

UN MARE OTTOMANO *AN OTTOMAN SEA*



«Mediterranean in History» è il titolo del workshop incentrato su Venezia e l'Impero Ottomano che l'International Association of Maritime Studies di Istanbul (IAMS), in collaborazione con il Dipartimento di Studi sull'Asia e sull'Africa Mediterranea dell'Università Ca' Foscari e l'Università Piri Reis di Istanbul, ha organizzato a Venezia il 7-8 novembre 2013 e che ha visto la partecipazione di una ventina di studiosi provenienti da vari paesi. Lo IAMS, nato nel 2012, sotto la presidenza dell'ammiraglio Metin Ataç, organizza con cadenza biennale importanti congressi internazionali che hanno come tema il mare (nel 2012 a Istanbul su «Eurasian Maritime History»¹, nel 2014 a San Pietroburgo su «Maritime History of Russia») intervallati da incontri più ristretti su invito (nel 2013 a Venezia e nel 2015 a Cipro su «The Maritime History of Cyprus and the Levant»). Poiché gli atti del workshop veneziano non sono stati pubblicati in volume, nelle pagine che seguono riportiamo le relazioni ancora inedite di alcuni dei partecipanti, unitamente ad altri saggi che trattano degli Ottomani nel Mediterraneo.

«Mediterranean in History» is the title of the workshop about Venice and the Ottoman Empire that the International Association of Maritime Studies of Istanbul (IAMS), in collaboration with the Department of Asian and North-African Studies of Ca' Foscari University and the Piri Reis University of Istanbul, organized in Venice with the presence of international scholars on 7-8th November 2013. The IAMS was founded in 2012 and its president is the Oradmiral Metin Ataç. Every two years it organizes huge international congresses about the sea (in 2012 in Istanbul about «Eurasian Maritime History»¹ and in 2014 at Saint Petersburg about «Maritime History of Russia») together with smaller workshops at invitation (in 2012 in Venice and in 2015 in Cyprus about «The Maritime History of Cyprus and the Levant»). Since the proceedings of the Venice workshop have not been collected in a single volume, the following pages contain some of the still unpublished papers delivered on that occasion together with other papers about the Ottomans and the sea.

¹ Proceedings: Dejanirah Couto, Feza Gunergun, Maria Pia Pedani (eds), *Seapower, Technology and Trade. Studies in Turkish Maritime History*, Istanbul, Denizler Kitabevi, Kaptan Yayıncılık, 2014.

Gregory C. McIntosh

THE PIRI REIS MAP OF 1528: A COMPARATIVE STUDY WITH OTHER MAPS OF THE TIME

ABSTRACT: *The second world map by Piri Reis, made in 1528, as with his earlier world map of 1513, is only a remnant of a larger world map no longer extant. And, as with the first map, the surviving portion preserves areas depicting the newly discovered lands to the west of Europe. A comparison with other contemporary manuscript maps, such as the Turin planisphere (c. 1523), the Freducci chart (c. 1526), and the planispheres produced in the Casa de Contratación, distinguishes certain cartographic design-types of geographical features, such as, Florida, Central America, Newfoundland, and Greenland. The design-types suggest Piri relied upon maps made during the 1520s in Spain by both Spanish cartographers and Portuguese cartographers who worked in Spain for his sources, possibly through the intermediary of Italian-made maps.*

KEYWORDS: *Piri Reis, Turin planisphere, Freducci chart, Casa de Contratación, Diego Ribero, Design-types.*

LA MAPPA DI PIRI REIS DEL 1528: UNO STUDIO COMPARATO CON ALTRE MAPPE DEL PERIODO

SOMMARIO: *La seconda mappa del mondo stesa da Piri Reis nel 1528, così come la precedente del 1513, è solo un frammento di una mappa più grande ormai andata perduta. Inoltre, come la prima mappa, anche questa conserva solo una porzione che rappresenta le nuove terre scoperte a occidente dell'Europa. Facendo una comparazione con altre mappe manoscritte dello stesso periodo, come il planisfero di Torino (circa 1523), la mappa Freducci (circa 1526) e il planisfero prodotto dalla Casa de Contratación, si possono distinguere certe immagini cartografiche tradizionali di luoghi geografici come la Florida, l'America Centrale, Terranova e la Groenlandia. Tali similitudini suggeriscono che Piri Reis fece uso come fonti di mappe prodotte negli anni '20 del Cinquecento in Spagna da cartografi portoghesi.*

PAROLE CHIAVE: *Piri Reis, Planisfero di Torino, Mappa Freducci, Casa de Contratación, Diego Ribero, Cartografia.*

The famous Ottoman Turkish admiral, Piri Reis (c. 1467–1553), who sailed and fought in the seas of both the Mediterranean Basin and the Indian Ocean, is most celebrated for his three great cartographic achievements: 1) the famous Piri Reis manuscript world map of 1513; 2) the *Bahriye* (also known as *Kitab-ı Bahriye*), a detailed description with maps of the coasts, islands, and ports of the Mediterranean combining the traditions of the *isolario* book and the *portolano* book; and 3) the Piri Reis manuscript world map of 1528. The map of 1528, though not as famous as its older sibling, the map of 1513, merits more study.

The map, probably completed in 1529 but known as the map of 1528, is a parchment, about 70 cm high x 69 cm wide, and drawn and painted in black, blue, green, red, yellow, and other colors. The map itself is damaged. The extant remnant is of the northwest corner of the map, the remainder being lost.

As a parchment with manuscript text and drawings, it is part of the thousand-year old tradition of manuscript parchment making, writing,

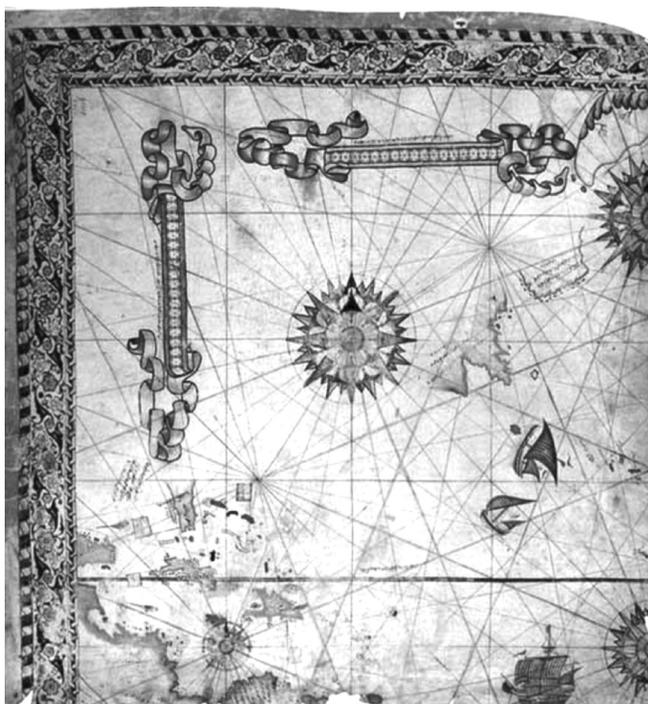


Fig. 1 - Piri Reis, 1528 Map.

painting, illustrating, and copying by the cultures bordering the Mediterranean Sea. The object, that is, the parchment, and the drawings and texts written on the surface of the parchment, were undoubtedly the work of more than Piri Reis alone, more than just a couple of people, possibly an entire team composed of craftsmen skilled in animal skin parchment preparation, mixing pigments and inks, calligraphy, illuminating and illustrating, besides the cartographer himself who drew the outlines of the lands and islands. The latter was, in this case, Piri Reis himself, in addition to his role as leader of the mapmaking team. We know from a contemporary source that a large world map, such as this one, could take as much as ten months to complete¹.

The top and left margins of the map are bordered by remaining parts of a wide, sumptuously executed frame composed of three bands: a

¹ H. HARRISSE, *The discovery of North America: A critical documentary and historic investigation, with an essay on the early cartography of the New World*, Henry Stevens and Son, H. Welterp, London-Paris, 1892, p. 422.

spiral ribbon on the outside edge, an ornate botanical frieze of figurative leaves and flowers in the middle, and on the inner edge, three interlocking chains, a pattern called *zencirek* (*zenjrek*), from *zincir* (*zinjir*), Turkish for “chain”².

The pattern of compass roses and associated directional lines are typical of the period and indicate the map is part of the portolan style or tradition of mapmaking. Three of the five points of intersecting lines are decorated as roses, and half of a central compass rose is visible in the bottom right corner. The north-pointing arrow on each of the three visible compass roses indicates the chart was north-oriented, typical of portolan charts of the time and of maps to the present day. Though portolan charts (*carte da navigar*, *carta náutica*, *carte nautiche*) in their first three centuries depicted only the Mediterranean and Black Seas and parts of the Atlantic, in the 16th century, as Europeans explored more of the world’s oceans, portolan charts were expanded to cover the whole globe, as in Piri’s map. Though most portolan charts were made to be used onboard a ship, those that were made for wealthy patrons or presented to a nobleman were usually elaborately decorated. This is what we see in Piri’s chart, made for his Sultan³.

As on his first map of 1513, Piri followed the traditional portolan chart color scheme. Sailing hazards were indicated with conventional graphic signs, such as clusters of dots for shallows and sand banks, and small crosses for rocks and reefs⁴. In his *Bahriye*, Piri Reis says that sandy shallows are shown with dots and that hidden shoals or reefs are indicated with small crosses⁵. Depictions of cities and people and animals – a noteworthy aspect of his first map – are absent from this remaining portion of his second world map. This may not be of any significance because mapmakers often varied in the quantity of

² B. Tok, *Piri Reis’in 1528 tarihli bölgesel haritası*, in *Uluslararası Piri Reis Sempozyumu tebligler kitabı*, 27-29 Eylül 2004. *Proceedings of the International Piri Reis Symposium*, 27-29 September 2004, Seyir Hidrografi ve Osinografi Dairesi Başkanlığı, İstanbul, 2004, ch. 5, pp. 38-49, in particular p. 40; C. Ülkekel, *Piri Reis haritası (1528)*. *Piri Reis map of 1528*, Seyir, Hidrografi ve Osinografi Dairesi Başkanlığı, İstanbul, 2004, p. 4.

³ P. Kahle, *A Lost Map of Columbus*, « *Geographic Review* », 23/4, 1933, p. 621.

⁴ T. Campbell, *Portolan charts from the late thirteenth century to 1500*, in J. B. Harley, D. Woodward (ed.), *Cartography in prehistoric, ancient, and medieval Europe and the Mediterranean*, vol. 1, *The history of cartography*, The University of Chicago Press, Chicago-London, 1987, pp. 371-463, in particular p. 378; S. Sider, *Maps, charts, globes—five centuries of exploration: A new edition of E. L. Stevenson’s ‘Portolan Charts’ and catalogue of the 1992 exhibition*, Hispanic Society of America, New York, 1992, p. xv; H. Wallis and A. Robinson, *Cartographical innovations: An international handbook of mapping terms to 1900*, Map Collector Publications and the International Cartographic Association, Tring-Herts-England, 1987, p. 12.

⁵ *Piri Reis Kitab-i bahriye*, ed. by E.Z. Okte, The Historical Research Foundation Piri Reis, İstanbul, 1988, vol. 1, p. 89.

decorative and textual elements on their maps. The only mountains and rivers on the map are on the island at the extreme north and are drawn more emblematic than realistic.

Unfortunately, this remnant does not contain as many placenames and informative long inscriptions as Piri's first world map. The inscriptions are in Ottoman Turkish, except the colophon, or signature inscription, to the west of Florida, which is written in Arabic, and may be transcribed as: *Harrerehu hüvelehu hakim piri reis bin el haci Mehmet el mü tehir birader zade-i merhum reis gazi Kemal an ehri Gelibolu, sene hamse selâsin ve tisa mia* (Drawn by the humble Piri Reis, son of Hajji Mehmet, known as the paternal nephew of the late Gazi Kemal Reis, in the city of Gelibolu in the year 935 [1528]. This is his work)⁶. This follows the same procedure as on his map of 1513, where the colophon is also inscribed personally by Piri Reis in Arabic, and the other placenames and inscriptions are written in Ottoman Turkish by a calligrapher. There are eight inscriptions, two of which contain placenames. The total number of placenames, including those in the two inscriptions, is 27, but only 18 are legible. The inscriptions and placenames are given in Table 3.

Two scale bars, one horizontal, the other vertical, with decorative ribbons, are in the upper left corner. The horizontal scale bar has an inscription which reads: *Bu mil i arettir. Haneden haneye altı ar mildir. Noktadan noktaya onar mildir* (This is a mile marker. From dwelling to dwelling [section to section] it is fifty miles each. From point to point it is ten miles each)⁷. The vertical scale bar inscription reads: *Bu mil i arettir. Haneden haneye elli mildir. Noktadan noktaya onar mildir* (These indicate a mile. From dwelling to dwelling [section to section] it is fifty miles)⁸. The dwelling (also house or household) refers to each box or section of the scale bar. With the inscriptions on each scale bar, the scales can be properly read if the map is turned while in use, which was often the case.

Three ships are depicted: two caravels and a carrack⁹. Seven birds are shown, some on islands. This recalls the similarly depicted parrots on the first world map of 1513, which has eleven birds¹⁰. On the map

⁶ S. Soucek, *Piri Reis and Turkish mapmaking after Columbus: The Khalili portolan atlas*, The Nour Foundation, Azimuth Editions, Oxford University Press, New York, 1996, (*Studies in the Khalili Collection*, vol. 2), p. 79; C. Ülkekuş, *Piri Reis haritası (1528)* cit., p. 20.

⁷ A. Afetinan, *Piri Reis in hayati ve eserleri: Amerika nun en eski haritaları*, Turk Tarih Kurumu Basimevi, Ankara, 1974, p. 41.

⁸ Id., *Piri Reis in hayati* cit., p. 41.

⁹ S. Soucek, *Piri Reis* cit., p. 80.

¹⁰ G. McIntosh, *The Piri Reis map of 1513*, University of Georgia Press, Athens-London, 2000, p. 120.

of 1528 the perching birds in profile are shown in the Caribbean region: Florida, Hispaniola, Central America, and in the sea near the Yucatan, Honduras, and Venezuela. Parrots were regarded by Europeans as indicative of the exotic nature of the newly discovered lands to the west and were often depicted on both manuscript and printed maps of the sixteenth century, beginning with the Cantino planisphere of 1502¹¹. It is possible the same artist painted the similar looking birds on both maps.

There are no indications of latitude or longitude, except the Tropic of Cancer. This is typical of portolan-style maps of the period, which usually showed, at most, only the five major circles of latitude: Arctic Circle, Tropic of Cancer, Equator, Tropic of Capricorn, and Antarctic Circle. Presumably, Piri's complete map showed them also. Next to the tropic line is an inscription which reads: *Bu hat g'ün gayet uzadı ı yere i arettir* (This line indicates where the day is lengthened), in reference to the latitude at which the daylight hours are at their maximum. This latitude, 23°30', is the Tropic of Cancer, which marks the most northerly position of the Sun in the sky at the summer solstice.

The primary purpose of the map, of course, was the depiction of the world, the continents, coastlines, and islands. The surviving fragment depicts the northwest Atlantic Ocean and adjacent coastlines. At the bottom of this remaining piece is the coast of Venezuela from the island of Trinidad, shown in red to the east, to the Gulf of Darien and Panama on the west. The Central American coast is shown from Panama northward to Honduras. The Yucatan Peninsula is seen to the north of Honduras. The significant islands of the Caribbean are depicted: Cuba, Jamaica, Hispaniola, Puerto Rico, the Bahamas, and the islands of the Lesser Antilles. Florida is shown unattached to a mainland, leaving its status ambiguous and uncertain as to whether it is an island or a peninsula. To the northeast are three lands representing Newfoundland, Greenland, and a land in between, which we will tentatively identify as Labrador. The Azores are near the right-hand edge of the map.

This map, as with most maps, is composed of various elements, such as texts, decorations, vignettes, and geographical features. Certain geographical features on the map of 1528 can be used as diagnostic features with other maps for comparison and analysis. These geographical features, particularly the littoral outlines of landforms and islands, are the depictions of Florida, the coast of Central America, and the three landmasses to the northeast. By comparing the delineations or style of representations of these geographical features on the Piri Reis world map of 1528 with other

¹¹ Maps discussed in the text are identified in Table 4, with reproductions cited.

contemporary maps, particularly extant manuscript maps, we may be able to see what relationship, if any, may exist between this document and the others. If the data so lend, diagnostic features may be grouped into types and families. This often indicates a textual relationship between the manuscripts. In other words, similarly distinctive drawings of coastlines and landforms may indicate the source maps used by a mapmaker.

The placenames written along the coastlines on maps are, of course, also closely linked to those coastlines but placenames sometimes drop off maps when being incorporated from one map to another. Creating new maps by incorporating other maps was the usual mapmaking procedure in the early 16th century. Placenames can also appear to be nomadic, moving about the face of different maps over time. Variations in the location of placenames on old maps were more often the result of errors by the calligrapher and not the cartographer. Such nomadic behavior of placenames has been noted before on Piri Reis's earlier map¹². Tracing the evolving changes in the distinctive depictions of geographical features and the spellings and locations of placenames allows us to recognize connections and influences from mapmaker to mapmaker.

Florida is depicted in a particularly distinctive form that is its most rudimentary cartographic configuration. It is neither an island nor a peninsula; it is indeterminate and indefinite. Bounded on three sides by the sea, the familiar peninsular shape of Florida is recognizable but it is open and undefined at its northern end where the true peninsula joins the eastern seaboard of the continent of North America. Excepting a few, earlier hypothetical renderings, the coastline between Florida and Newfoundland was not filled in on maps until after the voyages of Giovanni da Verrazano (1485–1528), an Italian sailing for France in 1524, and Estêvão Gomes (c. 1483–1538), a Portuguese sailing for Spain in 1525¹³.

The particularly distinctive cartographic type of depiction of Florida as either an island or as an indeterminate peninsula, is seen on only five extant maps of the period, all manuscript (see Table 1). The depiction of Florida on the Piri Reis map looks more detailed, as on the Freducci chart, than it is on the Turin, Verrazano, or Pseudo-da-Vinci manuscript maps, and is possibly closer to the original source map, most likely a copy of the Spanish *Padrón Real*, the official standard world map, of the Casa de Contratación in Seville.

¹² G. McIntosh, *The Piri Reis map of 1513* cit., pp. 88, 90, 123-27, 180 n. 2.

¹³ Earlier, hypothetical depictions of the coastline between Florida and Newfoundland are on the Juan de la Cosa planisphere (1500-1502) and the Egerton world map (c. 1508-1514?).

Table 1. Indefinite Florida on Early Maps

Map	Date	Nationality	Place-name
Turin	c. 1523	Spanish	Ilha florida
Freducci	c. 1526	Italian	I. florida
Verrazano	c. 1526	Italian	Florida
Pseudo-da-Vinci	c. 1527	Italian	Terra Florida
Piri Reis	1528	Ottoman	San Juan Bautista

The particularly distinctive cartographic type of depiction of Florida drawn on the Piri Reis map of 1528, that is, as an indeterminate insular peninsula, is derived from the earliest voyage to Florida. Florida was discovered on a Spanish expedition led by Juan Ponce de León (1474-1521) on 2nd April 1513, probably near present-day Melbourne Beach¹⁴. They sailed southward around the Florida Keys and then northward along the Gulf coast as far as Cape Romano or Charlotte Harbor, departing on 14th June to return home. The ensuing map was brought by Ponce de León in April 1514 to Spain. This cartographic design of Florida was then incorporated into the Padrón Real, the Spanish standard world map. This delineation of Florida as indefinite or indeterminate remained on the Padrón Real until 1520, when the results of the voyage of Alonso Álvarez de Piñeda (fl. 1494-1520) were incorporated into the Padrón Real. The Piñeda chart, made the previous year in 1519, was the first map to show the complete coast of the Gulf of Mexico from Florida to the Yucatan, thus, showing Florida as a peninsula attached to the mainland. The voyages to Florida by Diego Miruelo in 1516 and by Ponce de León again in 1521 did not leave any traces in extant maps. The cartographic design of an indeterminate Florida seen on these few maps, including the Piri Reis map of 1528, is the result of the first voyage of Ponce de León.

The placename inscribed upon Florida may be transcribed as San Cuvana Batisde in the modern Turkish orthography¹⁵, or San Juan Batisto in the modern Latin (Roman) alphabet¹⁶. The name on Piri's map appears to be derived from the Spanish placename, Rio de San Juan Bautista, that is, River of St. John the Baptist¹⁷. This would be

¹⁴ D. Peck, *Ponce de León and the discovery of Florida: The Man, the Myth, and the Truth*, Pogo Press, St. Paul-Minnesota, 1993, p. 39.

¹⁵ B. Tok, *Piri Reis* cit., p. 41; C. Ülkekul, *Piri Reis haritası* cit., p. 21; Id., XVI. yüzyılın denizci bilim adamı, ya amı ve yapıtlarıyla Piri Reis, 3 vols. Deniz Basımevi Mudurluğu Kasımpasa, Baskı ve cilt Ankara deniz İkmal Komutanlığı Basımevi Amirliği, İstanbul-Ankara, vol. 3.

¹⁶ *Piri Reis in hayati* cit., p. 40.

¹⁷ B. Rudes, *First Descriptions of an Iroquoian People: Spaniards among the Tuscarora before 1522*, 2004, [online], available at <http://www.coastalcarolinaindians.com/research/BlairARudes/The%20First%20Description%20of%20An%20Iroquoian%20People.pdf> (retrieved: 2013-11-25).

an instance of a placename migrating to another, nearby location, in this case, from present-day South Carolina to Florida. In 1521 Francisco Gordillo and Pedro de Quejo (Quexos) sailed from Hispaniola and through the Bahamas to the mainland at present-day South Carolina or Georgia. They named a river there Rio de San Juan Bautista, perhaps Winyah Bay at the mouth of the Pee Dee River in modern South Carolina. After capturing some natives as slaves, they returned to Hispaniola. Quejo returned to the region in 1525 and the next year Lucas Vázquez de Ayllón (c. 1475–1526) founded a colony in the same area. Ayllón died in October 1526 and the settlement was abandoned within a few months¹⁸. The name must have appeared on some Spanish maps after 1521, including undoubtedly the Padrón Real in Seville. Again, Piri's source for this name was likely a Spanish map or an Italian derivative.

The shape of Hispaniola appears to follow a distinctive type seen on many maps of the 16th century. The distinctive feature of this cartographic design is that the Northwest Peninsula (Nord-Ouest Péninsule; Nödwès Penensil) of Hispaniola is diminished, that is, made smaller than actual in relationship to the Tiburon Peninsula to the south and the rest of western Hispaniola. Additionally, this diminished Northwest Peninsula is rotated slightly clockwise, resulting in the Gulf of Gonave appearing to expand as though a yawning mouth. This design of Hispaniola with a greatly diminished Northwest Peninsula, almost to the point of disappearing altogether, was common throughout the 16th century. Maps with typical examples include the Kunstmann IV (c. 1520), Castiglione (1525), Ramusio (1534), and Porcacchi (1575). Needless to say, we do not enquire into the accuracy of Piri's drawing of the coastline of the Gulf of Gonave.

The partially effaced name of San Juwana, that is, San Juan, is barely legible on the island of Hispaniola. In modern Turkish it would be spelled Cuvana¹⁹. San Juan Bautista was the early Spanish name for the present-day island of Puerto Rico²⁰. It was so inscribed on Piri Reis's earlier map of 1513²¹. The significance of the name on Hispaniola is unknown and may be another case of a nomadic placename.

¹⁸ J.R. Swanton, *Early history of the Creek Indians and their neighbors*, «Bureau of American Ethnology Bulletin», 73, 1922, pp. 32-48; J. Winsor, *Spanish explorations and settlements in America from the fifteenth to the seventeenth century*, vol. 2, *Narrative and critical history of America*, Houghton, Mifflin and Company, Boston, 1886, pp. 238-241.

¹⁹ B. Tok, *Piri Reis* cit., p. 42.

²⁰ A. Afetinan, *Life and works of Piri Reis: The oldest map of America*, Turkish Historical Association, Ankara 1975, p. 40.

²¹ G. McIntosh, *The Piri Reis map of 1513* cit., p. 77.

Along the coast of Venezuela there are 16 placenames or parts of placenames, most truncated by the torn edge of the parchment. Only seven can be read to some extent²². These names do not appear to correlate with names on other extant maps of the period, such as the Turin map of c. 1523²³ and the Freducci chart of c. 1526. The lack of correlation in placenames may be due in part to the modern transcriptions from Arabic script to Turkish spelling and into Latin characters, and translations from Spanish to Ottoman Turkish and into modern Turkish. Parts of a few of the original Spanish placenames can, however, be recognized as *san*, *monte*, *punta*, and *fragoso* (see Table 3).

The Caribbean coast of Central America shown on the Piri Reis map of 1528 belongs to a group of maps which displays similar design characteristics. These are: 1) the large, triangular patch of shoals, rocks, and islands projecting from the coast; 2) a finger of land to the west of that large shoal pointing to the north or northwest and identifiable as present-day Punta de Manabique, the peninsula separating Amatique Bay and the Gulf of Honduras; and 3) another, smaller shoal and small cape-like point opposite Punta de Manabique identifiable as present-day Punta Ycacos in Belize. North of this on the Piri Reis map of 1528 is the Yucatan peninsula with the island of Cozumel. Contemporary maps with these same characteristic features in the same distinctive configurations include the planisphere in Turin (c. 1523), the Verrazano planisphere (c. 1526), and the Freducci chart (c. 1526).

There are two inscriptions on Central America. Both are partially effaced. One reads: *Vilayeti ... bundan ötesi bilinmemektedir* ("Province of ... beyond this is unknown")²⁴. The other partial inscription says: *Karadan a ırıp [a ıp] ... denizen aslı nedir diye bilmek için* (... crossed the land ... in order to find the facts of the sea). This latter inscription undoubtedly refers to the crossing of the Isthmus of Panama in 1513 by a Spanish expedition under Vasco Núñez de Balboa (c. 1475–1519). The present author is not aware of any extant maps of this period that note this accomplishment and may again indicate a Spanish map used by Piri as a source.

Though not a diagnostic feature for which we will be looking in other contemporary maps, before leaving the depiction of the Caribbean on the Piri Reis map, we note the east end of Cuba is effaced and nearly obliterated. The name inscribed on the partially erased Cuba reads *izle*

²² A. Afetinan, *Türk amirali Piri Reis'in hayatı ve eserleri: Piri Reis'in Amerika haritası (1513–1528)*, Türk Tarih Kurumu Basımevi, Ankara, 1954, p. 43; S. Selen, *Piri Reis'in imalî Amerika Haritası (1528)*, «Belleten», 1/2, 1937, pp. 515-23.

²³ A. Magnaghi, *Il planisfero del 1523 della biblioteca del re in Torino*, Otto Lange, Firenze, 1929.

²⁴ C. Ülkekul, *Piri Reis haritası* cit., p. 22.

di vana, that is, Island of Vana²⁵. This may be from the name Havana. Havana was possibly named for Habaguanex, cacique of the region around present-day Playa Mayabeque on the south coast of Cuba. This is where Diego Velázquez de Cuéllar (1465–1524) founded San Cristóbal de la Habana in 1514. The settlement, along with the name, moved across the island within a few years.

In the Atlantic Ocean the names of the islands in the Azores on the Piri Reis map are the same as those seen on other contemporary maps, names used from the time of their discovery by the Portuguese in the mid-15th century to the present. The names on Piri’s map and on the similar Turin planisphere and Freducci chart, with the modern identifications, is given in Table 2²⁶. The names of the islands of Graciosa and Terceira do not appear on the 1528 map, while the names of Corvo and Faial, the two small islands to the west of the main islands of the Azores, appear combined into one.

Table 2. Names of Azorean Islands on Three Early Maps

<i>Piri Reis 1528</i>	<i>Turin c. 1523</i>	<i>Freducci c. 1526</i>	<i>Modern</i>
Santa Mariya	santa maria	scã maria	Santa Maria
San Mikal	san migel	san michel	São Miguel
[omitted]	terceira	terçera	Terceira
[omitted]	graciosa	gratioja	Graciosa
San Jorjo	sã yorge	san çorçi	São Jorge
Euriko	opico	pico	Pico
Evfral	flores	del flores	Flores
Oskorals	coruo	el cuçorbo	Corvo
	fayal	faial	Faial

To the northeast of the Caribbean and Florida are depicted three lands: Newfoundland at the south, Greenland at the north, and, between the two, a landmass we will call Labrador. The depiction of Newfoundland on the Piri Reis map of 1528 follows that design originally derived from the two voyages in 1501 and 1502 of the Corte-Real brothers, Gaspar (c. 1450–1501?) and Miguel (c. 1448–1502?). The next significant cartographical design change to the depiction of Newfoundland followed the voyage João Álvares Fagundes (c. 1460–1522) in 1519 or 1520. Until the Fagundes voyage, the depictions of the coasts of Newfoundland were all variations of the same Portuguese image based upon the map of the Corte-Real voyages. The Piri Reis

²⁵ A. Afetinan, *Turk amirali Piri Reis*, p. 43.

²⁶ *Ibidem*; C. Ülkekel, *Piri Reis haritası* cit., p. 24.

map of 1528 is an example of a map with the Corte-Real design-type of Newfoundland.

The inscription on Newfoundland reads: *Bu alamet ba ka bir kenardır. Portekiz kafri bulmu tur. Tamamu bilinmemektedir. Bulunan yeri yazımı tur* (This is an indication of another shore. The Portuguese infidels discovered it. All of it is unknown. Only the places known are sketched). Newfoundland was often shown on 16th century maps with an inscription attributing its discovery to the Portuguese. The first such map is the Cantino planisphere (1502), which ascribes the name *Terra del Rey de portugual* (Land of the King of Portugal) to Newfoundland, and states in an inscription *Esta terra he desoberta per mandado do muy alto excelentissimo sr. principe Rey dom manuell Rey de portugual...* (This land was discovered by order of [his] Very High Excellency, Lord [and] Prince, King Don Manuel of Portugal...). The Vesconte Maggiolo planisphere (1516) has an inscription on Newfoundland reading *Terra nova de re de portugale inventa per corte reale* (The new land of the King of Portugal discovered by Corte-Real). Similar names and inscriptions are seen on the planispheres made by Portuguese cartographers who worked for the Spanish in the 1520s. For example, the Kunstmann IV planisphere (c. 1520), by the father and son team of Pedro and Jorge Reinel, has the name, Bacallao, for Newfoundland and an inscription attributing the discovery of Newfoundland to the Portuguese; the Castiglione planisphere (c. 1525) has Tiera de los Bacallaos; the Weimar-Ribero planisphere (1527) has Los Bacallaos; the Rome-Ribero planisphere (1529) has Tiera Nova; and the Wolfenbüttel-Ribero planisphere (c. 1532) has Tiera Nueva de los Bacallaos (see Table 4 for reproductions of the maps). These examples were all made by Portuguese cartographers working for the Spanish. The source maps used by Piri likely obtained this information from the Padrón Real kept in the Casa de Contratación in Seville, either directly from Spanish maps or indirectly through Italian derivative maps.

The name Bacallao is from *bacalhau*, the Portuguese word for stockfish, or dried cod. The Portuguese and the neighboring Basques were among the first to exploit the rich fishing banks of Newfoundland. Bacallao and variants of the name appeared on maps throughout the 16th century. A small island off the coast of the Avalon Peninsula in Newfoundland is still known today as Baccalieu Island.

Several modern works discussing the Piri Reis map of 1528 mistakenly state the placename, *Terra Nova*, is inscribed on the map. This error seems to have arisen from statements made by Afetinan²⁷ and misinterpreted by others. Her first work on Piri Reis was written in

²⁷ A. Afetinan, *Türk amirali Piri Reis*, p. 43; Id., *Piri Reis in hayati cit.*, p. 40; Id., *Life and works of Piri Reis cit.*, p. 40.

French²⁸. The modern French name for Newfoundland is *Terre Neuve*, and it was appropriate for Afetinan to use this as the name for Newfoundland in her writing. In her later Turkish and English books on Piri Reis, however, she continued to use *Terre Neuve* with quotation marks around the name, and this was interpreted by some as the name inscribed on Piri's map²⁹.

In the 15th and 16th centuries, Greenland was depicted on maps in more than a half dozen different designs and locations, sometimes as a small peninsula to the north of Scandinavia, sometimes as a large peninsula connected to northeast Asia, sometimes as a small island to the west of Europe. Without digressing into an examination of these different depictions of Greenland, we can say that the large island at the top border of the Piri Reis map of 1528 is Greenland in a configuration and location similar to that first seen on the Portuguese Cantino planisphere and repeated on many maps of the 16th century, including Italian-made maps that included depictions from Portuguese and Spanish maps. This depiction is similar to the actual configuration of Greenland.

We now turn to the land depicted between Newfoundland and Greenland on the Piri Reis map of 1528. This land has an inscription which reads: *Bu Bakila ki buna Portekiz kâfirî bulmu tur, bulundu u kadarı yazılmı tur* (This is called Bakila. This too was discovered by the Portuguese infidels. Only what has been seen, however, has been written here). The name *Bakila* is undoubtedly Bacallao, which, as previously mentioned, was one of the early names for Newfoundland. This inscription, by mentioning the Portuguese, also alludes to the discoveries of the Corte-Reals.

Though the placename, *Bakila*, in the inscription identifies the land as Newfoundland, the image appears to follow the configurations of one of the other rival designs of Greenland. We see this design-type of Greenland in Portuguese and Spanish maps of the 1520s and their derivatives: Kunstmann IV (c. 1520), Turin (c. 1523), Salviati (c. 1525), Verrazano (1529), and all the maps made by Diego Ribero between 1527 and 1535.

One of the many mysteries of these old maps was how the placename, Labrador, first applied in about 1501 to present-day Greenland, was later transferred to the North American mainland. The presence on the Piri Reis map of 1528 of two different designs of Greenland – one ultimately derived from the Portuguese Cantino planisphere and the other from Spanish maps of the 1520s – may provide some clues to unravelling the unknown process by which the name, Labrador, was transferred to its present location. Other clues,

²⁸ Id., *Un amiral, géographe Turc du xvi siècle Piri Reis, auteur de la plus ancienne carte de l'Amérique*, «Belleleten», 1/2, 1937, pp. 333-356.

²⁹ S. Tekeli, *The map of America by Piri Reis*, «Erdem», 1/3, 1985, pp. 673-683, in particular p. 681.

Table 3 - Inscriptions and Place-names on the Piri Reis Map of 1528

No.	Transcription	Translation
I	Bu mil işaretdir. Haneden haneye altışar mildir. Noktadan noktaya onar mildir.	<i>This is a mile marker. From dwelling to dwelling it is fifty miles each. From point to point it is ten miles each.</i>
II	Bu mil işaretdir. Haneden haneye elli mildir. Noktadan noktaya onar mildir.	<i>These indicate a mile. From section to section it is fifty miles.</i>
III	Bu 935 yılında, Gelibolu şehrinde merhum Gazi Kemal Reis'in erkek kardeşinin oğlu olarak ün yapmış Hacı Mehmed'in oğlu hakir Piri Reis çizmiştir. İşbu çalışma kesin olarak onundur.	<i>Drawn by the humble Piri Reis, son of Hajji Mehmet, known as the paternal nephew of the late Gazi Kemal Reis, in the city of Gelibolu in the year 935 [1528]. This is his work.</i>
IV	San Juvana Bastisde	<i>[Rio de] San Juan Bautista</i>
V	Izle di Avana	<i>Isla de Havana</i>
VI	San Juwana / San Cuvan	<i>San Juan</i>
VII	Bu çizgi, gün gayet uzadığı yere işaretdir.	<i>This line indicates where the day is very prolonged.</i>
VIII	Vilayeti ... bundan ötesi bilinmemektedir	<i>Province of ... beyond this is unknown.</i>
IX	Karadan aşırıp [aşırıp] ... denizen aşı nedir diye bilmek için.	<i>Land crossed ... in order to know the facts of the sea.</i>
X (a)	Diye (Dides, Didas)	?
X (b)	Sore (Sare)	?
X (c)	Detonos (Le Konos)	?
X (d)	Ponte Sogon (Ponte Sağon)	<i>Ponta ...?</i>
X (e)	Monte Krago (Monte Frago, Momte Frogo)	<i>Monte Fragoso ?</i>
X (f)	San Cilormi (San Clormi)	<i>San ...?</i>
X (g)	diye Sagram	?
XI	Santa Maria	<i>Santa Maria</i>
XII	San Mikal	<i>São Miguel</i>
XIII	San Jorjo	<i>São Jorge</i>
XIV	Epiko	<i>Pico</i>
XV	Evfral	<i>Faial</i>
XVI	Oskorals	<i>Corvo + Flores ?</i>
XVII	Bu alamet başka bir kenardır. Portekiz kafiri bulmuştur. Tamamı dahi malum değildir. Bulunan yeri yazılmıştır.	<i>This is an indication of another shore. The Portuguese infidels discovered it. All of it, however, is known. Only the places known are sketched.</i>
XVIII	Bu Bakile ki buna Portekiz kâfiri bulmuştur, bulunduğu kadarı yazılmıştır.	<i>This is called Bakila. This too was discovered by the Portuguese infidels. Only what has been seen, however, has been written [drawn] here.</i>

not examined at this time, may be in the placenames and configurations of the Labrador coast in the maps and atlases of Gaspar Viegas.

The placenames and inscriptions of the map of 1528 have been numbered in the publications of Cevat Ülkekel and we will use the same numbering system in Table 3, with a few additions³⁰. Regarding

³⁰ C. Ülkekel, *Piri Reis ve Türk kartograflarının çizgileriyle: XVI., XVII., ve XVIII. yüzyıllarda İstanbul*, Boyut Yayıncılık, İstanbul, 2013.

the inscriptions (I, II, III, VII, VIII, IX, XVII, XVIII), there have been, of course, slightly differing translations made in the last century from the original Ottoman Turkish into modern Turkish, French, and English, but the meanings of the inscriptions are essentially the same³¹.

As is seen on his first world map of 15 years earlier, Piri Reis is gathering maps and geographic material from the Latin cultures of Europe and the Mediterranean Basin. Clearly, he is interested in gathering the most up-to-date information available to him from the recent Spanish and Portuguese explorations.

The depictions and design-types displayed on the map permit us to suggest the sources used by Piri Reis in making his world map of 1528 were predominately Spanish maps (often made by Portuguese cartographers working in Spain), though we must recognize that some of this cartography may have come to him through the intermediation of Italian maps, which copied and disseminated the discoveries of the Portuguese and Spanish first depicted on Iberian maps. The depiction of Florida as an indeterminate insular peninsula likely indicates an Italian map source of the 1520s. The placename of San Juan Bautista indicates a Spanish map made after 1521. The pre-Fagundean design of Newfoundland is originally a Portuguese configuration used from 1502 into the 1520s. The design-type of the landform at the location of present-day Labrador was used on both Portuguese and Spanish maps in the 1520s. All of this strongly suggests Piri Reis used Spanish-made maps, and possibly Italian-made maps, of the 1520s as sources for his map. And, as we know, some of the leading cartographers in Spain at this time were Portuguese.

As with the first world map of 1513, we may regret that more of the map of 1528 did not outlive the centuries, but at least we can feel grateful that this remnant of magnificent Ottoman cartography has survived for us to study and enjoy. And we must marvel, too, at the singular accomplishments of this remarkable sailor who, by taking advantage of the best geographical information and cartographic science offered by two of the great civilizations of his time, was a man ahead of his own time.

³¹ A. Afetinan, *Piri Reis in hayati* cit., p. 41; Id., *Life and works of Piri Reis* cit., p. 41; S. Soucek, *Piri Reis* cit., pp. 79, 80, 84; C. Ülkekul, *Piri Reis haritası (1528)* cit., pp. 12, 20-25; B. Penrose, *Travel and discovery in the Renaissance, 1420-1620*, Harvard University Press, Cambridge, 1952, p. 95.

Table 4 - Maps Referenced in the Text, with Reproductions Cited

<p>Cantino (1502). Modena, Biblioteca Estense Universitaria, C.G.A.2. Also known as Anonymous-Portuguese. Manuscript planisphere on parchment. Reproduction: Biblioteca Estense Universitaria, «Carta del Cantino», 2004 [online], available at: http://bibliotecaestense.beniculturali.it/info/img/geo/i-mo-beu-c.g.a.2.pdf (retrieved: 2014-04-28); A. Cortesão, A. Teixeira da Mota, <i>Portugaliae monumenta cartographica</i>, 6 vols, Imprensa Nacional-Casa da Moeda, Lisbon, 1987, vol. 1, pls. 4 & 5; H. Wolff, <i>America: Early maps of the New World</i>, Prestel Verlag, Munich, 1992, pp. 46-47.</p>
<p>Castiglioni (c. 1525). Modena, Biblioteca Estense Universitaria, C.G.A.12. Also known as Mantua. Manuscript planisphere on parchment by Diego Ribero (Diogo Ribiero). Reproduction: <i>Codices Illustres, Rare Book Facsimiles</i>, 2014 [online], available at http://www.codicesillustres.com/pdf/Castiglioni_World_Map.pdf (retrieved: 2014-04-28); A. Cortesão, A. Teixeira da Mota, <i>Portugaliae monumenta cartographica</i>, 6 vols, Imprensa Nacional-Casa da Moeda, Lisbon, 1987, vol. 1, pl. 37.</p>
<p>Egerton (c. 1508-1514?). London, British Library, Egerton MS 2803, fol. 1v. Map of the world on parchment in an Italian manuscript codex atlas. Reproduction: Edward L. Stevenson, ed., <i>Atlas of Portolan Charts: Facsimile of Manuscript in British Museum</i>, New York, The Hispanic Society of America, 1911, chart 1.</p>
<p>Freducci chart (c. 1526). Florence, Archivio di Stato, Manuscript map of North Atlantic on parchment by Ottomano Freducci. Reproduction: G. Cavallo, Guglielmo, Cristoforo Colombo e l'apertura degli spazi: mostra storico-cartografica, direzione scientifica, 2 vols, Istituto poligrafico e zecca dello Stato, Libreria dello stato, Rome, 1992, vol. 2, pp. 648-9.</p>
<p>Juan de la Cosa (1500-1502). Madrid, Museo Naval, cat. no. 257 (previously cat. no. 553). Manuscript planisphere on parchment by Juan de la Cosa. Reproduction: Kenneth Nebenzahl, <i>Atlas of Columbus and the Great Discoveries</i>, Chicago, Rand McNally, 1990, pp. 32-33 pl. 10.</p>
<p>Kunstmann IV (c. 1520). Formerly Munich, Haupt Conservatorium der Armeel Bibliothek, MS 31-3. Lost manuscript planisphere on parchment by Jorge and Pedro Reinel. Facsimile: Paris, Bibliothèque nationale de France, département Cartes et plans, CPL GE AA-564 (RES). Reproduction: Bibliothèque nationale de France, [Carte du monde] [Fac-similé manuscrit], 2014. [online], available at http://gallica.bnf.fr/ark:/12148/btv1b59055673/f1.item (retrieved: 2014-04-28).</p>
<p>Piñeda chart (1519). Seville, Archivo General de Indias, I. I. 26. Also known as the Francisco de Garay chart, the Pinheda chart, or the Pineda-Garay chart. Manuscript map of the Gulf of Mexico on paper by Alonso Álvarez de Pineda. Reproduction: W.P. Cumming, R.A. Skelton, D.B. Quinn, <i>The discovery of North America</i>, American Heritage Press, New York, 1972, p. 69.</p>
<p>Piri Reis (1513). Istanbul, Topkapı Sarayı, TSMK R. 1633. Remnant depicting America and Atlantic Ocean from a lost manuscript planisphere on parchment by Piri Reis. Reproduction: H. Wolff, <i>America: Early maps of the New World</i>, Prestel Verlag, Munich, 1992, p. 43; Piri Reis, in Wikipedia, 2014 [online], available at http://upload.wikimedia.org/wikipedia/en/c/2/Second_World_Map_of_Piri_Reis.jpg (retrieved: 2014-04-28).</p>
<p>Piri Reis (1528). Istanbul, Topkapı Sarayı, TSMK H. 1824. Remnant depicting West Indies and North Atlantic from lost manuscript planisphere on parchment by Piri Reis. Reproduction: Piri Reis map, in Wikipedia, 2014 [online], available at http://upload.wikimedia.org/wikipedia/commons/7/70/Piri_reis_world_map_01.jpg (retrieved: 2014-04-28).</p>
<p>Porcacchi (1576). Spagnola, printed map on paper, in T. Porcacchi, <i>L'isole piu famose del mondo</i>, Simon Galignani & Girolamo Porro, Venice, 1576, p. 165. Reproduction: S.B. Hedges, <i>Caribmap: A cartographic history of Caribbean islands</i>, 2014, [online], available at http://www.caribmap.org/index.php?id=hola&link=1576-hisp-porcacchi&src=&sub= (retrieved: 2014-04-28).</p>
<p>Pseudo-da-Vinci (c. 1527). London, Windsor Castle, Royal Collection, nos. 232b & 233a. Manuscript map of world on paper. Reproduction: J. Siebold, <i>Cartographic Images</i>, 2014 [online], available at http://cartographic-images.net/Cartographic_Images/327_da_Vinci_Globe_Gores_files/dropped_Image.png (retrieved: 2014-04-28). (2014); Leonardo da Vinci Globe Gores, in Wikipedia, 2014 [online], available at http://upload.wikimedia.org/wikipedia/commons/2/26/Leonardo_da_Vinci_Globe_Gores.png (retrieved: 2014-04-28); H. Wolff, <i>America: Early maps of the New World</i>, Prestel Verlag, Munich, 1992, p. 147.</p>

<p>Ramusio (1534). Isola de Spagnuola, printed map on paper, in G.B. Ramusio, <i>Summario de la generale historia de l'Indie Occidental</i>, A. Pincio, Venice, 1534, vol. 3, p. 44. Reproduction: S.B. Hedges, <i>Caribmap: A cartographic history of Caribbean islands</i>, 2014 [online], available at http://www.caribmap.org/index.php?id=hola&link=1534-hisp-ramusio&src=&sub= (retrieved: 2014-04-28).</p>
<p>Rome-Ribero (1529). Vatican City, Biblioteca Apostolica Vaticana, <i>Carte Nautiche Borgiano III</i>. Also known as Vatican-Ribero or Propaganda. Manuscript planisphere on parchment by Diego Ribero. Reproduction: W.P. Cumming, R.A. Skelton, D.B. Quinn, <i>The discovery of North America</i>, American Heritage Press, New York, 1972, pp. 106-07; Diogo Ribero, in Wikipedia, 2014, [online], available at http://upload.wikimedia.org/wikipedia/commons/a/a9/Carta_universal_en_que_se_contiene_todo_lo_que_del_mundo_se_ha_descubierto_fasta_agora_hizola_Diego_Ribero_cosmographo_de_su_magestad%2C_ano_de_1529%2C_en_Sevilla.jpg (retrieved: 2014-04-28); H. Wolff, <i>America: Early maps of the New World</i>, Prestel Verlag, Munich, 1992, pp. 52-53.</p>
<p>Salviati (c. 1525). Florence, Biblioteca Medicea-Laurenziana. Manuscript planisphere on parchment, probably by Nuño García de Toreno. Reproduction: W.P. Cumming, R.A. Skelton, D.B. Quinn, <i>The discovery of North America</i>, American Heritage Press, New York, 1972, p. 72; S. Rabinovitch, <i>Guided History</i>, 2014 [online], available at http://blogs.bu.edu/guidedhistory/files/2012/10/salviati-map1.jpg (retrieved: 2014-04-28); H. Wolff, <i>America: Early maps of the New World</i>, Prestel Verlag, Munich, 1992, pp. 48-49.</p>
<p>Turin (c. 1523). Turin, Biblioteca Reale. Manuscript planisphere on parchment. Reproduction: H. Harrisse, <i>The discovery of North America: A critical documentary and historic investigation</i>, with an essay on the early cartography of the New World, Henry Stevens and Son, H. Welterp, London-Paris, 1892, pl. 19; A. Magnaghi, <i>Il planisfero del 1523 della biblioteca del re in Torino</i>, Otto Lange, Firenze, 1929.</p>
<p>Verrazano (1526). Wolfenbüttel, Biblioteca Ducale. Also known as Wolfenbüttel A. Manuscript map of America on parchment by Giralamo Verrazano. Reproduction: R. Uhdén, <i>An unpublished portolan chart of the New World dated 1519</i>, «<i>Geographical Journal</i>», 91, 1938, pp. 44-51; M. Destombes, <i>Contributions sélectionnées à l'histoire de la cartographie et des instruments scientifiques</i>, HES Publishers, A.G. Nizet, Utrecht-Paris, 1987, p. 40.</p>
<p>Verrazano (1529). Vatican City, Biblioteca Apostolica Vaticana. Also known as Borgiano I. Manuscript planisphere on parchment by Girolamo Verrazano. Reproduction: K. Buzard, <i>Jacques Cartier, Verrazano and France in the New World</i>, 2014 [online], available at http://traveltoeat.com/jacques-cartier-verrazano-and-france-in-the-new-world/#more-2764 (retrieved: 2014-04-28).</p>
<p>Weimar-Ribero (c. 1527). Weimer, Grand Ducal Library. Anonymous manuscript planisphere on parchment, probably by Diego Ribero. Reproduction: A. Cortesão, A. Teixeira da Mota, <i>Portugaliae monumenta cartographica</i>, 6 vols, Imprensa Nacional-Casa da Moeda, Lisbon, 1987, vol. 1, pl. 38; I.N.P. Stokes, <i>The iconography of Manhattan Island, 1498-1909</i>, 6 vols, Robert H. Dodd, New York, 1915-192, vol. 2, pl. 9.</p>
<p>Wolfenbüttel-Ribero (c. 1532). Wolfenbüttel, Biblioteca Ducale, 95 Aug. fol. Also known as Wolfenbüttel B. Remnant depicting America from a lost manuscript planisphere on parchment, probably by Diego Ribero. Reproduction: E. L. Stevenson, <i>Early Spanish cartography of the New World with special reference to the Wolfenbüttel-Spanish map and the work of Diego Ribero</i>, «<i>Proceedings of the American Antiquarian Society</i>», 19, 1909, pp. 369-419.</p>