Title: *Carta Universal en que Se contiene todo lo que del mondo Se ha descubierto fasta agora: hizola Diego Ribero cosmographo de Su magestad: Año de 1529. ẽ Sevilla: La qual Se devide en dos partes conforme A la capitulacion que hizieron los catholicos Reyes de españa, y elrrey don Juan de portogual En Tordesillas: Año de 1494:*
Date: 1529
Author: Diego Ribero [a.k.a. Diogo Ribeiro]
Description: This map is justifiably considered by many scholars to be the finest cartographic production of its age. The mapmaker, whose name in its Portuguese form is Diogo Ribeiro, was a Portuguese [Lusitanian] at Seville in the service of King Charles V of Spain. For many years Ribero was recognized as one of the most expert cosmographers of his time. He was closely associated with all of the noted explorers who gathered about the Spanish court. He was a personal friend of the Pilot Major, Sebastian Cabot; was the royal cosmographer under Ferdinand Columbus; and made the maps that Magellan carried with him on his famous voyage across the Pacific. Ultimately Ribero succeeded Sebastian Cabot as Pilot Major, a position for which he was obviously highly qualified, having also navigated to India for both Vasco da Gama and Albuquerque.

There are five large similar planispheres of which two are clearly "signed" by Diego Ribeiro with the other three nearly exact copies and thus capable of being assigned and dated, all five are in the same hand and attributed by A Cortesao to Diego Ribeiro. Many other authors have implied that these five charts are in fact as near as possible to the Spanish *Padron Real,* the Royal Standard Map of Spain. That being the case then, according to Michael Ferrar, it is proven beyond doubt that the Diego Ribeiro planispheres are the "mythical" *Square Chart* and thus the *Padron Real* of Spain is also a *Square Chart*, latitudes and longitudes are equal and there is no sign of a magnetic slewing of the Mediterranean Sea, it is geographical. It is also possible to conclude that Diego Ribeiro was a consummate polymath and probably knew M F de Enciso in Seville when his *Geographia* was published in 1519 and certainly Ribeiro has used his text to illustrate these five planispheres.

In 1508 and again in 1512 the King of Spain ordered by *Royal Cedula* that a *Padron Real* be kept up to date in the *Casa de la Contratacion* so that information carried home by various expeditions would be immediately used and available to the next expeditions. Thus many "Pilots Maior" were charged with this task and one read that it was permissible for copies to be made and sold to enable those future expeditions to have the latest knowledge. That of course begs the question as to why some researchers write that the *Padron Real* was secret; the "permis" seems to obviate that statement, but possibly it was for copyright only. Hence, again according to Ferrar, the work of Diego Ribeiro is considered to be a "copy" of the *Padron Real* with its updates as the five planispheres clearly indicates. However the these charts are also adorned with drawings of instruments and a table to establish the declination of the sun at particular latitude as well as establish those latitudes. Longitude was still a time and speed measurement and of course so manipulated to be anything the two sides of the "junta's" wanted to portray.

As royal cosmographer, it was Ribero's duty to revise the *patron real* [1ortug general], the standard or official map, as new data was brought back by the pilots from their voyages of discovery. Therefore this map was the one that incorporated the most recent discoveries, corrections and revisions into one master map thereby providing the most accurate, continually updated delineation of the known world. The *patron real* had

first been made, by order of Ferdinand in 1508, by a commission under Amerigo Vespucci, and was put under the control of the *Casa de Contratacion*, a council organized five years earlier to supervise discoveries. No copy of this important *patron real* is now known to exist, although the Pilot Major was authorized to make and sell copies to all pilots, who were ordered to take them on their voyages. Ribero's existing maps are the nearest example what these copies of the official map probably looked like. They show the astonishing growth of detailed knowledge of the New World since the first voyage of Columbus thirty-seven years before. The entire east coast from Greenland to the Straits of Magellan had been explored, and reports of voyages along the Pacific coast were coming in rapidly.

Ribeiro was among the cosmographers, pilots, and jurists who met with Portuguese counterparts in the late 1520s in an attempt to reach a diplomatic settlement regarding the position of the anti-meridian and the legitimacy of Castilian claims to the Spice Islands. The 1529 planisphere was probably a by-product of these negotiations. It is justifiably famous for the remarkable accuracy of its depiction of the coastlines of the Americas, as well as for its depiction of the line of demarcation. Two standards appear near the bottom edge of the map, one Castilian and the other Portuguese, marking the position of the original line of demarcation, and another Castilian standard appears planted near the left-most edge, right atop the toponym ''China.'' A similar Portuguese standard appears at the right-most edge, which serves to truncate the landmass of Asia near the location of the anti-meridian. In this way, all of the hemisphere claimed by Castile, from Brazil to Malacca, lies on the left-hand side of the map, west of the original line of demarcation.

Ribeiro's map is also famous for its ornamentation, which is key to understanding its geometrical structure and imperial rhetoric. That structure is far from compelling. It attempts to dissociate the putatively Castilian portion of East and Southeast Asia from the rest of the continent, and associate it instead with the Americas, thereby setting the imperial geometry of its meridian and anti-meridian against the much more compelling corporeal integrity of the continental landmasses. As Ricardo Padrón states that the lonely Castilian standard flying over China flaps unconvincingly across an ocean whose breadth speaks of the distance between Asia and America, not of their unity. It fails to distract us from the observation that the land to which it lays claim can be understood just as easily, and perhaps much more spontaneously, as an integral part of the Asian landmass in the Portuguese hemisphere than as an integral part of the Castilian hemisphere. The map thus fills the emptiness of that problematic Pacific with a circular table of solar declinations, used in oceanic navigation, and a series of cartouches packed with information about navigation and geography. Its evident *horror vacui* can thus be understood as a more specifically imperial anxiety. The ornamentation speaks of the eminent ''bridgability'' of the ocean whose breadth undermines the visual coherence of the Castilian hemisphere. Tellingly, the astrolabe sits perfectly centered between the line of demarcation and the anti-meridian, providing the Castilian hemisphere with a counterfeit *center* meant to anchor the Spanish Indies against the centrifugal pressures that seem to pull them apart. In 1524 Ribero was a member of the Conference of Badajos that was assembled to settle the dispute as to whether the Philippine Islands lay within the part of the world allotted by the 1494 *Treaty of Tordesillas* to Spain or to Portugal. This conference dissolved without agreement, but Spain retained control of both groups of islands until 1528, when Charles V sold his claim to the Spice [Moluccan] Islands to Portugal as part of the *Treaty of Saragossa*.

On the map of Diego Ribero of 1529, the line of demarcation in the western world and its significance are shown clearly enough by its adoption as the prime meridian and by the placing of the Spanish and Portuguese standards respectively west and east of it at the foot of the map. In the east Ribero's meridian marking 180° brings the Moluccas within the bounds of the Spanish claim, but it does not include the Malay Peninsula and the eastern coast of China. Ribero recognizes the conflicting claims of Spain and Portugal in this part of the world by placing their respective standards at the foot of the map about ten degrees apart, leaving between them a considerable breadth of debatable area, comprising a large section of the Asiatic coast and many island groups of Malaysia. The Spanish claim is definitely marked in two maps, *Demarcation y Naoegaciones de Yndias* and *Descripcion de las Yndias del Poniente* which appear in the Lopez de Velasco manuscript, *Demarcation y Diuision de las Indias*, compiled about 1575 *(#408).* Upon these maps the meridian of demarcation is shown running through the tip of the Malay Peninsula. The assertion made of the Spanish claim in the Lopez de Velasco maps was not without implications even in 1575, fifty years after that claim had been set up, for at this time the Philippines had been occupied by Spain for a decade only, and her right to those islands under the terms of the bull could still be questioned. So far as the Moluccas were concerned there existed when the Lopez de Velasco book was written no real question of sovereignty. That dispute had long since been settled, and settled by the power of the purse rather than through diplomacy or the force of arms. When in 1529 the Emperor Charles V borrowed 350,000 ducats from the King of Portugal he put in pawn to his creditor Spain's claim to the Moluccas and all the islands for some three hundred leagues to the eastward of them. Spain afterwards held that the Philippines were not part of the security pledged at that time, and when she occupied those islands in I565/6 Portugal let the action go by default. These conflicting claims were not entirely the results of greedy imperialism. In the state of nautical and astronomical science of that period, the difficulties attendant upon the correct establishment of longitude had not been solved. Longitudinal distances at sea still were measured by dead reckoning, and the length of a degree in miles had not yet been exactly determined. Until these fundamental factors in geodetic science had been established there could be no certainty as to the exact position of the eastern line of demarcation. By the time that was accomplished a *status quo* had come into being which rendered the question purely academic.

In 1526 Ribero was a prominent member of the junta of pilots at Seville, under the presidency of Ferdinand Columbus. This group was called together by Charles V to secure data for a revision to the *patron real*.

There are two well known world maps signed by Ribero; one, produced in 1527 is in the Grand Ducal Library at Weimar; and the other, produced in 1529 is sometimes called the *Propoganda*, or *Second Borgian* map, formerly in the Museo Borgia of the Propaganda Fide, now in the Vatican Library at Rome. A third map, produced in 1532 and closely resembling the other two, but unsigned, known as the *Wolfenbüttel* map, as it is in the Wolfenbüttel Grand Ducal Library, is also believed to be the work of Ribero. There is also a map produced in 1525 currently in the library at Manua, another map from 1529 also at Weimar and fragments of a world map produced in 1530 now preserved in Studienbibliothek, Dillingen on the Danube.

The map shown here, the *Propoganda* or *Second Borgian* map, is a reproduction of the one now in the Biblioteca Apostalica Vaticana, Vatican City. It is an illustrated manuscript world map produced on vellum measuring 80 x 204.5 cm [33 x 80 inches].

Reproduction of the Propoganda edition by W. Griggs, 1887, 58 x 150 cm, Library of Congress G3200 1529.R 1887 MLC

The full title of this world map is *Carta Univeral En que se contiene todo lo que del mondo Se ha descubierto fasta agora: Hizola Diego Ribero Cosmographo de Su Magestad: Año de 1529. La qual Se devide en dos partes conforme a la capitulcio que hizieron los catholicos Reyes de españa, y El Rey don Juan de 4ortugal e la Villa de tordessilas: Año de 1494* [General chart containing the whole of the world that has hitherto been discovered; complied by Diego Ribero, cosmographer to His Majesty, which is divided into two parts according to the agreement made by the Catholic Majesties of Spain and King John of Portugal at Tordessilas, A.D. 1494].

Beginning on the northern part of the North American continent, on the coast of *Tiera de Labrador* [Greenland] a brief inscription reads: *The English discovered this country. It produces nothing of any value. It was discovered by the English from the city of Bristol.* This clearly indicates the discovery accomplished by John Cabot, but ascribed by Ribero to Sebastian, who was in 1529 his superior in the service of the Castilian Crown and from whom he certainly gathered most of his data concerning the northeastern regions. On the *Wolfenbüttel* edition of the map is added: *As he who first sighted it was a farmer from the Azore Islands, this name remains attached to that country.* This name *Labrador*, i.e., the land of the laborer, was later transferred to the country west of the Davis Strait. The bay to the west of *Labrador* is undoubtedly the entrance to Davis Strait, not yet explored.

Tierra de los Baccallos [Newfoundland], which is still a part of the mainland as on the map of Ruysch *(#313)*, is thus described: *The land of cod fish discovered by the Corte Reals and where they were lost. Up to this time nothing of value has been found there, except the fishing of codfish, and these do not amount to much.*

Tiera De Estevã Gomez commemorates the voyage made in 1525 by Estevan Gomez, the captain of the *San Antonio*, who deserted Magellan and returned to Spain. He was present as an associate of Ribero in the Conference of Badajos in 1524. Upon the failure of that conference, Gomez was sent out in the autumn of 1524 in search of a shorter passage to the *Spice Islands*. He explored the same coast that had been visited a few months before by Verrazano *(#347)*. He sailed along the coast from Cape Race to Florida, examining all of the bays and inlets, and found that *Maize is the food of the*

natives. They are of large size. Much land adjoining that which is called the Baccallos and situate under the fortieth and forty-first degrees; but neither finding the straight nor Gaitaia [Cathay], which he promised, returned backe within tenn monethes after his departure. Noteworthy is the "strait that never was" as Ribero displays a separation between North and South America near present-day Panama. The inscription reads as follows: *The country of Stephen Gomez, which he discovered at the command of his Majesty, in the year 1525. There are here many trees and fruits similar to those in Spain, and many rodovallo [walruses], and salmon, and fish of all sorts. Gold they have not found.*

On his return voyage, Gomez saw the Bermuda Islands, which were rediscovered long after by Gates and Somers in 1610. Ribero located them on his map and near them a ship with the legend: *I come from the Indies.*

Tiera De Ayllon lies to the south of the *land of Gomez*. The tragic attempt of the Spaniard, Ayllon, in 1526, to found a colony on the James River, or according to the historian Henry Harrisse on the Cape Fear River, had but recently occurred. The inscription reads: *Here went the licentiate Ayllon to settle the country, for which he sailed from S. Dominigo, or Puerto de Plata, where his men were taken on board. They took with them very little provisions, and the natives fled into the inferior from fear. So that when winter set in many of them died of cold and hunger. . . They determined to return to Hispaniola.* A somewhat different inscription is provided here on the *Weimar* edition: *The country of Ayllon, which he discovered and returned to settle, as it is well suited to yield breadstuff, wine and all things of Spain. He died here of disease.* This is the earliest statement of the sad fate of Ayllon and of his last expedition to *Chicora* [the Carolinas].

Tiera De Garay, north of the Gulf of Mexico, was so named for Francis de Garay, the Governor of Jamaica, who in 1519 sent Pineda to find a strait through the land to the "South Sea" recently discovered by Balboa. Pineda sailed along the northern coast of the Gulf of Mexico as far west as the river Panuco, discovering a large river, the *R. del Espiritu Santo*, probably the Mississippi. In 1523, Garay failed in an attempt to found a colony and died in Mexico. Ribero's inscription (on the *Weimar* map) reads: *The country of Garay: All over this coast and that of the Licentiate Ayllon, and the land of Estevan Gomez, there is no hope of finding gold as in New Spain, because it is too much out of the way of the tropic.*

Nueva España, or Mexico, has the following inscription: *Nueva España is thus called because it contains many things* [of the kind found] *in Spain. Wheat was sent thence in such quantities that it could be re-shipped to other parts. It contains much native gold.*

The following inscriptions occur on the *Weimar* version of this map. *Castilla del Oro* [Golden Castile], in northern South America, *is so called because much gold is found there. The Indians are more warlike than those of Santo Domingo and other parts, because they use poisoned arrows. Here there is a locality called St. Martha, where large quantities of gold are found in the soil. Within it, the Germans have their territory, from Cabo de la Vela to Cumana, from 140 to 150 leagues.*

The northern coast of Brazil has this inscription: *All over this coast, from Rio dulce to the Cape of San Roque, nothing of account has been found. Once or twice, since the discovery of the Indies, the coast has been ranged, but since, no one has returned thither. The Rio de Marañon is very large, and vessels enter it to fill their casks, and twenty leagues [from coast] in the sea, they take in fresh water.* The *Marañon*, or Amazon River, was first seen by Vincente Yañez Pinzon in 1500.

Tiera Del Brazil has this legend: *Here, the only thing of value is the brazil [dyewood], which costs only the trouble of cutting and carrying it to the vessels, which the Indians do for*

very little. They eat the flesh of their enemies. Here, the King of Portugal has at Pernambuco a factory where is a large quantity of brazil-wood collected for shipping on board vessels sent for the purpose.

The La Plata region of South America was first explored by Juan de Solis, who, in 1512, succeeded Vespucci as Pilot Major. In 1515-16 he led an expedition into that country, where he was "killed and eaten by the Indians". After Gomez had failed to find a passage to the Moluccas between Florida and the *land of Baccallos*, Sebastian Cabot, attempting to find a passage through South America in 1526, entered the La Plata River, where he remained four years. He had not returned when Ribero made this map. These facts are referred to by Ribero in the following inscription: *This country was discovered by Juan de Solis in the year 1515 or 1516. There Sebastian Gaboto now is, in a fort which he has constructed. It is very well appropriated for yielding breadstuff and wine in great abundance. The River is extremely large and abounding with fish. The belief is that there is gold and silver in the interior.* The two small islands at the mouth of the La Plata River that appear on the Ribero map no longer exist.

The following inscription on *Tiera De Patagones*, or the Country of the Patagonians, discloses that Ribero was familiar with the description of that country which was brought back to Spain in 1522 by the survivors of the Magellan expedition: *Those who inhabit that land where Fernam de Magellan found the strait, are men of large bodies, almost giants, covered with skins of beasts. The land is sterile and of no value. Here Fernam de Magellan stayed six months, especially in the port of St. Julian which is by 50 degrees. There, Indians came on board, and having tasted the bread and wine that was given to them, manifested abhorrence for the same. No houses were seen. They live in the open air. There are many ostriches. The Indians use arrows. Some of the Indians came on board, and asked to be carried [away, and] they died afterwards at sea.* According to Pigafetta, those Indians, so far from having left of their own accord, were treacherously chained and kidnapped.

As can be seen there are a multitude of place-names on the coasts of all of the continents. The place-names from the Ayllon and Gomez voyages, together with Ribero's revised northeasterly curving coastline of North America, remained on Spanish maps for over a century. Noticeably omitted is any reference to Verrazzano's explorations. The political expedience precluded the official Spanish map mentioning a French voyage of reconnaissance in Spanish territory. The nomenclature on the *Propoganda* edition is more ample than in the *Weimar* copy, combing names in the latter with many which are in the *Weimar* map of 1527, but giving a few new ones. Near Cape Breton Island, besides the *Tierra de los Bretones*, a cape called *C. del berton,* which may be the *C. de bretoni* of Maggiolo *(#340).* In the large bay corresponding to the present-day Gulf of St. Lawrence, mention is made of an archipelago, which may refer to the *Iles de la Madeleine*, borrowed apparently from some Portuguese map of the Fagundes expeditions. On the northwest coast there is a *Rio solo* and, on the Pacific coast, what the *Weimar* Ribero calls *R. de la concepcion* is here called *R. de la acension*. The scholar Henry Harrisse provides a detailed listing of the new names Ribero applied to the New World.

Carta Univeral en que Se contiene todo lo que del mondo…

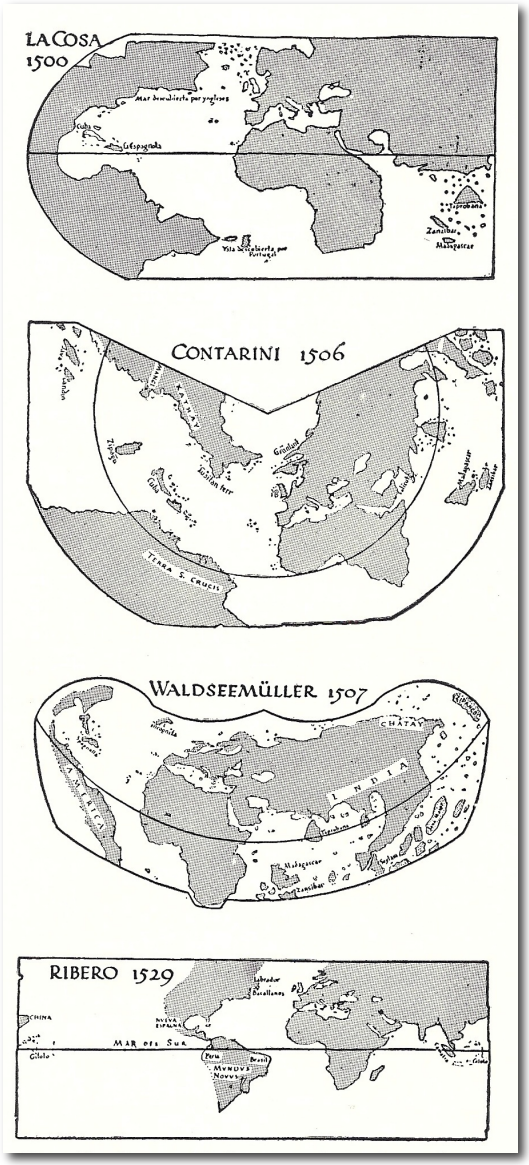
#346

On the west coast of South America, Peru bears this inscription: *Peru. This country of Peru was discovered by Francisco Pizarro in the year 1527. There was found gold and silver with which they trade. The natives are more intelligent than in other parts. They have*

sheep, with which they make clothes, and they have large walled cities and large praying houses, where they go in processions to adore their idols. The name *Peru* is derived from that of an Indian chieftain, *Biru*, who resisted Francisco Pizarro when he was one of Balboa's party at the time the latter discovered the *South Sea* [Pacific]. The fact that Pizarro was still engaged in the conquest of the land of the Incas when Ribero made this map shows how well informed he was concerning the former's discoveries.

Further north, on the west coast of the modern day United States, but relating to the Atlantic coast, the inscription reads as follows: *Everywhere on this northern coast the Indians are taller than those of Santo Domingo and other islands. They feed on maize and fish, which they have in great abundance; they hunt much game and other animals, and wear the skins of wolves and foxes.*

In accordance with the recommendations of the Spanish members of the Conference at Badajos that all Spanish maps should thereafter locate the *Line of Demarcation*, Ribero drew such a line 370 leagues west of San Antonio, the westernmost of the Cape Verde Islands, using it as the initial meridian. He thus allotted Brazil, Greenland and a part of *Tiera nova De Cortereal* to Portugal; and to Spain, all lands within 180 degrees west of that line, including the greater part of the new continent, the Philippines and the Spice Islands. On a modern map, both groups of islands belonged to Portugal. The two flags of Spain and Portugal in the southeast corner of the map and on the coast of China indicate the location of the *Line of Demarcation*.



The route or track taken by the famous Magellan expedition in 1519-20 is marked on Ribero's map by drawings of his first two ships, the *Victoria* and the *Trinidad*. The place names in the inset record his passage along the coast of Patagonia and through his strait, here named *Estrecho de Fernam de magellanes.* The length of Magellan's crossing of the *Mar del Zur* had already impressed cartographers and Ribero represents the width of the Pacific, from Peru to the Moluccas *[Gilolo]*, as 125° of longitude. This is 25° more than the width shown by Agnese in 1536, or Velasco in 1575; but is still 25° short of the true width (150°); the underestimate was perhaps prompted by the political exigency which required the Moluccas to be laid down on the Spanish (or eastern) side of the *Line of Demarcation*. It is also worth noting the increasingly accurate presentation of Southeast Asia, particularly the Moluccas.

As mentioned earlier, several of Ribero's famous large planispheres, impressively executed in the style of nautical charts,

as well as a plan of the western hemisphere, have been preserved and are found today in the libraries of Mantua (the 1525 *Castiglione* planisphere), the Vatican planisphere (1529), Weimar planisphere (1527 and 1529), and Wolfenbüttel planisphere (1532). Fragments of a world map produced in 1530, probably for a member of the important Augsburg merchant dynasty the House of Welser, are preserved in the Studienbibliothek, Dillingen on the Danube.

The Vatican Library 1529 planisphere by Riberio varies little to the geography of the 1525 *Castiglione* chart. The marginal differences can be seen in the additional west coast of South America and the firming up of the shape of the *Golden Chersonesus* and Sumatra. The main difference is the plethora of texts appended across the chart not only describing the geography but the technical data required to inform mariners of the instruments drawn there- on. It is also luxuriously covered in drawings and sketches and has an enhanced wind rose system of graticular lines based upon latitudes.

The two flags that set atop the astrolabe are curiously positioned in that the Spanish flag does not quite line up with the 150º longitude to give 360º from the western flag. It is drawn at 148º East and has the Portuguese flag set at 135º East. It is obvious this is a complete drafting error stemming from the wrongly positioned *Provincia de Maluca* set at 188º West before the actual *Provincia de Maluca* set at the matching 202º West. This is precisely the 14º error in the African continent mentioned previously with an error in the flag positions of 13º.

The Castiglione planisphere, 1525, Biblioteca Estense Universitaria Modena, Italy

The planisphere is formed from four pieces of parchment joined to produce an overall size of 81.5 x 214 cm and is, when compared to the other charts a rather bare edition. It has three latitudinal scales which delineate the Equator, the Tropics and the Arctic and Antarctic circles and thus produce a basic 70 degrees overall north and south of the Equatorial line. However, it does point to one fact that this chart is not completed and may well have been intended to visually match the following charts. It is also possible that it was given prior to completion by or on the orders of King Charles V to Baldassarre Castiglione (1478-1529) Papal Nuncio in Spain who was about to depart. But by not being complete it does raise more questions than can be answered here-in.

Now study the Flags of Spain and Portugal set along the southern edge of the chart. In the west the Spanish flag aligns to the 210 degree marker and in the east to the 150 degree marker; i.e. 360 degrees circle. But centrally the *Line of Demarcation* is set at 30º west of the zero longitude marked on the Equator and which is aligned to the West

African Coast. Thus the Cape Verde Isles are in the extreme 9º west and the *Line of Demarcation* a further 21º west. And, to ensure the Moluccas, the Spice Isles are within the Spanish half they are drawn twice and the "Province de Maluco" is set at 158° east/202° west (360º). A rather good sleight of hand and to no avail as soon after this and bearing in mind the long drawn out discussions to determine these longitudes, the King of Spain sells the Spice Islands to the King of Portugal.

The geography of the chart itself is a snapshot of discoveries made from 1492 onwards for the America's, but much earlier for the Portuguese explorations of Africa and India. The fact that South America is terminated at 53º S, the Strait of Magellan discovered in late 1520, and the fact that the exploration of 1525 to America is included indicates the speed with which the *Padron Real* was updated. That is confirmed by the text appended to the North American section which reads, *Tierra que descubrio Estevan Gomez este ano de 1525 por mandado de Su Magestad* [Land that Estevan Gomez discovered this year 1525 by order of His Majesty]. From India to Southeast Asia was penetrated between 1512 and 1516, and the size of Africa was actually known from the position of the northern area of the Red Sea close to the River Nile. *Portolan* charts from as early as 1339 indicate this positioning very clearly and hence this is a deliberate act of falsehood with Africa drawn 14.5º longitude wider than geographical reality. But, reduce Africa to its nominal 68º width and place the Moluccas at 125° E Geographical, that is 140º from the chart zero and they are within the Portuguese half of the world as divided by the *Line of Demarcation*.

The Castiglione planisphere of 1525, attributed to Diogo Ribeiro. Ink and color on parchment, 208 x 82 cm. Biblioteca Estense Universitaria, C.G.A.12.

As observed by Joaquim Alves Gaspar and Sima Krtalic, like the *Kunstmann IV* planisphere *(#330)*, from which he adopted its coverage and other features, the *Castiglione* planisphere is centered on the Demarcation Line of the *Treaty of Tordesillas*, which is designated *Linea dela Particion* and crosses the Equator through the north coast of Brazil, west of the mouth of the Amazon River. The Equator is graduated in intervals of five degrees of longitude – 180° to the west and 195° to the east – and the Moluccas are located about 174° west of the Demarcation Line, that is, in the Spanish hemisphere. The representation of Southeast Asia, repeated on each side of the chart, is a more simplified version than that of Nuño Garcia de Toreno's chart *(#336)*, with the island of *Halmahera* (Gilolo) reduced to a long, seemingly speculative, north-south shoreline. This

design for *Halmahera* would be reiterated in all the charts constructed at the Casa de la Contratación, as well as the European charts based on them, until the mid-16th century.

Two features make this planisphere particularly interesting for the history of nautical science. The first is the correction of the axis of the Mediterranean, which had been tilted about 8 to 10 degrees counterclockwise on the charts of the time due to the effects of magnetic declination on the directions read off the marine compass. This is the oldest known nautical chart in which the axis of the Mediterranean was corrected, in order to respect the latitudes of the places in the region. The correction was applied to all the planispheres produced by Diogo Ribeiro, from 1525 to c. 1532, and is mentioned in the explanatory legend of the planispheres of 1527 and 1529, which, roughly translated from the Castilian, reads:

> Note that the Levant, as we usually designate what is contained within the Strait of Gibraltar, is represented by heights [latitudes], according to people who have been in some of the parts and measured the height of the Sun [...] and its degrees of longitude cannot be the same as those measured over the equator, since the parallels are smaller. Because, in fact, from Cairo to the Red Sea, or from Damascus or Jerusalem to the Persian Sea, the distance is very short and here it is represented as long.

This is a remarkable text, in which Diogo Ribeiro not only explains how the representation of the Mediterranean was corrected in order to take latitudes into account, but also justifies the inflated size of the Isthmus of Suez by alluding to the convergence of meridians; that is, with the fact that the length of a degree of longitude in the Mediterranean is smaller than on the Equator. A similar interpretation of the exaggerated Isthmus was proposed about ten years later by the mathematician Pedro Nunes. Although Ribeiro's reasoning is correct, we know now that the main reason for this alleged cartographic anomaly was the effect of magnetic declination on the courses indicated by compasses, and subsequently used in chart-making.

Ribeiro's second innovation was to fully remedy the exaggerated scale and latitude errors that had affected the depiction of the Caribbean Sea ever since Juan de la Cosa's planisphere (1500, #*305*), a process that had begun in the anonymous Turin planisphere of c. 1523 *(#333.1)*. To achieve the degree of accuracy reflected in Ribeiro's planispheres, astronomical observations of latitude were certainly carried out in the region.

Ribeiro's background in instrument making and cartographic concepts are nowhere more evident than in the choice of decorative elements on this and several others of his planispheres: a quadrant and an astrolabe. He supplements these with a circular table – the *Circulus Solaris* – where the celestial longitude (measured along the ecliptic) and the declination of the Sun for each day of the year could be read. As for the observational instruments themselves, it is interesting to note that these are not typical nautical devices, as they are fitted with additional abacuses intended for land measurements. Ribeiro's decision to showcase rather more complex instruments than those used on ships may not have been an accident. Perhaps he hoped to publicize his abilities as an instrument maker skilled in producing objects for use both aboard and on land.

Typical of Ribero's world maps is their decoration, which depicted quadrants, astrolabes (bottom left and right) and text providing the rules of navigation and information about various countries. By depicting these particular instruments, Ribero was demonstrating his support for celestial navigation over more traditional forms of

navigation. According to Kenneth Nebenzahl, these are the first cartographical decorations to include scientific and technical motifs, replacing or supplementing the religious or historical and ethnographical illustrations that had predominated until then. There are also three escutcheons: Della Rovere's, and on its right and left, Chigi's, but one of these is quartered with Rovere's (this may imply that the owner, or buyer, of the map was the Marquis Agostino Chigi, son of Lorenzo, who apparently married a Della Rovere). The world maps in the Vatican, Dillingen and Wolfenbüttel also feature masterful drawings of mountains, trees, castellated towns, ships, birds and mammals. A drawing of the South American ostrich, or rhea, turns up for the first time on the *Wolfenbüttel* map of 1527. Antonio Pigafetta, whose influence on the mapmaking of Ribero is well known, had listed several birds from South America, among which was an ostrich.

On the *Propoganda* map, specifically, there are Indians, monkeys, opossums, rheas and parrots which were becoming familiar on the South American scene; but Ribero also adds deer, a jaguar, a possible bear, a dragon, some birds and a number of small animals that are difficult to interpret, but, according to Wilma George, give the impression of some of the South American rodents such as the mara, chinchilla and viscacha. If this interpretation is correct, this is the first appearance on a map of a representative of the New World rodents. Additional animals on Ribero's map include what appears to be an armadillo, its small pig-like body with an impression of armoring seems to identify it.

In all of the continental regions there are a multitude of such illustrations, especially in what George calls the *neotropical* and *Ethiopian* regions.

As mentioned above, the prime meridian of the map is the *Line of Demarcation* as established at the *Treaty of Tordesillas*. Degrees of latitude and longitude are so marked as to make clear the ideas of the accomplished royal cosmographer concerning the extent of the continents and oceans he depicted. The breadth of the Pacific is shown by Ribero as comprising about 134° from the westernmost coast of South America to the Moluccas, too small a measurement, but none the less a better statement than ordinarily found of the breadth of the great body of water which had been first navigated by a European some eight years before. In accordance with the *portolano* tradition of recording only things actually known, Ribero leaves blank a long stretch of the west coast of South America, and all the west coast of North America above Guatemala. At north and south the Pacific is without bounds. Ribero's contribution, and it was important, lies in his relatively correct statement of the reciprocal positions of places in America and Asia, and in his approach towards correctness in his portrayal of the great breadth of the Mar del Sur. His 134° for an approximate 150° is good measuring in comparison with the 100° of Agnese *(#371)* for the same breadth, the 95° of Gastaldi *(#383),* and the 97° of L6pez de Velasco *(#408)*, all of them his successors in this delineation. A better idea of the breadth of the Pacific began to prevail after the publication in 1595, in Linschoten's *Reys-gheschrijt* of the account of Francisco Gali's voyage from Macao to Acapulco, the first printed account of a return voyage across the Pacific.

This is the map that first showed the true scale of the Pacific, in which the distance west from Magellan's Strait to the Moluccas is shown, correctly, to be equivalent to that eastward from the same point to southern India - some 10,000 miles. Ribero was, like Magellan, a Portuguese who had transferred allegiance to Spain, and had actually represented the Spanish case at the Badajoz conference and become Pilot Major in the *Casa da Contrtacion.* It is ironic that this ground-breaking map was drawn by a Portuguese to embody the discoveries of a Portuguese, both working in the service of Spain. Ribero was naturally able to show very few features in the Pacific; westwards from Peru he marks only the *Island of Tribulation* where Magellan found neither food nor water, then the *Ladrones*, or Mariana Islands. To the north, Ribero is equally original, placing ships in the ocean where other mapmakers showed a northern link between America and Asia. In its realistic depiction of the newly-discovered expanse of the Pacific, Ribero's chart remained unique in the 16th century, for all other maps sought to compress this ocean whose emptiness and mystery seemed so intimidating. The influential printed maps of Sebastian Munster *(#381)* and the manuscripts of Joan Martines continued to suggest that that the American coast was but a brief voyage from Japan and the coasts of *Cathay*.

Diego Ribero's great planisphere is one of the most remarkable cartographic documents surviving from the early days of the Discovery period. A royal record of the Spanish overseas empire, it reflects the speed with which contemporary knowledge of the true size and shape of the world was being brought back to Europe by navigators and explorers.

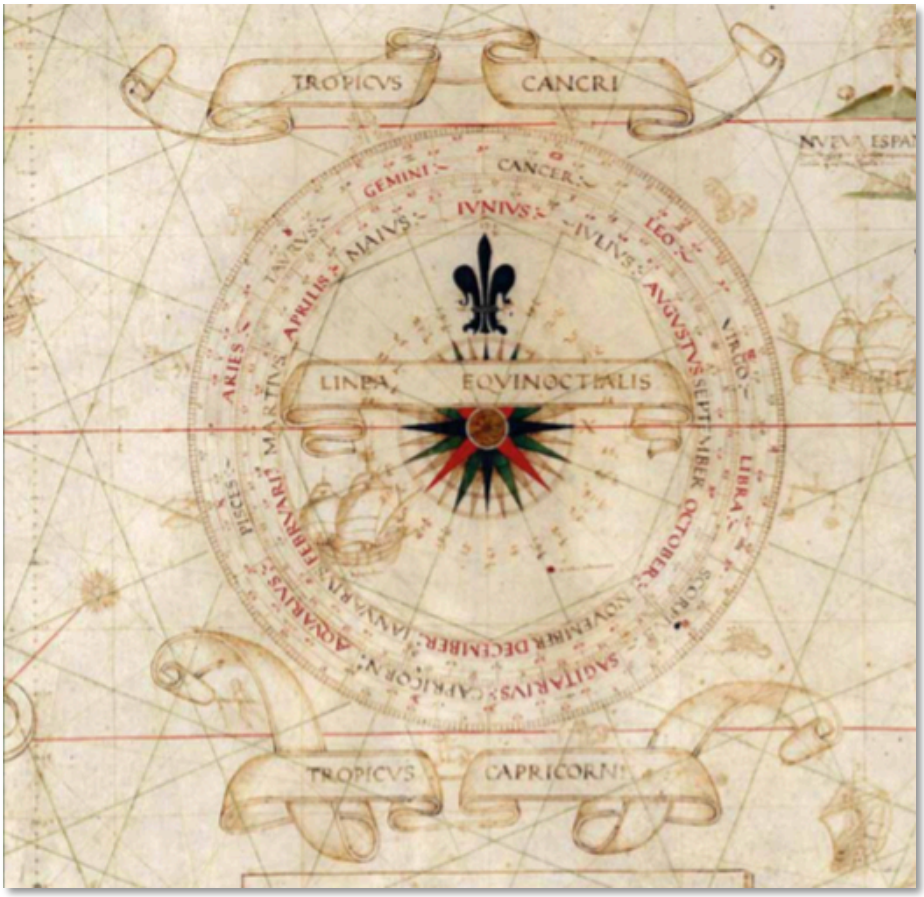
Thirty-seven years after Columbus first crossed the Atlantic, the east coasts of North and South America have assumed recognizable outlines. The West Indies and Central America are drawn with remarkable precision, while India and even part of the East Indies take shape with an accuracy that had not been possible before. Because he used accurate *portolan* charts for the Mediterranean and African coasts, Ribero was able

to redefine the scale of the each area. As with other maps of the period, there are still problems to be overcome regarding the determination of longitude; for example, the African continent extends too far east and west.

Even with the emphasis on accuracy, there is no lack of decoration. The land is covered by trees, mountains, and animals. Beautiful ships grace all the oceans-including Magellan's fleet in the Pacific just past the strait that bears his name. The seas are further enlivened by more than a dozen fine nautical compass roses. The complex diagrams in the Pacific and the southern Indian oceans represent the obverse and reverse of an astrolabe, the mariner's "computer" used for astronomical calculations.

Diego Ribero was a Portuguese serving the Spanish court as a cosmographer, cartographer, instrument maker, and inventor. In 1526, Charles V appointed him keeper of the *padron general*, the secret official *portolan* chart of the world, on which all new discoveries were recorded after being examined and certified by a panel of pilots. Most historians of cartography feel that the map pictured here closely resembles the *padron general* itself, which has not survived.

A comparison between Diego Ribero's map and the world map of Ptolemy, which was accepted by educated men not fifty years before, is truly staggering. The discovery of the New Work drew Europeans away from the age-old focus on the Near East.



The Circulus Solaris in Diogo Ribeiro's planisphere of 1529 (Biblioteca Apostolica Vaticana, Borg.Carte.naut.II), intended to provide the position of the sun on each day of the year.

Carta Univeral en que Se contiene todo lo que del mondo…

#346

Locations: Biblioteca Apostolica Vaticana, Vatican City (1529 *Propaganda* or *Second Borgian* map)
Library of Mantua (the 1525 *Castiglione* planisphere)
Grand Ducal Library Weimar (1527 and 1529)
Wolfenbüttel Grand Ducal Library (1532).

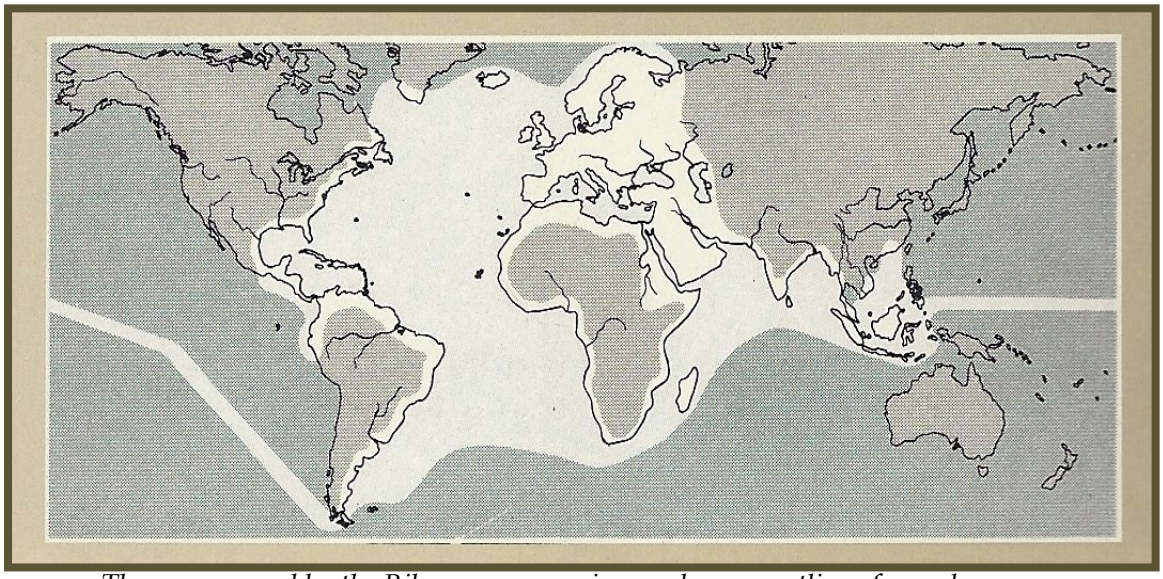
Size: 80 x 204.5 cm

References:
*Brotton, J., *Great Maps,* pp. 100-103.
Cummings, W.P., *The Southeast in Early Maps*, p. 94, Plate 4.
*Cummings, W.P., R.A. Skelton and D.B. Quinn, *The Discovery of North America*, No. 115, p. 104.
*Davies, Surekha, "The Navigational Iconography of Diogo Ribeiro's 1529 Vatican Planisphere", *Imago Mundi*, Volume 55: 103-112.
Ferrar, M., "ChDR/1; Diego Ribeiro and the Square Padron Real M.F. De Enciso, Suma De Geographia; His Geographer"
*Fite, E. & Freeman, A., *A Book of Old Maps…,* pp. 47-50, #14.
* Gaspar, Joaquim Alves and Sima Krtalic, "A Cartografia de Magalhães. The cartography of Magellan", pp. 168-180.
*George, W., *Animals and Maps*, pp. 62-64.

*Helman, Susannah, *Mapping Our World, Terra Incognita to Australia,* National Library of Australia, 2014, pp. 64-67.
Harrisse, H., *The Discovery of North America,* pp. 569-575.
*Humble, R., *The Explorers, The Seafarers*, Time-Life, pp. 16-17.
*Lelewel, Joachim, *Geographie du Moyen Age*
*Nebenzahl, K., *Atlas of Columbus*, pp. 92-95, Plate 29.
*Padrón, Ricardo, "A Sea of Denial: The Early Modern Spanish Invention of the Pacific Rim", *Hispanic Review* (winter 2009).
*Shirley, R.W., *The Mapping of the World*, p. XXIV-XXV, Plate 6.
*Stevenson, E.L., "Early Spanish Cartography of the New World", *Proceedings of the American Antiquarian Society*, XIX (April 1909), pp. 369-419.
Vigneras, L.A., "The Cartographer Diogo Ribeiro", *Imago Mundi,* Volume 16, pp. 76-83.
*Winsor, J., *Narrative and Critical History of America*, IV, p. 30.
*Whitfield, P., *New Found Lands,* p.97.
*Wolff, H., *America, Early Maps of the New World,* pp.51-53, #69.
Wroth, L.C., *The Early Cartography of the Pacific,* pp. 149-153.

The five planispheres are detailed in and reproduced by A. Cortesao in volume one of his Monumenta.

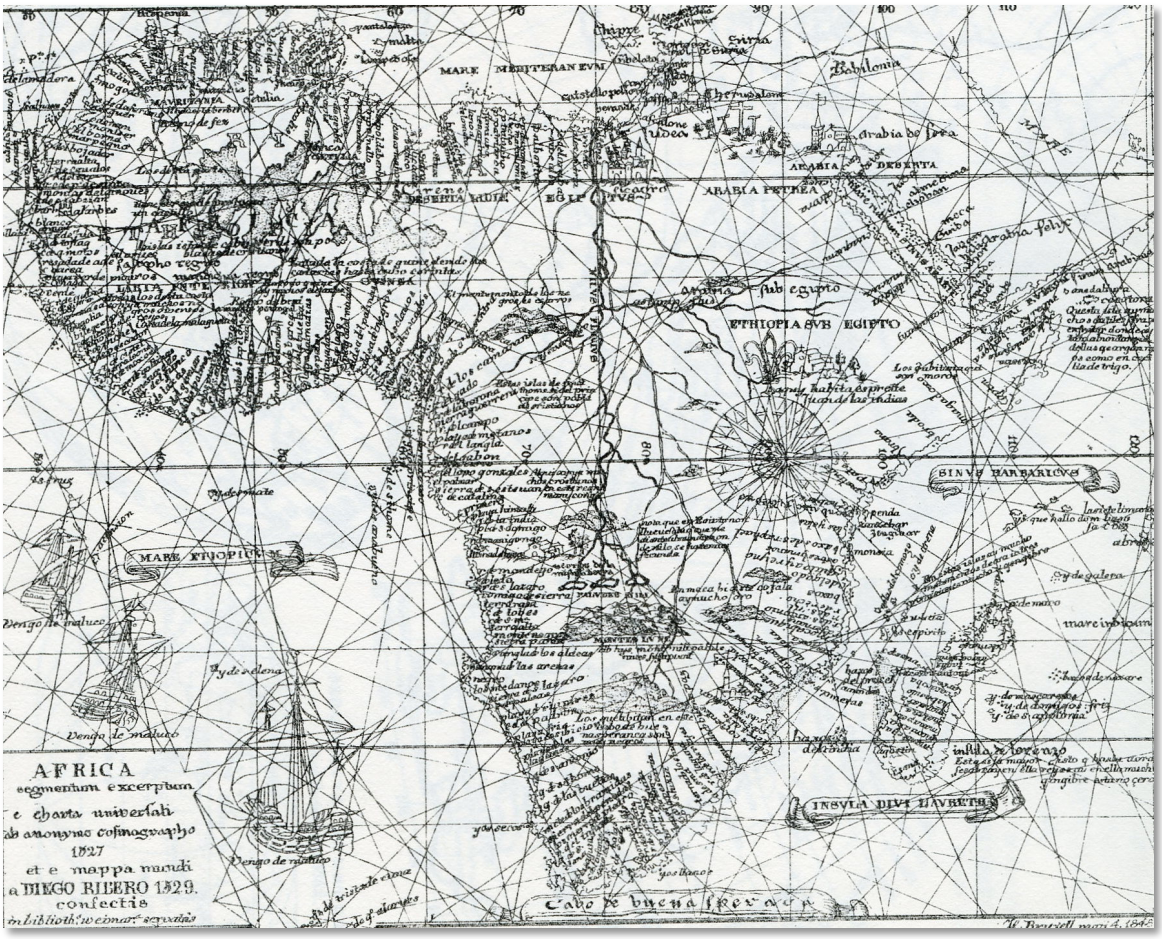
- *1525, pp. 95-98, plate 37, Archivio Marchesi Castiglioni, Mantua.*
- *1527, pp. 99-101, plate 38, Thuringische Landesbibliothek, Weimar.*
- *1529, pp. 102-103, plate 39, Biblioteca Vaticana Rome.*
- *1529, pp. 104-106, plate 40, Thuringische Landesbibliothek, Weimar.*
- *1532, pp 107-109, plate 41, (western part only including America,) Herzog August Bibliothek,Wolfenbuttel (This chart is the subject of a book by E. L. Stevenson, titled, "Early Spanish Cartography of the New World-with special reference to the Wolfenbuttel-Spanish map and the work of Diego Ribero.)*



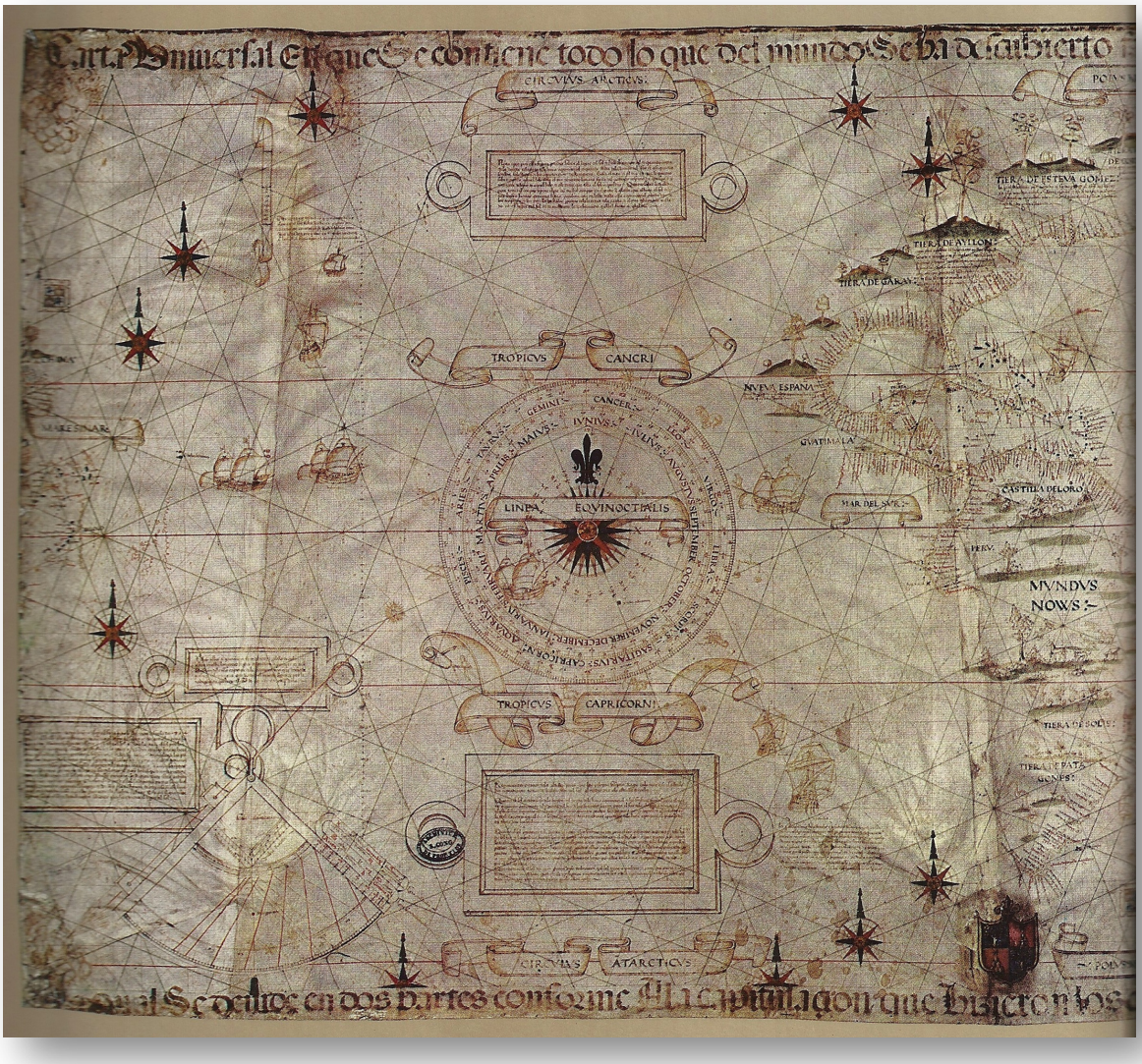
The area covered by the Ribero map superimposed on an outline of a modern map

Carta Univeral en que Se contiene todo lo que del mondo…

#346



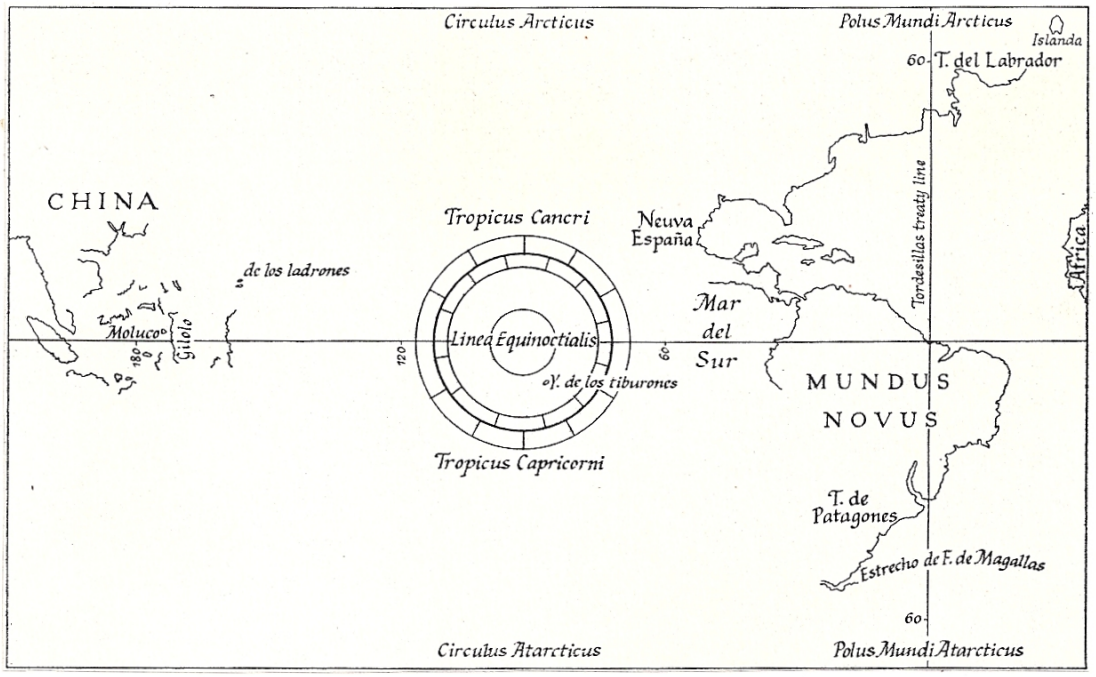
Africa on the Ribero map by Joachim Lelewel in his Geographie du Moyen Age



This detail of the Pacific Ocean on the Vatican's "Propoganda" edition of 1529 shows a quadrant (lower left) and circular figure for finding solar declination (dominating the central Pacific), both with accompanying instructions. The large declination table incorporating a calendar and, uniquely among Ribero's charts, illustrations of the signs of the zodiac and a wind rose. The text in the boxes explains how to read solar declination off of the figure and the accompanying latitude scale (given the date), how to use the quadrant, and how to calculate latitude given the solar declination and the sun's height at noon. Similar illustrations and explanations appear on several of Ribero's other world maps. The astrolabe shown by Ribero is not the standard mariner's version, but a "quadrante horario", as described in the inscription next to the drawing. Horary quadrants were usually used on land to tell the time; they incorporated features for taking measurements that were either unnecessary for navigation (such as the indirect determination of altitude or distance) or readily available in other forms (such as tables of solar declination). Yet the inscription to the left of the quadrant on the chart describes not only how to use it to determine the declination of the sun or stars, but also how to use the altimetric scale on it to find the height of a tower or of a flat surface, or the width of a river. Analysis of these illustrations by Surekha Davies, particularly those depicting navigational instruments, reveals surprising

personal and institutional propaganda embedded in features that appear at first glance to be merely decorative afterthoughts. The illustrations, however, are not simple decorative embellishments but should be interpreted as loaded statements deliberately selected to further Ribeiro's ambitions as a cosmographer and instrument-maker at the Casa de la Contratación in Seville. By depicting these particular instruments, Ribeiro was demonstrating his support for celestial navigation over more traditional forms of navigation.

Detail: Eastern Hemisphere from the 1529 Propoganda or Second Borgian edition of Ribero's map. Located immediately to the south of the fiercely contested and strategically important Molucca Islands and flanked with the standards of Castile and of Portugal, which fly from poles of unequal length placed at unequal distances from its top. The astrolabe has chosen to favor the Spaniards; the Moluccas are apportioned to Spain. The astrolabe, which is dated 1529, carries a shadow scale; the inscription below identifies it as a mariner's instrument. The astrolabe depicted by Ribero is somewhat unusual. Although clearly labeled as an "[a]strolabio maritimeo", it consists of a solid disc rather than an open wheel, and it has a shadow square on the back.



Outline map of a portion of the world map by Diogo Ribero, 1529 (from Crone*)*

Portion of the 1529 Weimar edition of the Ribero world map

Carta Univeral en que Se contiene todo lo que del mondo…

#346

Detail of Africa (above) and South America (below) from the "Propoganda" or "Second Borgian" map by Ribero, illustrating the inclusion of a variety of animals depicted on this map

Carta Univeral en que Se contiene todo lo que del mondo…

#346

The "Propoganda" or "Second Borgian" map by Ribero,
Biblioteca Apostolica Vaticana, *Vatican, 1529, 80 x 204.5 cm*