begin east of Jerusalem, almost at the point of commeficement of the Persian Gulf, and it reaches to Cape Guardafui. No account is taken of the strait of Bab-el-Mandeb.

The Leardo map and the Catalan Estense map compared (both oriented to the North)

THE MEDITERRANEAN: The outlines of the Mediterranean *(#433)* and Black Seas *(#431)* are more correct than any other features which Leardo draws. This, of course, is due to the fact that they were derived ultimately from the *portolan* charts. Leardo preserves the faulty orientation of the Mediterranean characteristic of the latter. If we assume that the perpendicular line extending from the wind-blower off the west coast of Spain through Jerusalem, to the wind-blower east of the *Terrestrial Paradise*, is intended to run due east and west, we see that the axis of the Mediterranean with the adjoining shores has been turned counter-clockwise some twelve degrees. This is probably because of failure on the part of the makers of the original *portolan* charts to take into consideration the declination of the compass.

Leardo's place-names along the Mediterranean and Black Sea coasts are all derived from the *portolan* charts, although Leardo wrote names only where it was easy to do so

without crowding. The least successful portion of Leardo's Mediterranean coast is that of Spain: the shore here is unduly elongated as compared with that of the *Catalan-Estense* map, Barcelona *(#475)* and Ampurias *(#476)* being placed too far northeast on what ought to be the French shore line.

Latitude and longitude are not marked. The Mediterranean is made too long and the western coast of Europe is badly drawn, but Scotland and England form one island. The Scandinavian peninsula has a western inclination and the northern parts of Europe and Asia are depicted as the desert uninhabited on account of cold.

Detail: Black Sea, Noah's Ark, Anatolia, Jerusalem, Babilonia

EUROPE: As on the Catalan maps, the geography of northwestern Europe is badly distorted. The Seine *(#448),* Rhine *(#487)* and Elbe *(#488)* all flow parallel with one another but slightly to the south of west. The course of the Danube *(#552)* with its southern branches is more true to nature. The Baltic Sea (#577) and Scandinavia are drawn to the scale much the same as on the *Estense* map. A large Scandinavian peninsula lies along the northwestern section of the map, taking up so much room that the British Isles are pushed down to a location off the western coast of France. North of Scandinavia Leardo puts *the people who do not see the sun for four months in the year*.

The maps of Leardo vary among themselves, but all are oriented with East and *Paradise* at the top and Jerusalem in the center. The Red Sea is red, *Gog* and *Magog* are confined in the northeast, along with griffins and cannibals, and Noah's Ark and Mt. Sinai are marked. Within this conventional structure, however, Leardo has found it possible to incorporate some modern material. The Mediterranean and Black Seas are drawn according to the model of the sea chart, though the map's small size does not allow for many place-names, and the winds are eight, in seaman fashion, rather than the classical twelve. Ptolemaic names appear, especially in Africa, where the Nile flows from the *Mountains of the Moon*, located in West Africa. The earth is shown from the pole to the equator, with the north polar region marked red on the Verona and Vicenza maps, green/brown on the American Geological Society (AGS) map, and noted as uninhabitable due to the cold. The southern region is described as uninhabitable due to the heat and is colored red on all three

maps. The AGS map, which was studied intensively by J.K. Wright, is badly worn and some of the inscriptions are now illegible.

The *computus* and theological framework of the Leardo maps show their purpose: to illustrate the totality of God's creation in both space and time. Modern features are included where that can be done without violating the integrity of the model, but the basic format is the traditional one. We do not know the purpose for which the maps were made.

North of Scandinavia Leardo puts *the people who do not see the sun for four months in the year.*

Europe contains 47 cities all colored green and red. Mountains are barely indicated; the seas are blue, except the Red Sea, which is deep red; the lakes are blue, yellow, and rose, and the rivers green and blue. The names of the continents are written in red on a white ground and the islands are in red and yellow, with the exception of Ireland and England, which are green.

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Ocean with an opening to the east. Prester John inhabits a large castle on this southeastern extension of Africa. The Persian Gulf runs from east to west, cutting off the Arabian peninsula on the north, while the Red Sea has a right-angle bend in it, oriented north-south in Egypt and turning to run into the Indian Ocean from the west, A large Scandinavian peninsula lies along the northwestern section of the map, taking up so much room that the British Isles are pushed down to a location off the western coast of France. There are several references to the spice trade in the Indian Ocean, and in the Sahara are some of the towns that began appearing on Catalan maps in the previous century. The AGS Leardo map, which was studied intensively by J.K. Wright, is badly worn and some of the inscriptions are now illegible.

The computus and theological framework of the Leardo maps show their purpose: to illustrate the totality of God's creation in both space and time. Modern features are included where that can be done without violating the integrity of the model, but the basic format is the traditional one. We do not know the purpose for which the maps were made.
Giovanni Leardo's world maps illustrate this transition period significantly, which characterizes the cartography of the century preceding the discovery of America; indeed, by their form, their orientation, the figuration of the *Terrestrial Paradise*, the reminders to the Holy Scriptures, the presence of an ocean which surrounds the *oekoumene*, they still remain in the pure medieval Christian tradition. Nevertheless, the concern for precision brings to the trace of the Mediterranean and Western European coasts, the presence of inscriptions in Asia inspired by the account of Marco Polo and other travelers, the supervision formed by the various celestial spheres and the corresponding calendars, finally the reminiscences in the nomenclature of Africa and the Far East, made at the *Cosmogrciphia of Prolemee*, already make of these four world maps works of the pre-Renaissance, where the Venetian cartographer confronts a still a mythical conception of the world based on experience provided by travelers, astronomers and sailors; they can be compared, the third especially, to the Catalan world map around I450 *(#246)*, preserved in the Biblioteca Estense in Modena, with which they seem to have a common ancestor.

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

This map measures 2I.5 cm in diameter, is painted on a vellum sheet of 53.4 x 28.1 cm., surrounded by three concentric circles as are indicated, from the inside to the outside: the names of the months, that of the signs of the zodiac, the dates of the holiday from Piques from April 16, 1441 to March 28, 1535, with the mention B. for leap years; The whole (calendar and world map) is inserted in a pentagon-shaped frame, at the lower angles of which are inscribed on banners and in red capitals: *Mapa Mondi* and *Figura Mondi.* Under the frame, an inscription of four lines in black cursive explains the calendar, bottom right, signature and date: *Johanes Leardus me fecit 1442*.

The map is oriented East at the top, with Jerusalem in the center; at the eastern end of Asia is indicated the *Paradixo Teresto*; two legends, one in the north of Europe in red capitals: *Dixerto Dexabitado Per Fredo*, the other in the south of Africa in black cursive: *Dixerto dexabitado per chaldo e per serpenti*, mark the limits of the habitable zones.

It is the most basic of the three Leardo worlds; the outlines of the continents is still imprecise, the rather poor nomenclature illustrated by a sample of fifty or so vignettes, pink in color, which signify cities, kingdoms, or countries; an ocean in blue surrounds the map; figuration of the hydrographic network in blue: *f donava* (Danube), *f tanai* (Don), *f nillo* (Nile), f de nora (sans do ute Senegal); painted seas in b1eu: mar dalemani (Baltic), mar *mauro* (Black Sea), *mar dabachu* (Caspian Sea) ... except the Red Sea in red.

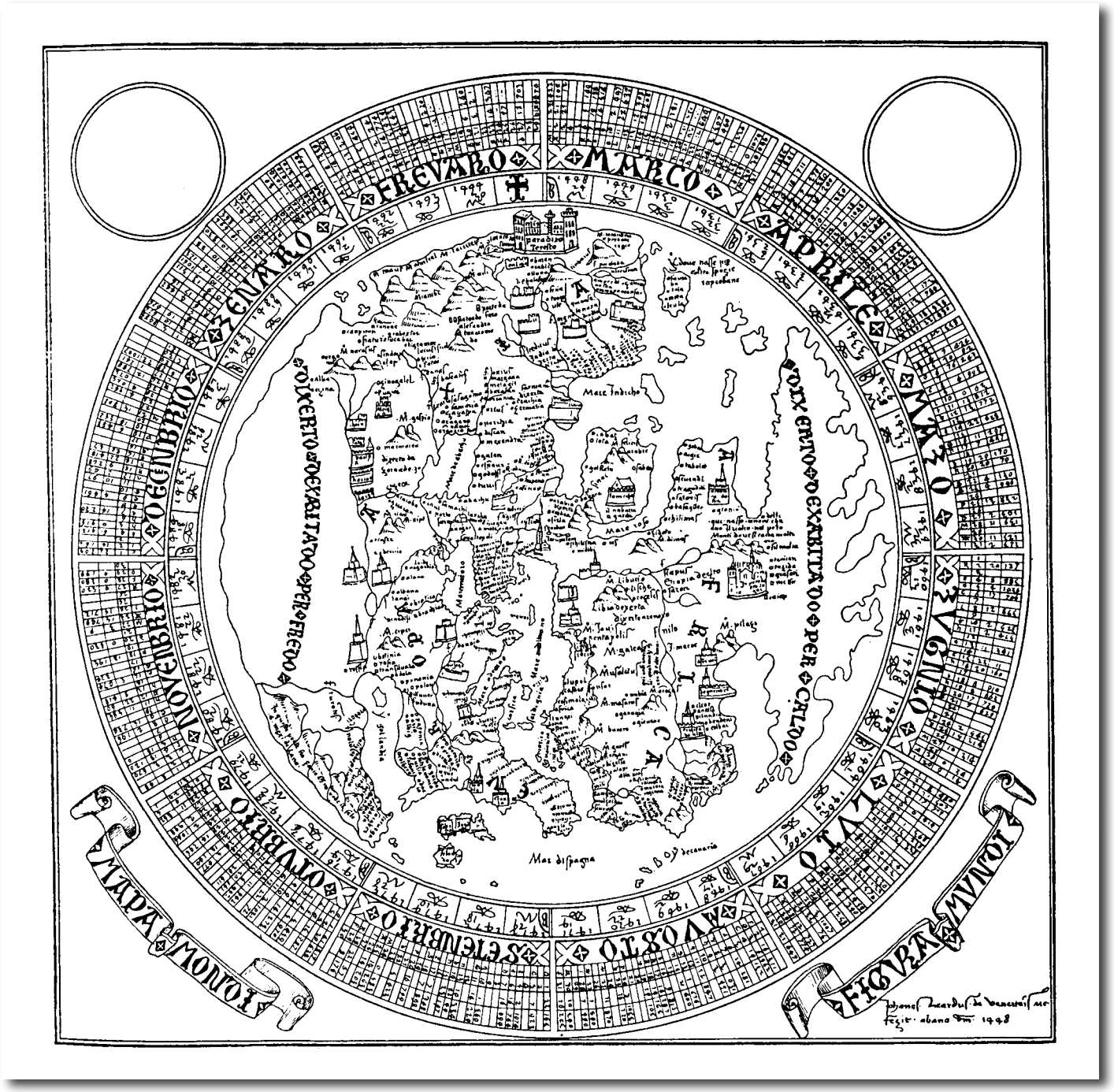
Mapa Mondi Figura Mondi, 1442 world map by Giovanni Leardo, 34.7 x 31.2 cm (oriented with East at the top)

Facsimile of Giovanni Leardo world map, 1448, 34.7 x 31.2 cm (oriented with East at the top) "Mappemonde dresse en 1448 par Johanes Leardus de Venise, conservee a Vicenza dans la Biblioteque Trento, publicee pour la premiere fois et donnee en facsimile", in Vicomte de Santarem, Atlas compose de Mappe-mondes, 1849, Oxford University, B1 a.10, map sheet 27.

This map measures 21.4 cm in diameter, is painted on a vellum sheet of 34.7 x 31.2 cm and is surrounded by six concentric circles which contain: the dates of the feast of Spades from March 24, 1448 until March 30, 1494, with the mention B. for leap years; the names of the months; a perpetual daily calendar; the days of the month; the hours of the day; 1st minutes. The whole, calendar and world map, is inserted in a rectangular frame with lower angles of which are inscribed on two banners on the left in red capitals: *Mapa Mondi*, and on the right in blue capitals: *Figura Mondi*; under this last inscription, signature and date: *Johanes Leardus de Venetiis me fecit ab anno domini 1448*; under the frame, a long legend in cursive noire explains the calendar.

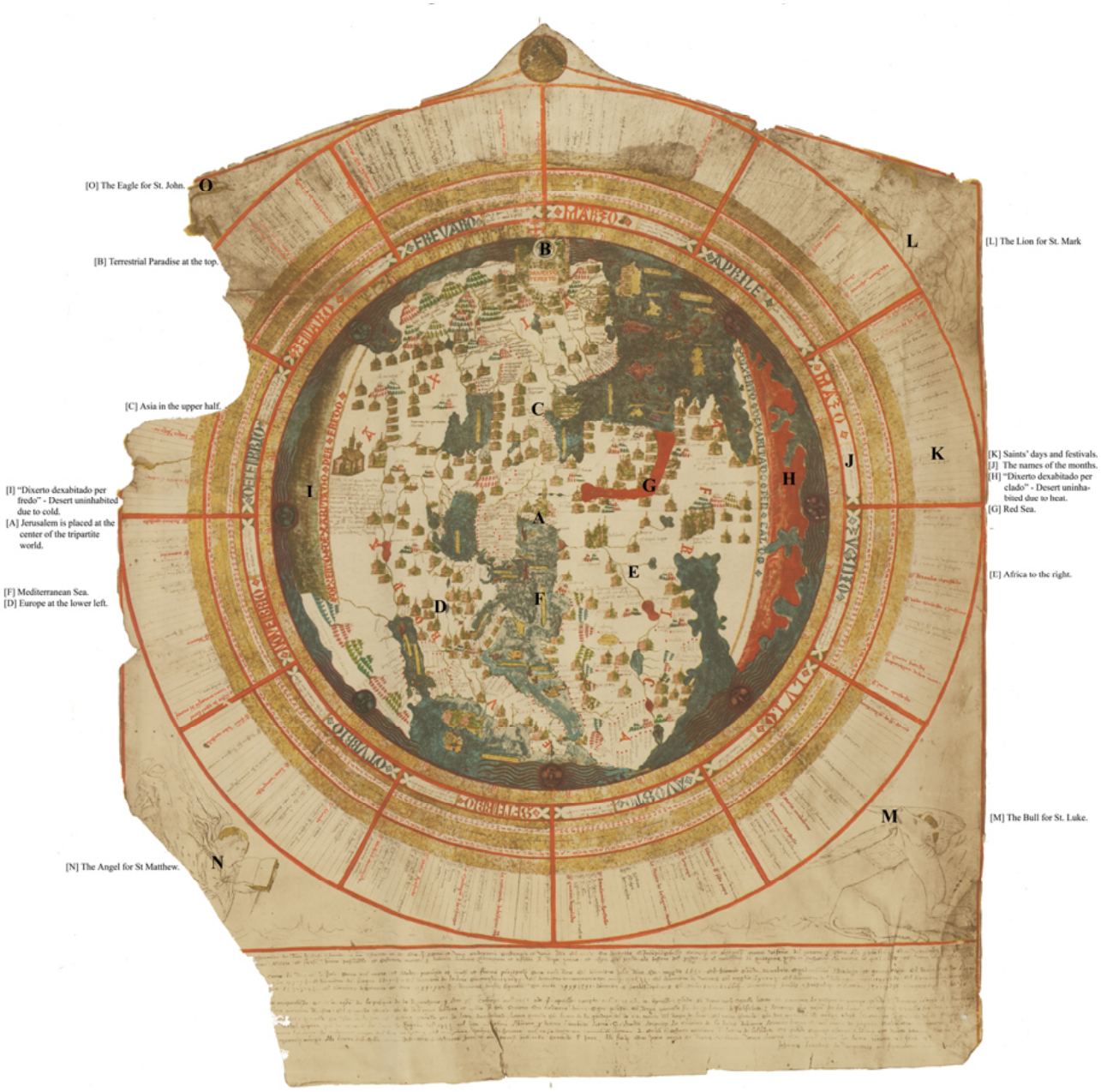
This map has the same characteristics as the precedence: oriented with East at the top with figuration by a large vignette of *Paradiso*; Jerusalem in the center; the ocean, which surrounds the *oekoumene*, and the seas are blue except the Red Sea in red; the land is white, except the one located north of *Diserto disabitado per fredo* which is in black, and the one located south of *Diserto disabitado per Caldo* which is in red; mountain ranges represented by alternately green, red, blue hills.

This map, unlike the previous one, but as on nautical charts of the time, contains a large nomenclature in black cursive, written perpendicular to the dimensions; particularly rich for the coasts of the Mediterranean Sea; the names of the three parts of the world, *Europa, Asia, Africa,* in red capitals; The hydrographic network is displayed in brown; in Africa the Nile joins another river in West Africa. Thirty vignettes of green and pink cities; several legends that did not exist on the previous map: in northern Europe, north of Norway, near a mountain range: *In questa parte sta gente che ne vedi iI so le 4 mexi de lano;* near the Ganges: which *nazes the noxa dindia*; in Abyssinia: *Qui nasso che ano iI 'riolio (ochio) nel peto*; and further: *Monti dore si carra molto oro,* etc. This map was discovered in Vicenza in 1840 by M. Vincenzo Lazari.

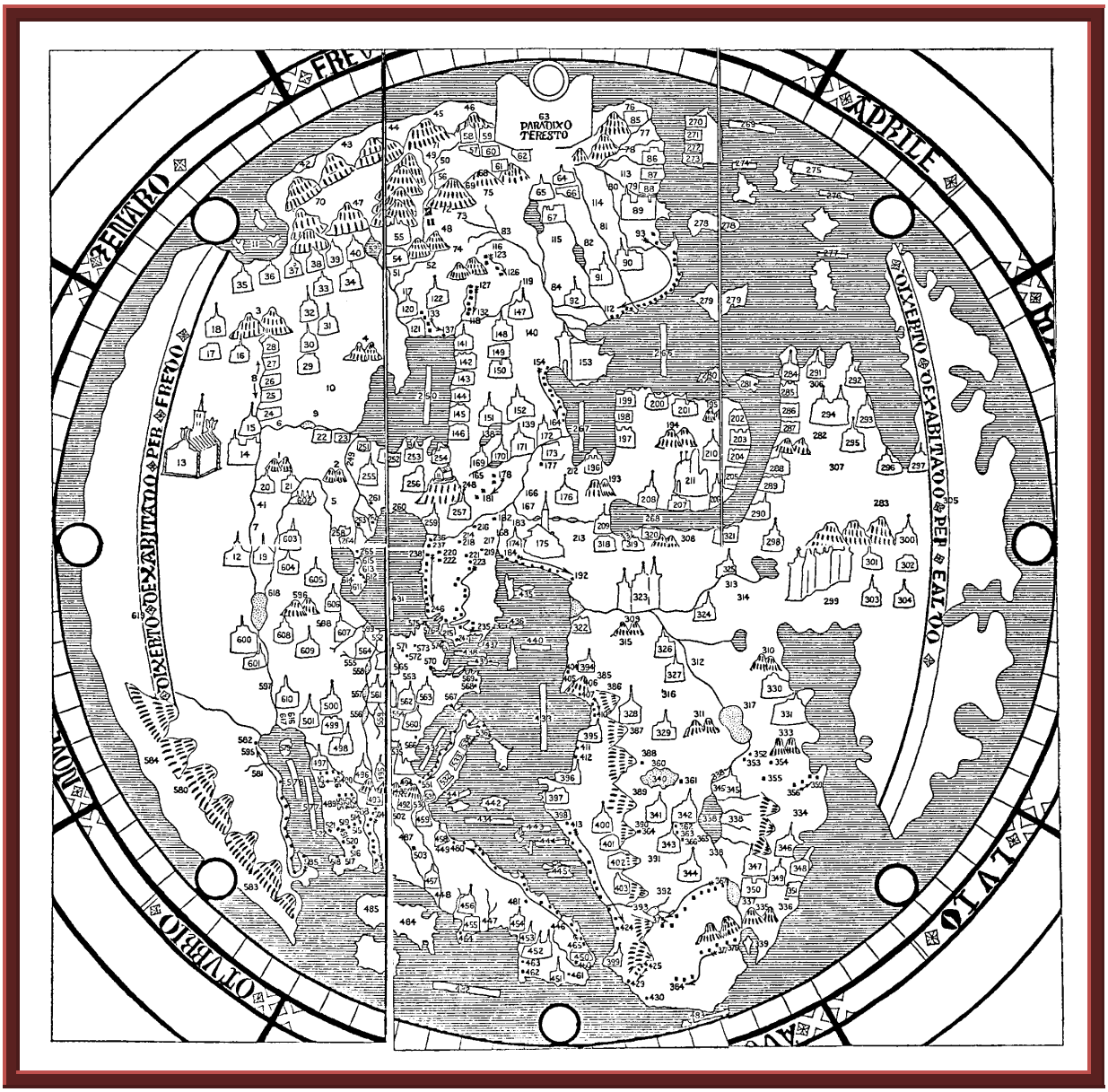


Giovanni Leardo world map, 1448, 34.7 x 31.2 cm
(oriented with East at the top)

World map by Giovanni Leardo, 1452-53,
American Geographical Society, Milwaukee University
(oriented with East at the top)

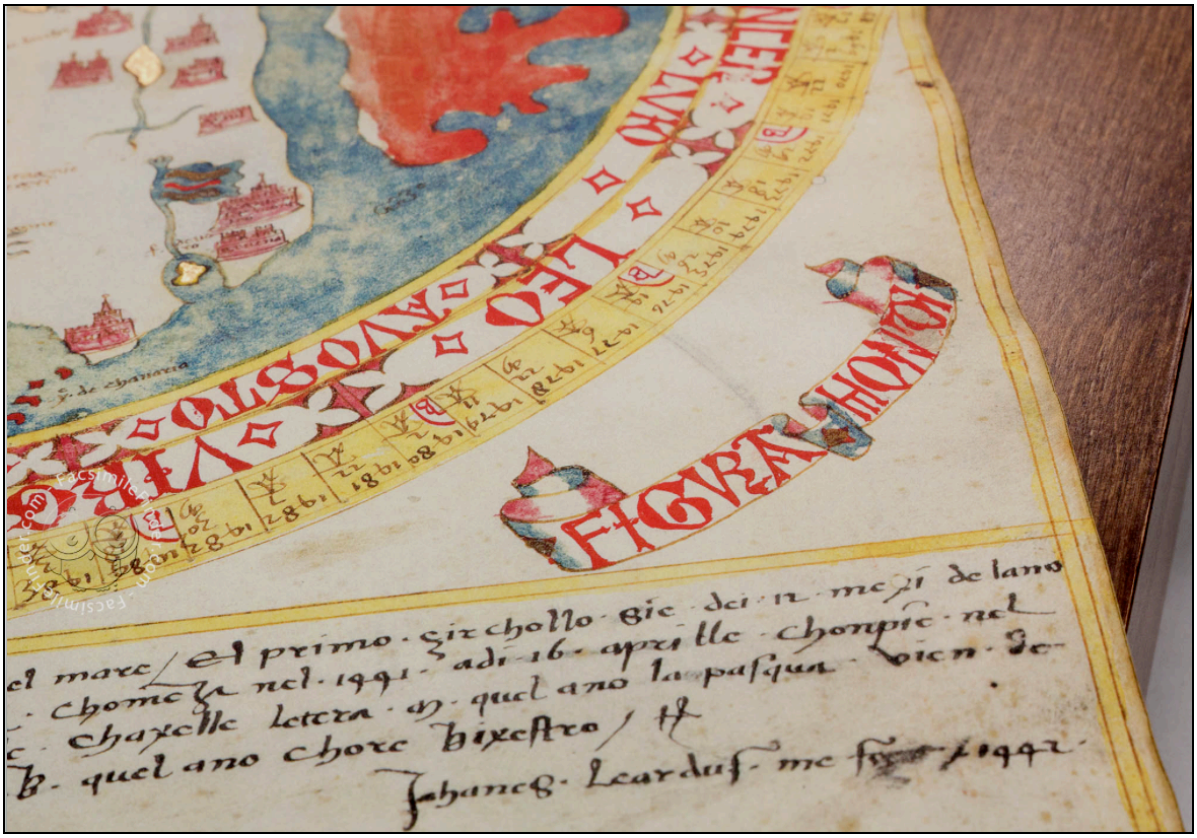


The Leardo map of the world is one of three known world maps signed and dated by the fifteenth century Venetian cartographer, Giovanni Leardo. The map depicts the parts of the world known to Europeans in the late Middle Ages. It is considered the finest example of a medieval mappamundi preserved in the Western Hemisphere.
It was presented to the American Geographical Society in 1906 by Archor M. Huntington, who served as President of the Society from 1907-1911.



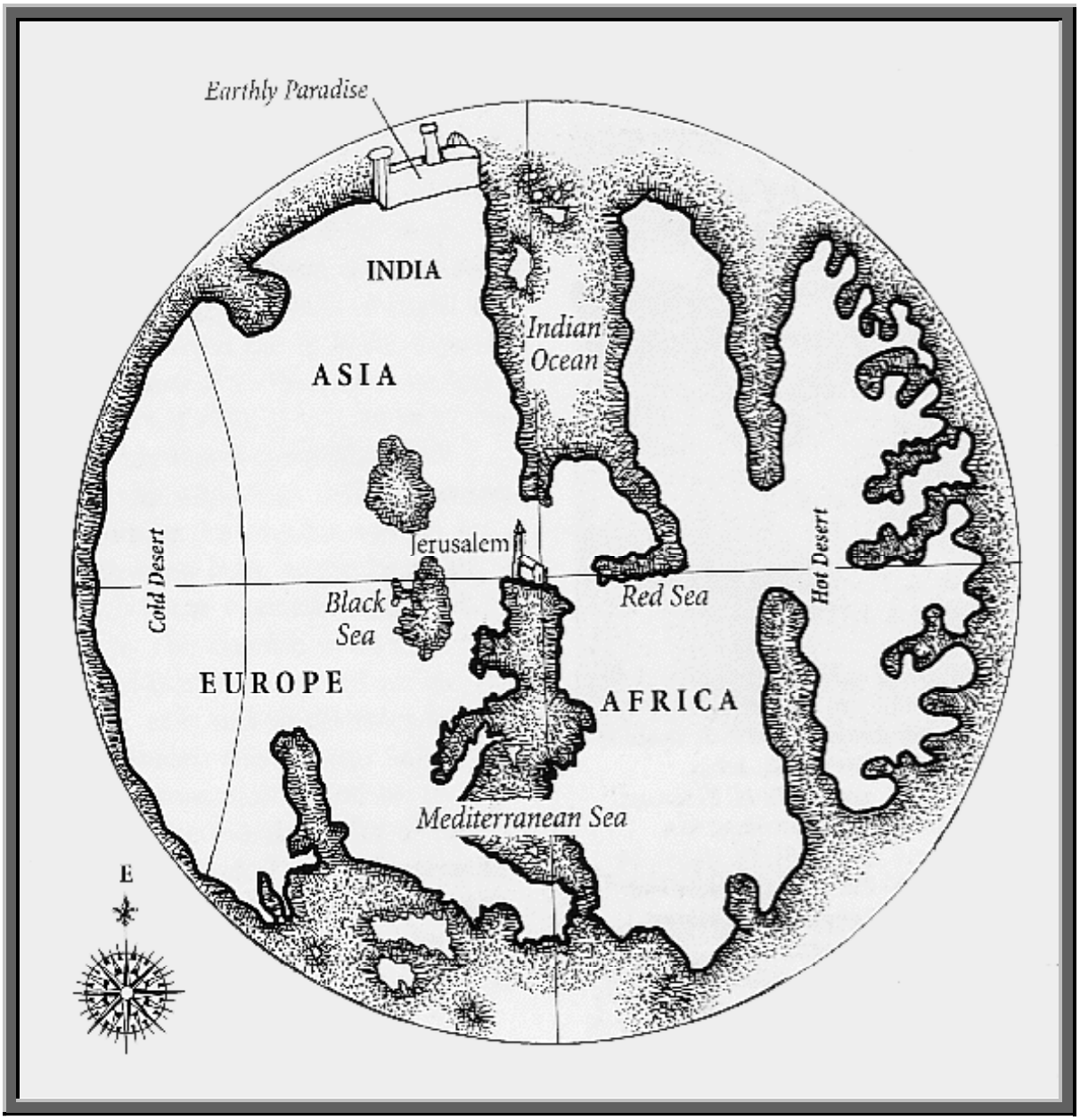
Redrawing of the Leardo world map with numbered locations/points of interest

Detail: the Indian Ocean & Asia

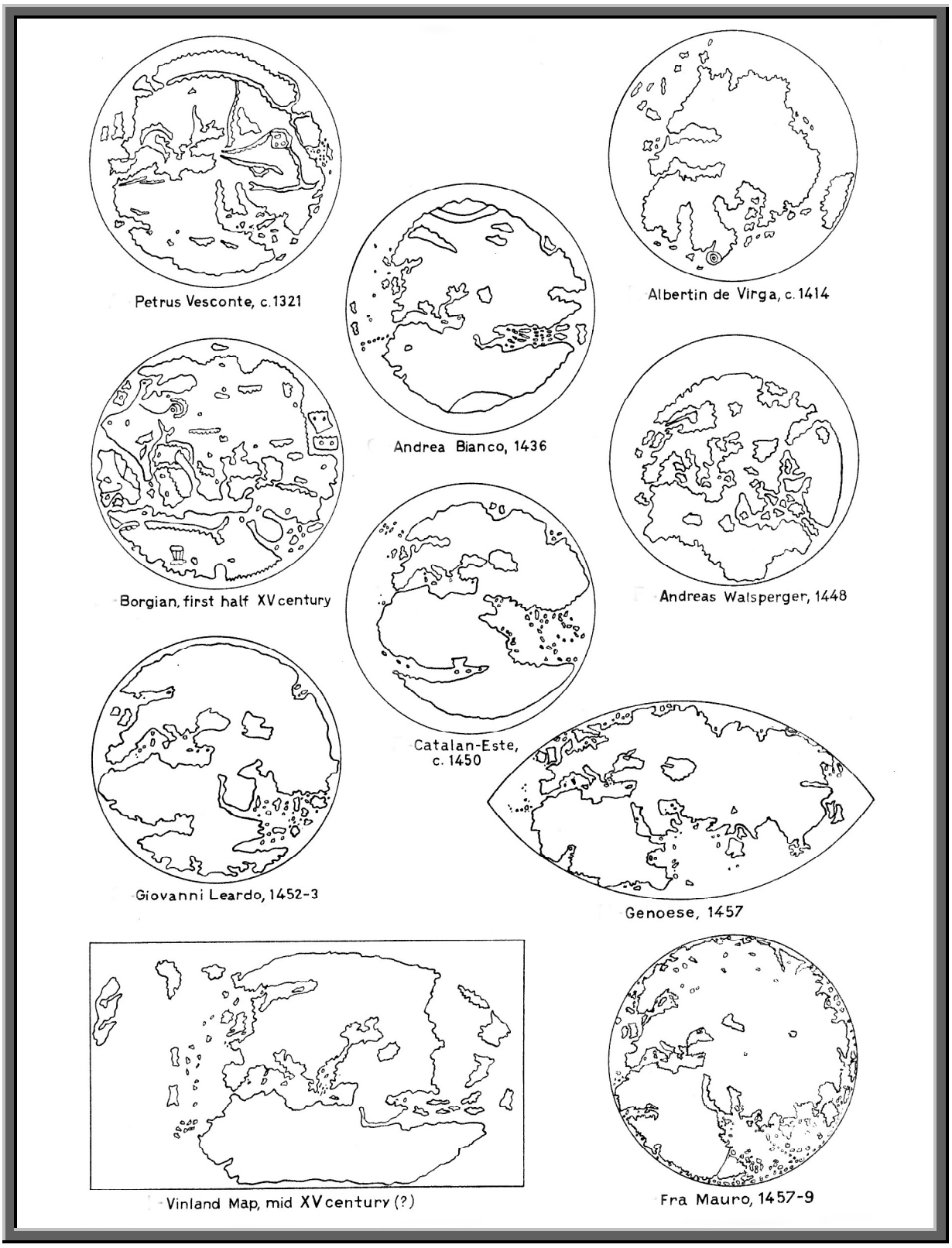


Detail: Leardo's signature & date 1442

Detail: Europe & Africa



from Scafi, A., Mapping Paradise, pp. 16-18; 209, Plate 2a



Comparison of prominent Late Medieval mappamundi, with common North orientation

LOCATIONS: Biblioteca Communale Library, Verona, Italy (1442)
Biblioteca Civica Bertoliana, Vicenza (1448)
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