

Renaissance Introduction



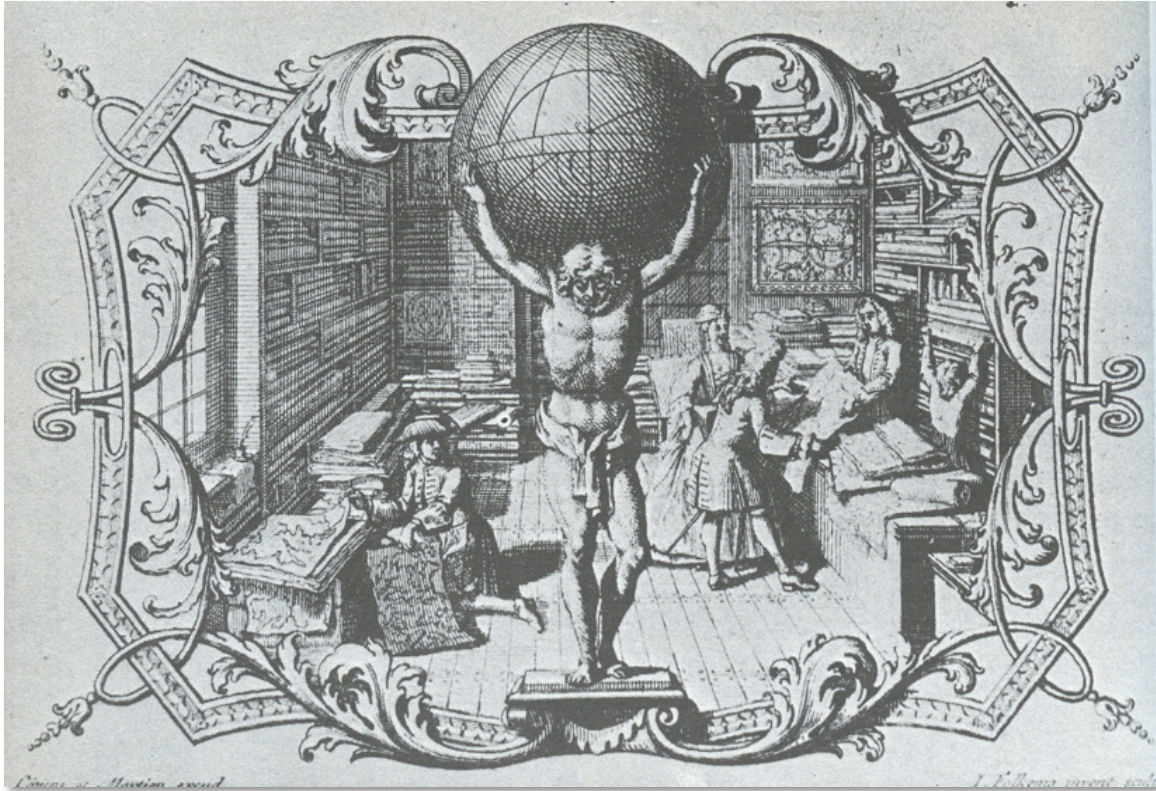
Setting the Stage: European maps in the late Middle Ages and the Renaissance were always reflections of contemporary thought about science, philosophy and theology. As Surekha Davies concludes, from the era of the *mappaemundi* to the mid-17th century, world maps were picture-texts upon which the important, little-known and surprising aspects of history and geography, abstracted from a plurality of sources, were gathered together for easy reference. As Fra Mauro (#249) noted more than once, there was no room on a map of the world to record everything. The map was intentionally a selective rather than representative summary intended to help viewers distinguish one region from another, and to set historical events in a geographical context. What these maps do tell us is how this significance was conceptualized—what seemed historically important or surprising to their makers. Whether the interest in incorporating in

maps greater and more accurate detail was a product of a rise in neo-Platonism or of the resurgent nominalism of the *via moderna* associated with the English Franciscan William of Occam, the fact remained that even before the great geographical discoveries changes were underway in cartography. Those changes were only accelerated by the spread of Renaissance thought and aesthetics from Italy and by the long-term economic growth that started in the first half of the 15th century. The use of maps increased for various reasons, some demographic, some economic, some political but whatever the source the process continued through the 16th century. In 1400 few Europeans used maps but by 1600 they were essential in many professions. Whereas maps were rare in 1500 they were familiar objects of everyday life by 1600. Their numbers grew exponentially." The reasons for the transformation include the Renaissance interest in Antiquity and so in classical mapping; the growing interest in quantification and measurement; rising literacy so maps could be and were used, for example, in court cases to do with land ownership; after 1517 the Protestant Reformation which gave an impetus to the mapping of Biblical events; the ability to reproduce consistent copies with the potential for widespread distribution through print and the expanding role of the state which found, starting with Italian city-states in the 15th century, more uses for maps in military enterprises and for administration. The voyages of discovery and the need to represent additions to geographical knowledge along with the need for states to assert their status relative to other states in the new found lands promoted the production, use, and preservation of maps. The new uses of maps meant changes in their character, in some cases in unexpected ways. It is the changes that were beyond or different from the scientific aspects, beyond the drive for accuracy and consistency, which have recently and correctly become principal topics for historians.

Francesca Fiorani writes in her chapter *Mapping and voyages*, that it is fundamentally human to need to know the places that we inhabit and to dominate them through mapping. In the process of mastering the geography of our world, we define our place within it and our relations to others. If the need to represent the surrounding space is universal, how to map it, what to include and what to omit, is always a selective cultural process that involves choices. Renaissance

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mapping is traditionally associated with the beginning of modern cartography, and its history has often been reduced to documenting the gradual conquest of mathematical accuracy in the representation of a world of expanding borders. Early European voyages beyond the Mediterranean Sea and the rediscovery of Ptolemy's *Geographia*, the foundational text for locating places precisely on a cartographic grid, date from the late 14th century. But Ptolemy's mathematical geography, which has become the dominating concern of modern cartography, coexisted in the Renaissance with the verbose descriptions of places that other ancient authors had presented in their geographical texts and which have disappeared from modern maps. As cultural artifacts, maps participated in major cultural trends of the Renaissance period, from humanism to the exploration of trading routes and the emergence of the printing press, as well as in religious expeditions and the formation of overseas dominions. Their techniques and conventions of representation emerged in relation to the intentions of their makers and the expectations of their patrons and users. In this process of defining the practices of Renaissance mappings and the conventions of cartographic representations, humanists, nationalism, and conquests play significant roles.



In the Renaissance, mapping was not an independent discipline or a distinct profession but an integral component of geography, the study of the earth. A complex endeavor, mapping required the skills of such diverse disciplines and crafts as philology, surveying, computation, mathematics, geometry, drawing, painting, engraving, printing, the making of instruments, and the knowledge of Greek and Latin. Because only rarely did one single person master the full array of skills required to make maps, Renaissance mapping resulted from the close collaboration of humanists, artists, merchants, and printers, who were all obsessed with the measurement of the

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universe, the visualization of the Earth's globe, the philological exegesis of ancient texts, and the trade of exotic goods. Based in Florence, Venice, Ferrara, Rome, Genoa, Naples, and Mantua as well as in Paris, Seville, Lisbon, Nuremberg, and later also in London, Antwerp, and Amsterdam, these heterogeneous groups of mapmakers operated within a European network of relations that often intersected with the network of the republic of letters, the courts of rulers, the councils of the church, the associations of merchants and bankers, and the mercenary armies of European powers. Each center and group was under a different rule, pursuing cartography with different objectives in mind and often keeping news of travels and lands jealously guarded from others, but nonetheless legal and illegal exchanges abounded in cartographic matters. Images destined for a restricted public in the Middle Ages, maps became one of the most favored forms to represent the world in the Renaissance. By the end of the 16th century millions of maps representing the whole world, continents, individual countries, regions, and cities were produced in Europe. It has been calculated that only a few thousand manuscript maps existed in the years 1400–1472, but that their number jumped to about 56,000 from 1472 to 1500, while millions of maps were produced from 1500 to 1600. The emergence of the printing press contributed to this unprecedented diffusion of maps, which were sold as individual prints but also used as illustrations in bibles, history books, classics, and contemporary texts. Maps came to be used for a variety of purposes. Objects of learning and delectation, they were collected and displayed in audience halls, libraries, and studies. They were even painted in city residences, villas, and princely palaces. They were used as visual aids in estimating the daily reports on European wars and in establishing merchandising franchises. Some were visual aids to study the bible and the classics, to learn history, or to facilitate the contemplation of the divine through the study of nature.

The mapmakers' need to repeat information that they claimed not to believe may have been a way of signalling that they knew their classical sources, that they had had a proper education. A number of the cartographers considered here, including Ortelius and Mercator, were closely involved in humanist scholarship. Rehearsing ancient geographical ideas on one's map was a way of showing that you knew the history of your discipline—the cartographic equivalent of an introductory survey, in which you relate the twists and turns of scholarly thinking that preceded your own.

Surekha Davies asks: "To what extent did something new take place in the Renaissance?" Occasional references to proof and reliability of sources on medieval maps show that mapmakers had long been grappling with these issues, and that the East was a particular problem, since it was truly wondrous but—and indeed, wondrous and therefore—unbelievable. What was new in the Renaissance was the citation of, literally, chapter and verse, when providing details of a textual authority: once printed books began to appear, more regular systems of referencing began to emerge.

Since maps and geographies were themselves read widely in this period for ethnographic as well as topographic information, they in turn shaped ideas about distant places. Mapmakers had to grapple with the problem of assessing the reliability of travelers who, as a popular proverb recounted, could lie with impunity since their claims could not be tested.

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The phrase “voyage of discovery” suggests a bold venture into the unknown, questing after knowledge where none exists. Yet the reality of many of history’s most important voyages of “discovery” is that they have been undertaken on the basis of steadfast belief in one or more geographical illusions. Indeed, for as long as history has been recorded, journeying into the complete unknown has been a subject of paralyzing fear. It is why it took Europeans so long to “discover” the extent of Africa: what lay beyond the horizon was almost completely unknown but for the possibility of monsters, boiling oceans and a miserable death lost at sea. Contrast this with Columbus who in one fell swoop crossed the Atlantic to “discover” the Americas—a feat far more remarkable than the gradual unveiling of the African littoral because had Columbus not “discovered” land where he did, he would have found himself stranded in a seemingly endless stretch of Ocean that took in the better part of 150° of longitude. But if these were the possible outcomes of a voyage into the unknown, why would Columbus have taken the risk? What made him special? The answer is straightforward: as far as Columbus was concerned, he was not sailing into the unknown. Columbus was thoroughly convinced he was embarking upon a comparatively short ocean-crossing to the lands of eastern Asia. Thus, it was not that Columbus was uniquely brave or bold; it was that he was lucky enough to subscribe to a geographical illusion that happened to intersect with geographical realities. As Clark Firestone memorably wrote, “The gains of fable are writ large in the history of modern exploration. Error was the guiding star of discovery. A vain fancy was the most precious cargo of the caravels, as it was the keenest weapon of the conquistadors.”

Examples of significant expeditions pursuing geographical preconceptions are too numerous to list—just consider the dozens of expeditions embarked in pursuit of the *North-West Passage*, the Lands of *Prester John*, or the *Mountains of the Moon* and the wellspring of the Nile. These geographical preconceptions inspired explorers to journey into the unknown—but, then, that is the point: through the accretions of lore, no explorer ever ventures into a geographical vacuum. The geographical “unknown”, so-called, is populated by myth, rumor, misapprehension, conjecture and fancy. The unknown is never a blank slate.

The burst of activity that characterized Renaissance cartography was due to a set of concomitant factors. It built on the long-standing western tradition of representing the earth visually and verbally. Although ancient maps were unknown until the late 15th century, medieval maps of the world, the Mediterranean and the Holy Land were well documented and continued to be made throughout the 16th century. Medieval *mappaemundi* [world maps] represented the three known continents of Europe, Africa, and Asia schematically, often placing Jerusalem at the center of the globe, and were mainly intended as memory-images to visualize and recall encyclopedic time/space knowledge. Charts of the Mediterranean recorded coastlines, ports, and directions of navigation (rhumb lines); their origin is still hotly debated but it is plausibly due to the interactions of Islamic, Pisan, Genoese, and Venetian sailors and mapmakers in the 13th century. Maps of the Holy Land, the first area of the world to be represented individually in Western maps, served for biblical studies but also for planning pilgrimages, crusades, and commercial expeditions. Also popular were geographical descriptions of the world and its regions included in ancient texts, among which Pliny’s *Natural History*, Macrobius’ *Commentarius in*

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somnium Scipionis [Commentary on the Dream of Scipio], Solinus' *Collectanea rerum memorabilium* [Collection of Remarkable Things], and Martianus Capellas' *De nuptiis Philologiae et Mercurii* [On the Marriage of Philology and Mercury] held authoritative status, while the 14th century travel reports written by merchants' and missionaries' journey to *Cathay* were favored reading of early humanists, nobles, clergy, and bankers across Europe.

Equally important for the diffusion of maps in the Renaissance were the rediscovery of ancient geographical texts by Pomponius Mela, Ptolemy, and Strabo, and the journeys of European travelers beyond the Mediterranean Sea and in central Africa. The recovery of these geographical texts coincided with defining moments in the early history of humanism, while the texts themselves rapidly generated a widespread interest that exemplifies the different motivations coexisting in Renaissance mapping and the wide-ranging cultural relations from which it emerged. More importantly, these texts were systematically read against each other, in the effort to reconcile their contradictory information on the shape of the world, the size of continents, and the extension of oceans. They were also read in conjunction with contemporary modern travel reports from northern Europe, the Atlantic, and Africa, which related that these lands were not uninhabited but situated beyond the world known by the ancients. Initially the recovery of ancient geographical knowledge and early travels were independent pursuits, carried out by different people for different purposes. Eventually they came to interact in such significant ways that by the late 15th century the study of ancient geography and the recording of modern voyages became part and parcel of Renaissance mapping. Indeed, the Renaissance notion of mapping as a mathematical and descriptive record of the entire world emerged from the practice of comparing ancient texts to modern voyages.

As put forth by Peter Whitfield in his book *New Found Lands, Maps in the History of Exploration (1998)*, in reality European exploration, during what we may call its "classic period", or the Renaissance, between 1500 and 1900, is the story of the growth of knowledge, geographical knowledge that was recorded, centralized and used as never before. But "discovery" is a relative and misleading term, and perhaps the most persistent and subtle legend is that exploration and discovery are synonymous, whereas the lands or routes "discovered" during this period were of course already inhabited or known for centuries before Europeans arrived. "Newly-discovered" routes across the Pacific and Indian Oceans, the Sahara Desert, or through the Rocky Mountains invariably represented knowledge simply borrowed from native peoples. The *discoverer* of a certain land, or the route to it, may have been simply the first to record his discovery and incorporate it within the body of knowledge. In order to do this he had obviously to find his way home again, therefore the first duty of an explorer was to survive; but the rivers and mountains which challenged his powers of endurance were already home to indigenous peoples, therefore the term *Encounter* is a more accurate one than *Discovery*.

The vital difference in these historic Renaissance encounters, compared with earlier encounters, was that knowledge once acquired by Europeans was recorded in map form and became part of a conscious world geography. Men in Lisbon, Seville, Amsterdam or London had access to knowledge of Mexico, India, Canada or Brazil, while the native peoples knew only their own immediate environment. The Europeans' true discovery was that all this knowledge could be

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merged into an accurate map of the world, which in turn became a vital tool of political power. The breakthrough which enabled them to achieve this synthesis was their mastery of the sea, for the great navigators linked the oceans and the continents in a way that was unprecedented in world history, and they arrived in their new-found lands as the possessors of unique skills and revolutionary knowledge. Historically, this explosion of knowledge must be seen in the context of the intellectual revolution that we call the Renaissance, but the immediate motives of the European explorers were overwhelmingly worldly - rapacious, mercenary, military and imperial.



Other advanced cultures during this period like those in Asia: China, India, and the Americas: the Aztecs, Incas, while interested in trade and territorial conquest, were not motivated to venture out past their own limited "world" due either to lack of technology and/or need/desire to acquire exotic goods. In India a long period of conflict between rival kingdoms had not prevented a cultural flowering in literature, temple-building and especially science (with mathematics probably more advanced than anywhere in the world), yet any movement to explore the wider world by land or sea was totally absent. The brilliance of the Sung period made China technically the most advanced civilization of its time, but one consciously confined within its own borders, with little curiosity about the perceived *barbarians* beyond. The American peoples were isolated not only from the rest of the world but also from each other, their ethnic identity having fragmented into a myriad of tribes and nations. The same is true of African and Polynesian peoples, whose pre-literate culture prevented the emergence of any formal geographic sense. In all of these cultures there was no escape from the perception that "The World" was simply limited to "Our World". To cross over from one world to another - if that were physically possible - would mean to be at the mercy of the unknown: barbarians, face the hostile sea or seemingly insurmountable land barriers. And of course it was equally impossible intellectually, for no man could set out to explore regions of the world of whose very existence he was ignorant. The crucial motive for exploration was missing, which is a distinct sense of the known and the unknown, and the challenge of bridging those two realms. It is precisely that sense which is mirrored in the map, displaying the borderland between the known and unknown regions of the world. Again,

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according to Whitfield, in the post-classical era, this kind of cartographic awareness was absent: there was no conceptual model of a world map awaiting completion.

The age of the great European voyages, when it dawned, was characterized by motives that were unmistakably worldly and political. Yet these political goals came into focus only as part of an intellectual revolution, which included the discovery of Ptolemy's geography and the techniques of navigation. The challenges consciously accepted by the protagonists of the Age of Discovery/Encounter could only be understood in geographical terms. A knowledge or at least a theory of world geography was essential as they defined their aims, and essential to the means they used to achieve them.

This is not to say that individuals from these other cultures did not venture forth and find new lands outside "their world". A list of just some of the non-European explorers purported by some historians to have actually crossed the Atlantic prior to Columbus include West Africans from Mali Empire, 800 B.C.E. – 1311 C.E. (*recreated by Dr. Alain Bombard, 1952 & Hannes Lindemann, 1955*), the Phoenicians, 480 B.C.E. (*recreated by Thor Heyerdahl in 1970*) and the Chinese Admiral, Zheng He, 1421. These often nameless explorers, and potentially many others, remain nameless and unrecorded because they either did not return to their original country, and/or they left no written account of their "discovery". This is also true for the unrecorded trans-Atlantic voyages by some Romans in 64 A.D./CE, the Irish in 565, the Vikings during 982-1355, the Welsh (Prince Madoc) 1171 and Prince Henry Sinclair and the Zeno brothers in 1395. Some of these adventurers were simply sailors who were blown off course in a storm and had no way of returning. Others who may have returned were not able to record their journey either textually or graphically, or if so, these records have been lost. Therefore, besides the technological advancements that enabled Europeans to "discover" new lands, they also made the effort to record those travels both textually and cartographically.

So what motivated Europeans more than the other advanced cultures of this time period? Asia (China and India) offered all of the luxury items desired by the ever-affluent European states: silk and spices only available from this part of the world, pepper, fruits, fragrances, oils, porcelain, gold, silver, shells, glass works, brass, pearls. Trade with Asia had been controlled by the "middle men" Arabs and the Venetians (either over the Silk Road (until recently controlled by the Mongols), or by sailing through the Indian Ocean). The Spanish, Portuguese, Danish, French, British all wanted to avoid these "middle men" and looked to sailing around Africa, Northwest or West of Europe to find a direct route to the Far East - to trade, colonize and convert. None of these were motivating factors for the Indians, Chinese, Aztecs, or Incas.

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*Martellus World Map, 1489 (#356) from his *Insularium illustratum*
British Library, Add MS. 15760, fols. 68~69r, London, England; 46.5 x 30 cm/18.3"x11.8"*

If one had to name the most influential book in European history written between say 1200 and 1600, the choice might well fall not on the works of Thomas Aquinas or Dante, of Machiavelli or even of Copernicus, but on the Venetian Marco Polo's narrative of his journey to China. By unveiling Chinese civilization to Europe - its social magnificence, its technical inventiveness, its great cities and its fabulous wealth - Marco Polo created the motivation for the *Age of Discovery/Encounter*, and all the consequences that flowed from it. When they turned their eyes beyond the shores of Europe, the navigators of the 15th century and their patrons were not seeking new lands: they were seeking new routes to countries already known by report and reputation, and the most enthralling of these reports was that of Marco Polo, whose own eastern journey became the most powerful single inspiration for the European era of exploration.

But the impetus to find alternate routes to these treasures actually begins with two second century geographers, Claudius Ptolemy and Marinus of Tyre and carried forward in the 13th century by Roger Bacon and Albertus Magnus, in the 14th century by Paolo Toscanelli and Pierre d'Ailly, in the 15th century by Martin Behaim, Henricus Martellus and the *Laon* globe and finally executed by initially Christopher Columbus in 1492.

Part of the reason it took Europe so long to fully "discover" America as a separate continent was the fact that Columbus' first encounter with it in 1492 actually revealed to his

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contemporaries only a fractional part of this continent and was evidently insufficient for determining its actual cosmographic status. The full cartographic picture of America that we now have could not have possibly been available to anyone back then, as it presupposes, for example, the subsequent “discoveries” of Vespucci and Magellan in South America, Balboa and Pineda in Central America, Corte-Real and Verrazano in the North Atlantic, and Bering and Cook in the North Pacific. Yet part of the delay was also a result of the fact that the process of discovery presupposes a certain readiness to accept that what one discovers may require changing the way one sees the world. This kind of readiness to challenge the classical tri-continental image of the world (Europe/Africa/Asia) was something Columbus and many of his contemporaries obviously did not have.

For several decades after Magellan’s 1520 voyage, Europeans continued to show the Pacific on the map as a relatively narrow expanse, to fill it with imaginary islands or a hypothetical landmass to the south, or to keep the Americas linked to Asia across the northern hemisphere. To do otherwise would have been to accept any or all of a number of ideas that contradicted the prevailing wisdom, such as the fact that Ptolemy had underestimated the circumference of the Earth, or that Ptolemy and Scripture were wrong in their belief that land predominated over water on the surface of the globe, or that the New World was indeed best understood as ‘America,’ the ‘fourth part of the world.’ All of these ideas, of course, would eventually be accepted, but not quickly, and not without a period of anxious effort to jam Magellan’s discovery, and its implications, into existing intellectual cartographic frameworks.

Outside of Spain, the culture of denial was rampant. To some extent, this was due to the paucity of accurate information. Neither the logbook of the *Victoria*’s pilot, with its latitudes and distances, or the maps their cosmographers constructed from that data, was allowed to circulate in print. The printed sources, meanwhile, were either vague or inaccurate when it came to the necessary numbers. For example, although the first edition of Antonio Pigafetta’s eye-witness chronicle of the Magellan expedition (Paris 1525) included lurid details about the horrors of the Pacific crossing, and even suggested that this was a voyage to ‘never again be made,’ it also contained a printer’s error that fudged the longitudes in a way that allowed readers to hold onto their view that the Pacific as a narrow oceanic basin.

Vagaries of this kind, moreover, had to be assessed in light of new knowledge arriving from other places. One of these was Mexico, which was conquered by Hernan Cortes during the same years that the *Victoria* was making its way around the world. While Magellan’s Pacific suggested that America was separate from Asia, the glittering cities of Mexico recalled the East Asian civilizations described by Marco Polo, suggesting that the opposite was true. Reconciling what seemed to be competing information proved to be no small task. The solution proposed tended to favor established ideas about the world’s geography over the potentially revolutionary implications of Magellan’s discovery. During the second quarter of the 16th century, it actually became more rather than less common, among European mapmakers, to depict the New World as a part of Asia rather than as a separate continent.

It actually took another 271 years before the absolute separateness of North America from Asia was conclusively demonstrated by the explorer James Cook. However, many European

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cartographers even during the early part of the 16th century already envisioned the two as indisputably detached from each other. Despite the total lack of any empirical evidence, they nevertheless preserved on their maps and globes, beginning with Martin Waldseemüller's original 1507 image of North America as absolutely distinct and separate from northeast Asia. Consider also, for instance, the maps, globes, and gores of Johannes Schöner (1515, 1520), Simon Grynaeus (1532), Joachim von Watten (1534), Gerardus Mercator (1538), Batista Agnese (1542), Sebastian Munster (1544), Gemma Frisius (1544), and Michele Tramazzino (1554) world maps, as well as the ca. 1515 *Paris* globe and the Georg Hartmann (1535) and Francois Demongenet (1552) globe gores. They all portray America as fully detached from Asia even in the far north - an absolutely insular fourth continent totally surrounded on all sides by the ocean just as Martin Waldseemüller first envisioned it back in 1507.

Despite Waldseemüller's tremendous influence on the way Europe came to view America, not until the late 18th century did it have any conclusive evidence that it was indeed fully detached from Asia even in the far north. For nearly three centuries European cartographers were basically promulgating on their globes and world maps an audacious cosmographic theory which, given the actual geographical information that was available to them, had no basis whatsoever in reality!

It is not easy for 21st century readers to appreciate the challenges faced by 16th century cartographers, especially when trying to depict little-known parts of the world. They had to rely on a number of sometimes fictional, sometimes faulty, and often speculative and contradictory sources for their information. Some material was obtained by word of mouth, but most sources reached them via manuscript copies, sometimes in unreliable translations, or in printed versions based on manuscript originals. The misreading and miscopying of place-names was frequent. It is vital when investigating problems on early maps and charts to compare as many variant depictions of the areas concerned as possible, especially their varying inscriptions, as recorded by previous, contemporary, and later cartographers alongside their sources when identified. Added to these challenges is the reality that there was no standard spelling in any language and many letters were liable to be confused. For instance, the letters *l*, *f*, and *j*, often undotted, and *f*, the long *s*, were commonly confused. The letters *y*, *j*, and *i* were virtually interchangeable in spelling. The usually undotted letter *i* meant that three in a row could be read as *iii*, or the number three, or as *ui*, *iu*, *ni*, *in*, or *m*. The letter *u* was often used where *v* is used today, and sometimes *v* for *u*; the lower case *u* was capitalized as *V* but because the manuscript *u* and *n* were virtually indistinguishable, *V* could be a capitalization of a lower case *u* or of a lower case *n*.

How did explorers and their patrons understand their expanding world and their place in it? What were they really seeking, and how did they believe they could achieve it? How did they balance the known and the unknown in their minds? Historical maps are vitally important in answering these questions, and the selected old maps presented here attempt to display the geographical ideas of the explorers themselves, through the maps which they used or the new maps which they made. Many excellent books on exploration have been written using modern maps to trace the voyages and journeys, but this can be unsatisfactory for several reasons. First, modern maps obviously show a modern view of the world, clear, precise and complete, not the

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explorer's own view with its blank spaces and uncertainties. Second, we often do not know the exact routes of the early explorers, and the paths so clearly traced on the map may be misleading. And third, contemporary maps often show features which contemporaries believed were there - legendary cities, islands or straits - whose supposed existence was crucial to the explorers' whole course of action. Thus the maps of a given historical period serve as a revealing index to contemporary knowledge, belief and motivation.

And yet these maps and theories do not only reflect actual geographical realities, they very often also portray the purely speculative, empirically unsubstantiated ideas of the people who originated them. In so doing, however, they sometimes help generate amazingly correct new cosmographic visions even when there is no evidence yet to support them. Long before his theory was indeed proved to be correct, Waldseemüller had already provided Europe with a most compelling first image of an absolutely insular America. As we shall see later, that was also true of the purely conjectural— though, prophetically enough, empirically correct—image of a narrow strait separating North America from northeast Asia generated by Venetian cosmographer Giacomo Gastaldi 167 years before Bering actually reached it.

Pre-Columbian influences: the following writers and cartographers presented theories and concepts that led Columbus and many Europeans to envision a smaller tri-continent (Asia, Europe, Africa) world.

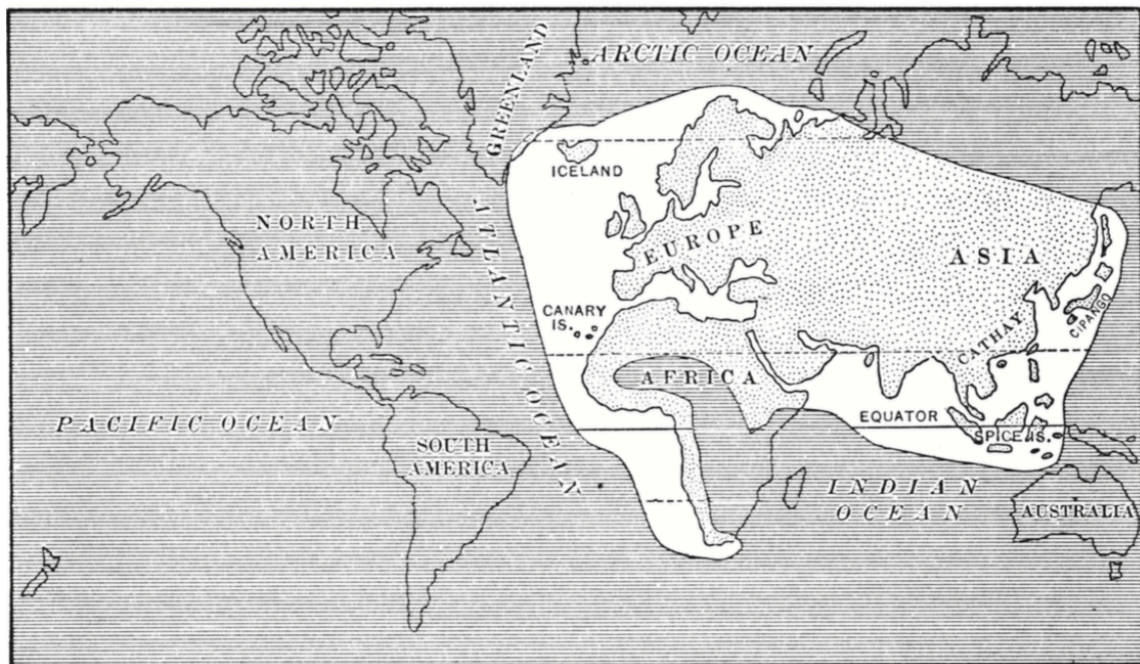
- Roger Bacon (13th century)
- Albertus Magnus (13th century)
- Maro Polo text (14th Century)
- Claudius Ptolemy (14th century translations and maps; see monograph #119)
- Pierre d'Ailly map and text (1410)
- Paolo Toscanelli (1470)
- Henricus Martellus maps (1489 and 1490, #256)
- Martin Beháim globe (1492, #258)

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Behaim Globe 1492

detail of the Atlantic Ocean, Zipangu [Japan] on the left, real and mythical islands such as Antilia and St. Brendan's island center and right (see monograph #258)



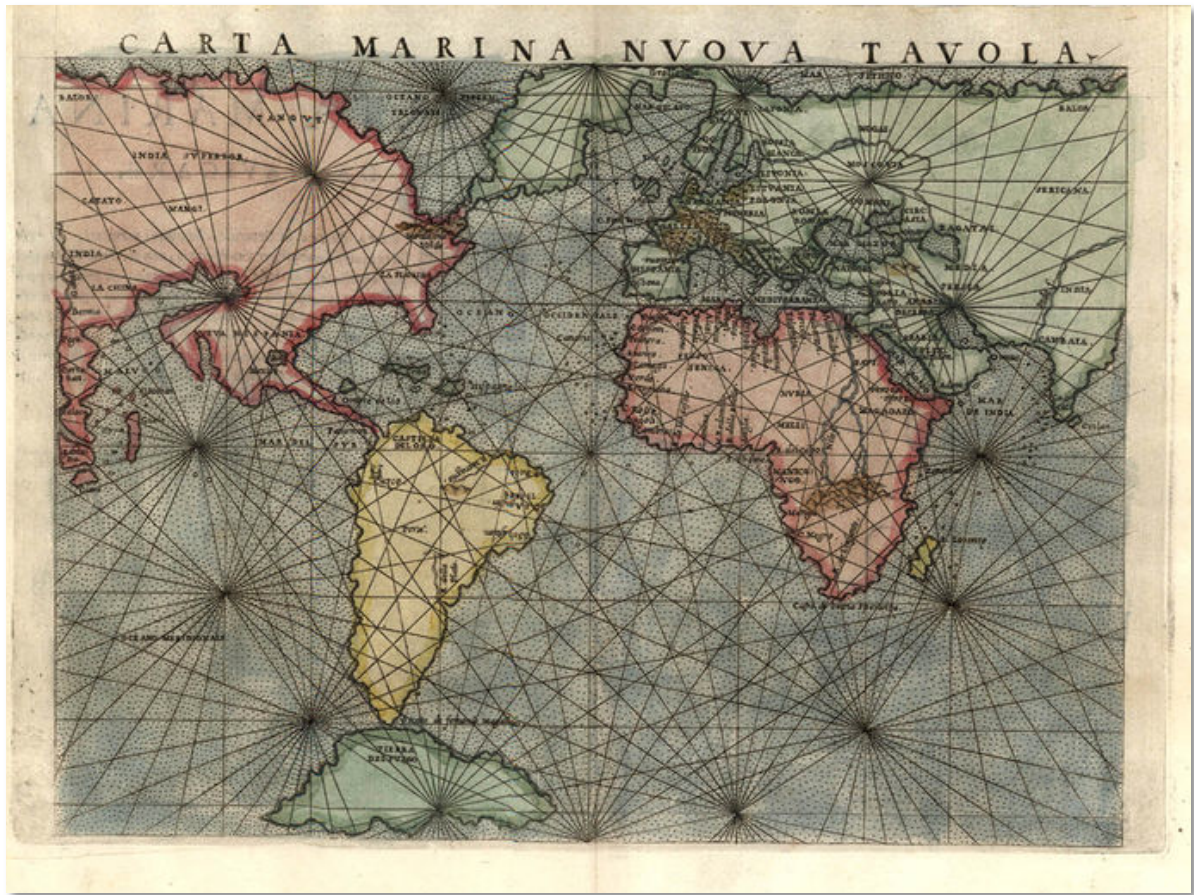
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The world as known by most educated Europeans in the 1490's

The following maps and globes, created under conditions of limited available information, perpetuated the tri-continent world concept for nearly 300 years after Columbus' initial 1492 voyage by creating maps and globes that overtly, explicitly displayed an integrated America and Asia:

- Alessandro Zorzi's three sketch maps (1506)
- Giovanni Matteo Contarini's world map (1506)
- Johannes Ruysch's world map (1507)
- Francesco Rosselli's marine chart of the world (1508)
- Martin Waldseemüller's world map (1516)
- Franciscus Monachus, 1529
- Lopo Homem and António de Holanda Atlas Miller planisphere (1519)
- Paris Gilt globe (ca. 1528)
- Nancy globe (ca. 1530)
- Oronce Fine's world map (1531)
- Oronce Fine's cordiform world map (1534/1548)
- Nuremberg globe gores (ca. 1535)
- An anonymous map from ca. 1535
- Paris Wooden Globe (1535)
- Caspar Vopel's globe gores (1536/1543)
- Giacomo Gastaldi* *Carta Marina Nova Tabula [A new sea chart (of the world)]* (1548)
- Giacomo Gastaldi/Matteo Pagano's *Dell'Universale world map* (1550)
- Francesco Ghisolfi Portolan Atlas: World (1550)
- Giorgio Calapoda, *Florentine Goldsmith's map* (1555)
- Giovanni Vavassore's 1558 copy of Caspar Vopel's 1545 world map
- Haggí Ahmed's world map (1559)
- Paolo Forlani* (1560, 1562, 1565)
- Girolamo Roscelli's *Orbis Descriptio* (1561)
- Benito Arias (1571)
- Giovanni Cimerlino's world map (1566) *copy of Oronce Fine's 1534/48 map*
- Tommaso Porcacchi world map (1572)
- Georg Braun's world map (1574)
- Mario Cartaro* globe and globe gores (1579)
- Giacomo Franco's cordiform world map (1586) *copy of Oronce Fine's 1534/48 map*
- Matheus De Chiara, Portolan Atlas, world map (1599)

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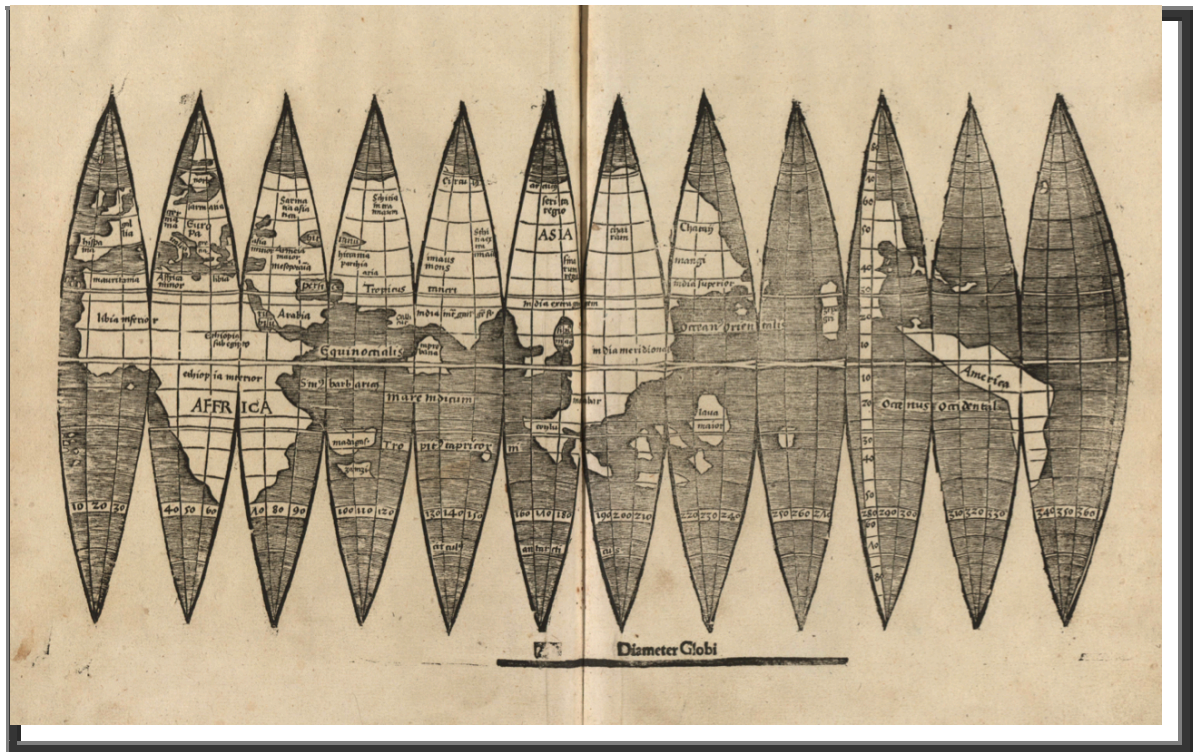
Carta Marina Nuova Tavola by Girolamo Ruscelli, 1561, 18.5 x 24.0 cm (#387)

While there were many maps produced in the early 16th century that portrayed the new discoveries as separate and distinct from the Asian continent, the following early 16th century cartographers took the risk and applied their analytical skills against the available known data to portray the new discoveries as absolutely distinct and separate from northeast Asia and their leadership exerted influence on the others:

- Nicolo Caveri world map (1502-04)
- Martin Waldseemüller's * world map (1507)
- Lenox/Jagiellonian globes (1503-07)
- Bernard Sylvanus world map (1511)
- Johannes de Stobnicza western hemisphere (1512)
- Henricus Glareanus* world map (1513)
- Tross globe gores by Louis Boulengier (1514)
- Leonardo da Vinci globe gores (1514)
- Paris globe (ca. 1515)
- Johannes Schöner's globes (1515, 1520, 1533)
- Giovanni Vespucci world map (1523)

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- Pietro Coppo's *De Summa Totius Orbis* (1524)
- Juan Vespucci world map (1526)
- The Paris Green (Quirini) Globe (1515-1528)
- Diego Ribero's *Carta Universal. . . Propaganda, Second Borgia edition* (1529)
- Girolamo de Verrazano world map (1529)
- Simon Grynaeus world map (1532)
- Joachim von Watten world map (1534)
- Gerardus Mercator world map (1538)
- Batista Agnese world map (1542)
- Gemma Frisius world map (1544)
- Sebastian Munster's *Die Nüw Welt [The New Islands]*, (1546)
- Michele Tramazzino world map (1554)
- Georg Hartmann globe gores (1555)
- François Demongenot globe gores (1552)



Copy of the globe gores in the Ludwig-Maximilians-Universität, München, ULM Cím. 107#2.

Courtesy of the University Library of Munich

Ambiguous maps that “hedged their bets” because of the lack of concrete evidence and thus were non-committal about where the new discoveries should be placed.

- Juan de la Cosa's portolan world chart (1500)
- Cantino world map (1502)
- *The Kuntsmann II* (a.k.a. *The Four Finger*) world map (1502-06)

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- Edward Wright's Wright-Molyneux chart of the world (1599)



Philippe Buache's 1780 map portraying the mythical Mer de l'Ouest [Western Sea] in present-day Canada and the Strait of Anian

Printers and editors engaged in fierce competition to publish the most updated maps and travel reports. Armed with the rich heritage of ancient geographical knowledge and news from recent voyages, Renaissance editors, scholars, and mapmakers aimed at completing the work of ancient geographers: to map the world that ancient geographers did not know, and to describe the entire terrestrial globe both mathematically and graphically. This process of integrating ancient geography with modern voyages was pervasive in Renaissance mapping, affecting many different kinds of manuscript and printed maps made both for the wider public and for selected viewers. Maps that differed in terms of purpose, medium, context, and technique shared nonetheless a syncretistic approach to their visual and verbal cartographic sources. This kind of syncretism, rather than the search for cartographic accuracy, characterized Renaissance mapping, as it can be elucidated through the analysis of printed editions of Ptolemy's, *Geography*, manuscript nautical charts, and printed world maps.

Among the Europeans, nobody knew better the lands of the New World and the routes to reach them than the Iberians, but this does not mean that such knowledge was acquired or dominated only by the Portuguese and Spaniards. Many foreigners, especially Italians, were decisive for the expansion travels, with the emblematic cases of Christopher Columbus, Amerigo

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Vespucci, and Sebastian Cabot. The Iberian monarchies, through their officers and institutions, tried to control the spread of geographic information that could spike competing initiatives. In the case of maps, the challenge of keeping them secret was divided between the need of knowing the maritime routes across the Atlantic, to ensure the spread of Spanish ships, and using maps to legitimize territorial claims, which demanded that they were made public. Thus, two types of knowledge about the explored areas emerged, one backed by the cosmographers and another by the pilots, said Alison Sandman.

The cosmographers, especially in their role as producers of maps, focused on information, such as the location of places, distances, sizes, and shapes, data that originally had to be obtained onsite and required some cosmographical skill so that they could be arranged in a map. The pilots, meanwhile, were concerned with how to get from one place to another, which demanded not only data about potential distances, longitudes, and latitudes, but also details about winds, currents, and ports of entry. This detailed knowledge of navigation spaces could only be gathered through a long experience at sea.

The officers in charge of keeping certain information obtained from maritime explorations secret developed different strategies for the two types of knowledge. Since the aspects valued by cosmographers — associated with theoretical and systematic knowledge — were more useful for diplomacy and less useful for navigation, they were simultaneously emphasized and publicized, and the attempts to control them were thus closer to a careful dissemination than actually keeping the secret. At the same time, the experimental knowledge of the pilots, whether it was at the individual level or arranged in maps and itineraries, should remain a secret.

The trading of the maps demonstrates that the control of the Spanish Crown and its officers failed to keep the general information out of reach of several European powers, which competed against Portugal and Spain. The work of spies, merchants, and also humanists interested in updated information about the explored territories tried to evade the Iberian control. These agents, who often and simultaneously had different roles, were at the origin of the transaction of maps.

The control over the knowledge about the New World, in turn, would be associated with a science that was then defining its contours. According to Klaus Vogel, in the 15th century, many of the cosmographers, creators of maps and globes, and authors of cosmographic treaties had higher education, knowledge of Latin — sometimes, also of Greek — and many were also theologians. As early as during the 16th and 17th centuries, the number of cosmographers coming from the fields of mathematics, natural philosophy, and physics increased. They started to work not only in the great European courts, but also in the small courts, trading companies, universities, and academies. This young, emerging science, dominated by the cosmographers, who later started to be called geographers, was responsible for the construction of a geographic knowledge of the New World that prompted expeditions and conquests.

Naming the New Discoveries. In a Latin preface to the *Cosmographia Introductio* Waldseemüller indulged his name-coining propensity:

Toward the South Pole are situated the southern part of Africa, recently discovered, and the islands of Zanzibar, Java Minor, and Seula. These regions

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[Europe, Asia, Africa] have been more extensively explored, and another or fourth part has been seen by the attached charts; in virtue of which I believe it very just that it should be named Amerige ["ge" in Greek meaning "land of"], after its discoverer, Americus, a man of sagacious mind; or let it be named America, since both Europa and Asia bear names of feminine form. (*see monograph #310*)

Antonio Ríos-Bustamante wrote in *Mapline* (issue number 93 Summer 2001, pages 6-8) that early maps of the continents of North and South America used a variety of nomenclature including *Mondus Novus*, *Terra Nova*, *Terra Firme*, *Tierra de Florida*, *Tierra de Cuba*, for the continents before the name *America* was universally accepted. Some of these names appeared on one or two maps, others had a broader diffusion for a period of time.

The series of published maps using the names *America Mexicana* and *America Peruana* begins with the Petrus Plancius map *Orbis terrarum typus de integro multis in locis emendatus auctore Petro Plancio* of 1590. In 1596 Theodore Bry also used this nomenclature in his map *America sive Novus Orbis*. There is also a 1576 map, *America Peruana*, by Gerrard De Jode depicting South America with this nomenclature for the southern continent. In all, well over forty published maps dating from 1590 to about 1690 used these names. Upon reflection it is logical that during this period these names were being used as the main titles for the continents, as during that period, Mexico and Peru were the best known geographical entities on the northern and the southern continents of the Americas.

To verify this hypothesis, Antonio Ríos-Bustamante examined geographical reference works of the period to see if they provided evidence supporting this viewpoint. A major period reference source, *The Great Historical, Geographical and Poetical Dictionary* by Louis Moreri, confirmed his supposition. Originally published in France in 1681, it was translated, expanded and published in English in 1694. Volume one of the dictionary specifically states in the entry under *America*:

America or the West Indies, one of the four parts of the habitable America or the West Indies, first discovered by Christopher Columbus, a Genoese in 1492. And from Americo Vespucchi a Florentine first called America. ... This vast continent is divided into the Northern and the Southern America. The Northern, which is also called *America Mexicana* from Mexico, is bounded by the Pacific Sea, and *L'Estreche d'Anian* to the west and south, to the east by the Bay Mexico, and the North Sea, and to the north by the whole Arctic frozen regions yet unknown; containing Canada or New France, *Estotiland*, Florida, New England, New Denmark, New Spain, or the Kingdom of Mexico, comprehending Yucatan. Nicaragua, Nueva-Galicia, Michoacan, Guatemala, and Honduras, New Granada, Virginia, the Isle of California,, Cuba, Hispaniola, and innumerable others called the Antilles. The Southern America, which is also called *Peruvian America* has to the North the North Sea, to the east the *Aethiopic Ocean*, to the south the *Magellanic Sea*, and the *Straights of Magellan* and *Maire*, and to the west the Pacific Sea. The Regions of Southern America are Brazil, Chili, Guiana, *Terra*

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Magellanica, New Andaluscia, New Granada, Paraguay, Parana, Parria, Popajan, the Kingdom of Peru, the Terra Firma, Tierra Del Fuego, Tucuman, Venezuela. The Spaniards have within their Dominions, which are the largest part of America, 5 Arch-Bishoprics, and have 34 Bishoprics...

Undoubtedly there are more maps or map editions of the same period which will be found which used this nomenclature. This then constituted an alternative geographical nomenclature for many maps of the early Baroque period.

Chinese Cartography

More than eighty years before the Portuguese voyages of Vasco da Gama (1497-99) and Cabral (1500-01), and Columbus' voyages (1492), the admiral Zheng He began leading expeditions of ships from China through the Indian Ocean to as far as the eastern coast of Africa - this at a time when European ships had yet to round the southern tip of that continent. The longest of Zheng's voyages spanning more than 9,600 kilometers (5,965 miles) each way, about one and one half times the length of Columbus' trips across the Atlantic. Such long distance journeys were not unusual in Chinese history. In the second century B.C., the general Zhang Qian was dispatched on a diplomatic mission westward to the Yuezhi people and reached as far as Afghanistan. In succeeding centuries, Chinese writers produced a vast corpus of geographic literature, from accounts of foreign lands to descriptions of the entire empire to gazetteers of particular localities. As Joseph Needham pointed out more than sixty years ago in volume 3 of his *Science and Civilisation in China* (1954), the geographic records in the dynastic histories and Chinese geographic literature would not have been possible without the accumulated observations of countless travelers and explorers.

Much of the literature on Chinese geography since Needham began his seminal work on the history of Chinese science have tried to make it resemble that of the West. This is perhaps nowhere so true as for the subject of Chinese mapmaking. It can be and has been written that Chinese cartography was a science that strove, for mathematical accuracy. Insofar as it was a mathematical science, it was eventually surpassed by that of the West, but not until the 15th century or so. Until that time, the quantitative tradition is said to have been stronger in China.

The Chinese cartographic historian Cordell D.K. Yee states that there is no denying the meticulousness with which imperial China gathered geographic information about its own territories and contiguous areas. There is also no denying that the Chinese had by at least the 12th century laid the foundations for a mathematical cartography-one predicated on the belief that geographic knowledge depended on the ability to measure the earth. From the universalist perspective, what kept traditional Chinese cartography from advancing as far as European cartography was a conception of the earth as essentially flat. A coordinate system similar to latitude and longitude thus could not develop, nor could techniques of projection for the transference of points on a spherical surface to a plane surface.

The imposition of modern Western ideas of what constitutes a map has hindered the understanding of the Chinese version by making traditional Chinese mapmakers resemble modern

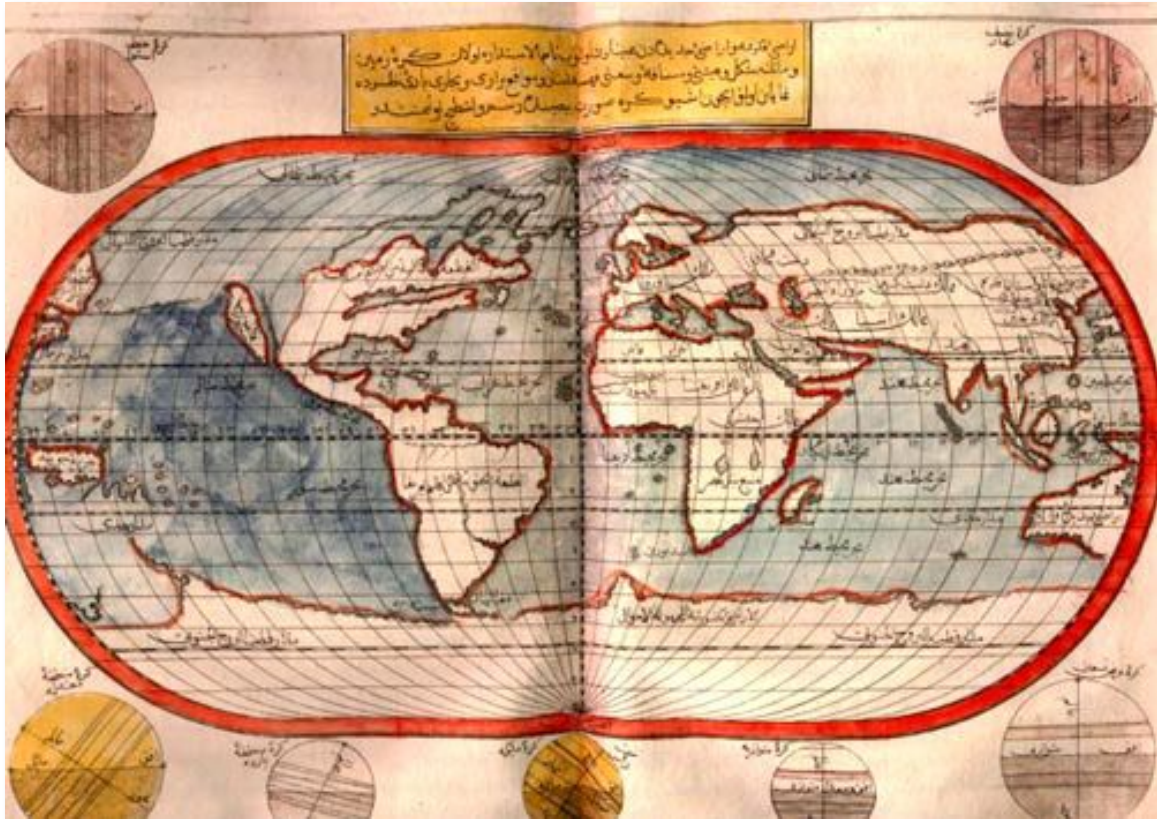
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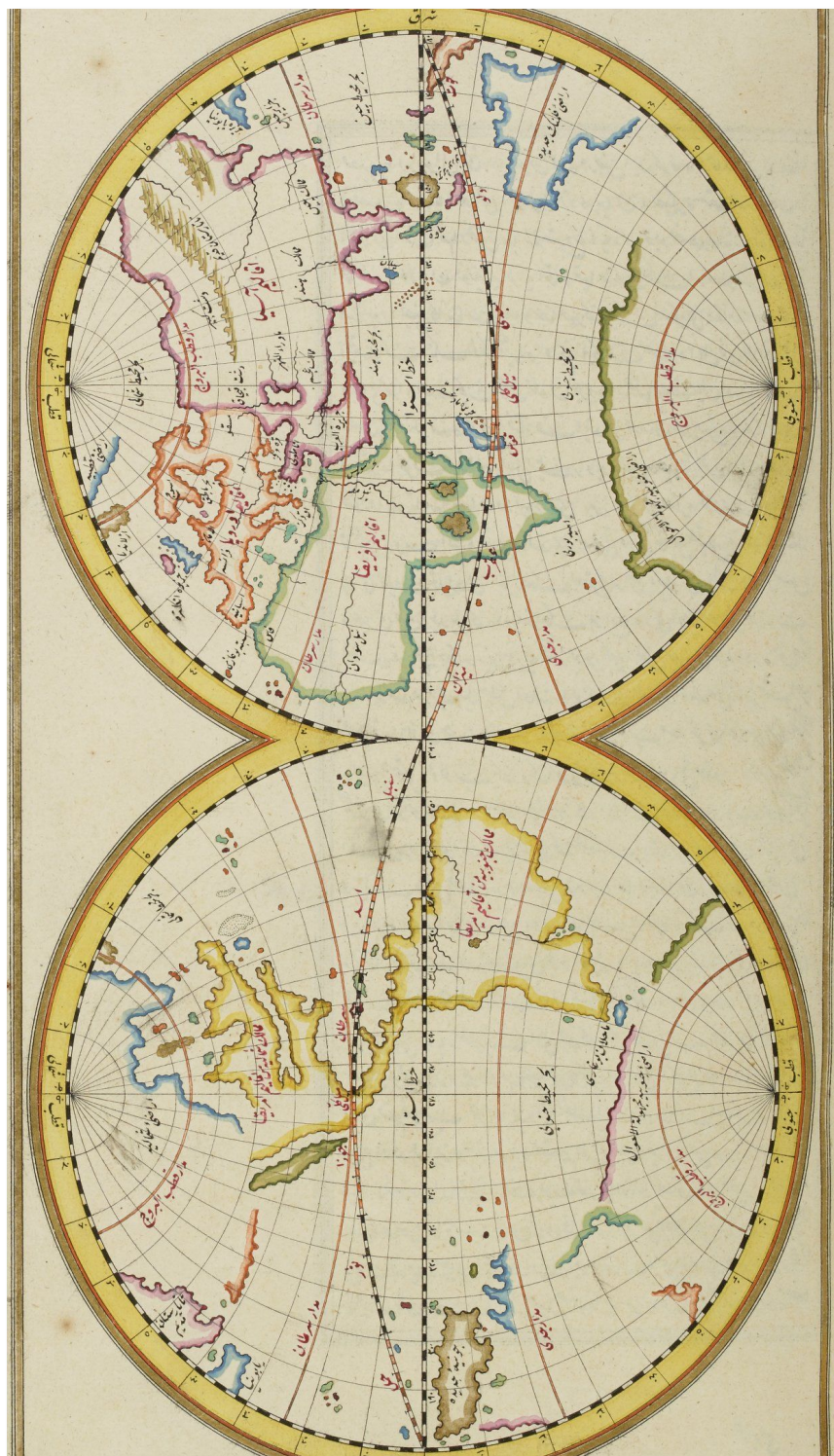
mapmakers, or lesser versions of them. They do not have to, and the evidence suggests that they ought not to. Their aims and were different from those of modern Western cartographers. In the history of cartography, at least, it may be time to restore the sense of “otherness” that once held sway in discourse about China. Traditional Chinese cartography was different from its modern European counterpart. It did more than its mathematical European counterpart in restoring this sense of “otherness”.

Additionally, Cordell Yee observes that to a certain extent, then, the history of cartography in China resembles that of Europe, but not in the way previously claimed. In general, traditional Chinese cartography did not anticipate the products of modern mathematical cartography. This becomes clear when one compares Chinese and European maps from the 16th century and later. European maps became increasingly similar in appearance, a development often supposed to be an indication of their increasing objectivity. In contrast, Chinese maps were characterized by diversity. Chinese cartography did not sever its connection with the arts, even after Europeans introduced their methods into China in the late 16th century. The persistence of traditional methods in China until the end of the 19th century suggests that Chinese cartography was not waiting to be modernized. The strength of that tradition also suggests that the European pattern of development need not be taken as a norm by which to gauge cartographic achievement. The split between the so-called “two cultures” - the sciences and the arts - perhaps need not have taken place.

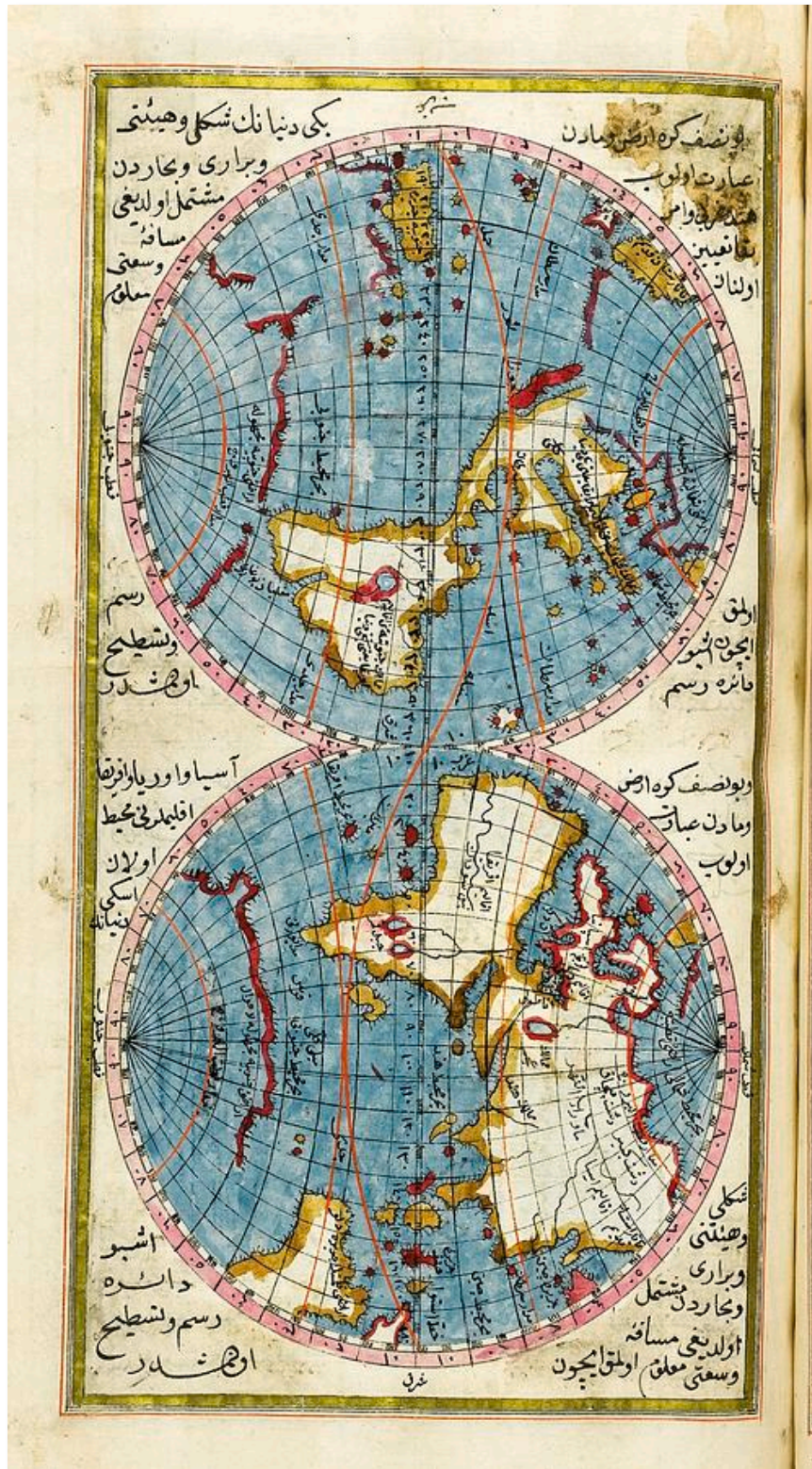
This disjunction is clear on post-Renaissance European maps, on which pictorial modes of representation are reserved for decorations: cartouches for titles, graphic scale, narrative descriptions, or vignettes from the social life of the region represented. Such designs were almost literally marginalized - they appeared along the edges or in areas of the map that otherwise would have been unused. The space for decoration, in other words, was often where cartographic information was not being conveyed. On traditional Chinese maps pictorial representations had a more central role. The mapmaker saw art - poetry, calligraphy, and painting - as essential to the task. To such a practitioner, a map is a fusion of image and text, of the denotative and the expressive, of the useful and the beautiful. In the 20th century, modern mathematical cartography displaced traditional techniques and put an end to this idea of maps. Whether this was progress remains an open question.

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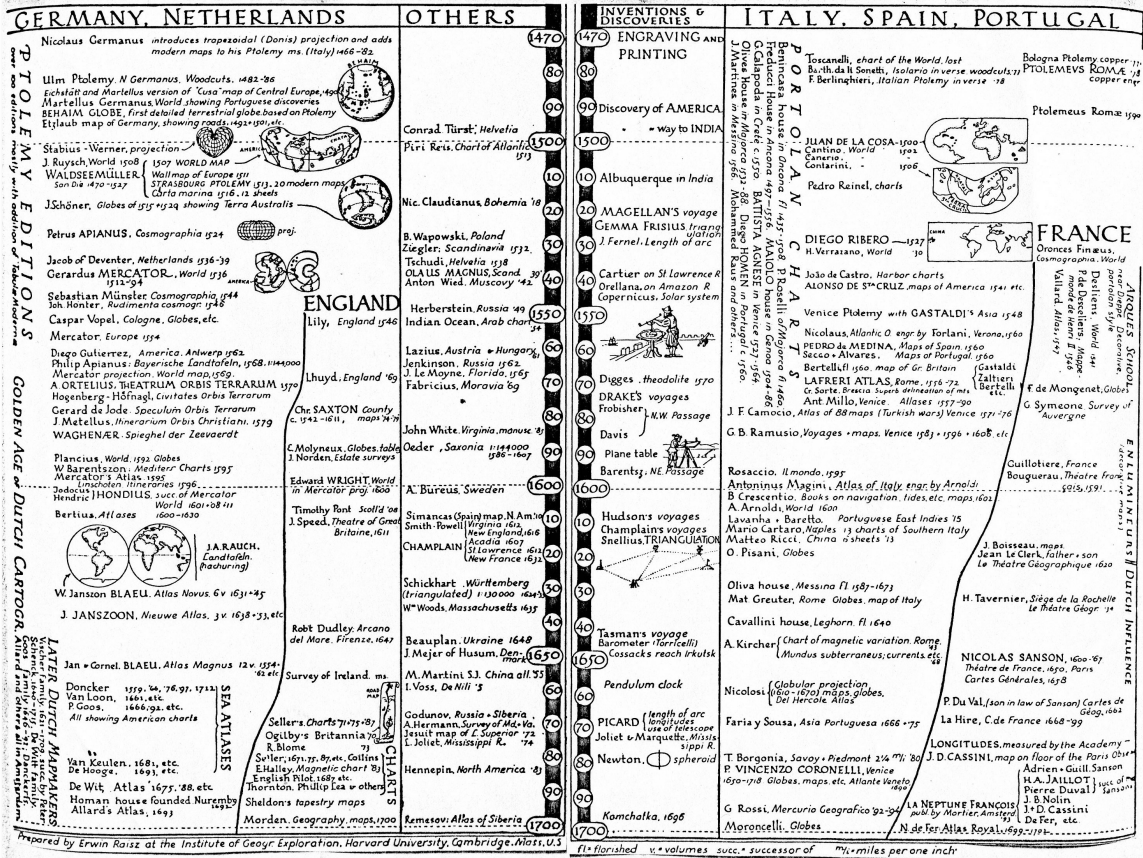


Katib Celebi, 1729



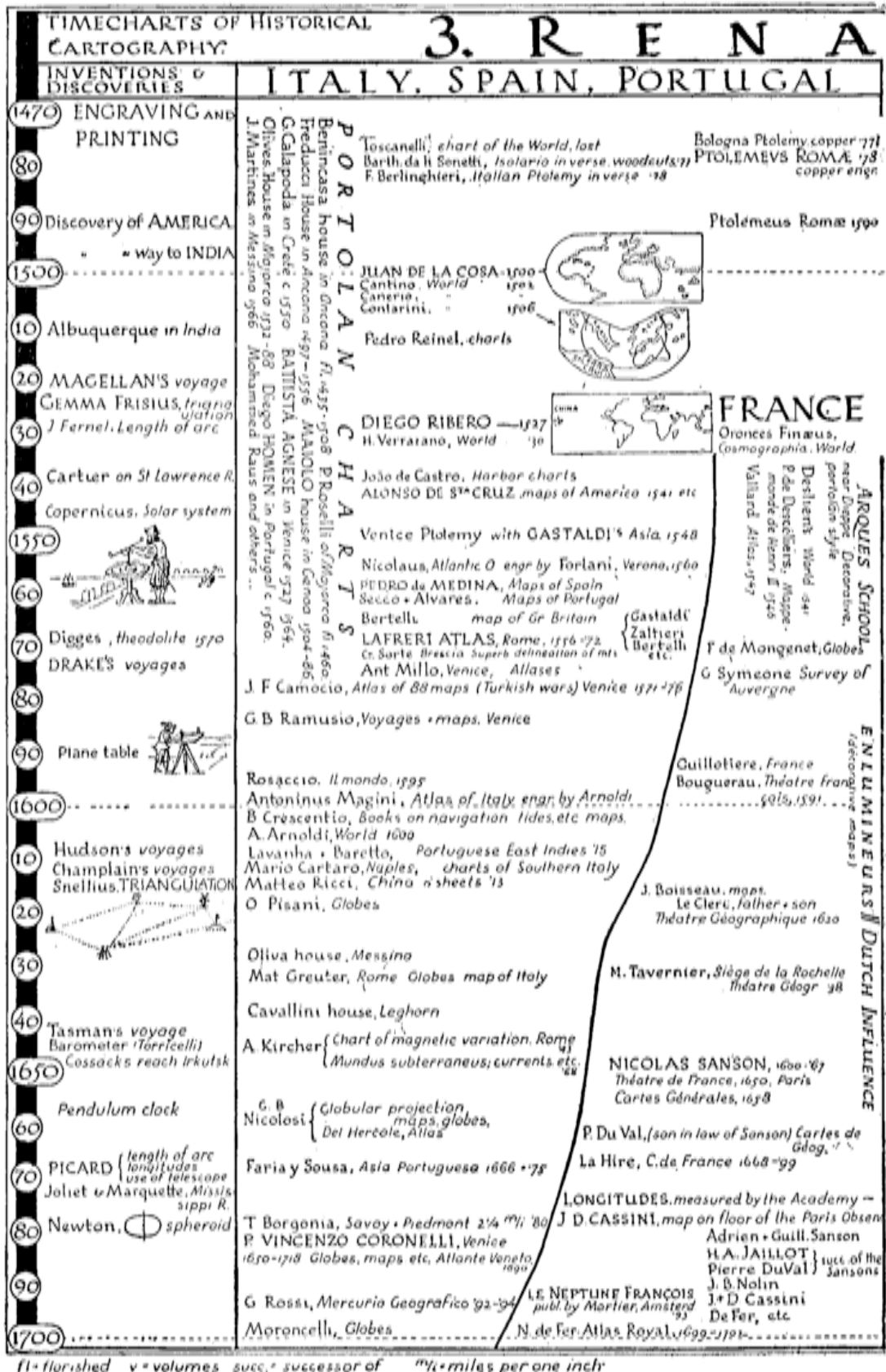
Turkish/Ottoman 1234/1819

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Time Chart for Renaissance Cartography by Erwin Raisz

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f1 = flourished v = volumes succ. = successor of "1/2" = miles per one inch

I S S A N C E		
GERMANY, NETHERLANDS		OTHERS
PTOLEMY EDITIONS <i>over 200 editions, mostly with addition of Tabularia/modernae</i>	Nicolaus Germanus <i>introduces trapezoidal (Donis) projection and adds modern maps to his Ptolemy m.s. (Italy) 1466-82</i>	1470
	Ulm Ptolemy, N. Germanus. Woodcuts. 1482-88	80
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	BEHAIM GLOBE, first detailed terrestrial globe based on Ptolemy	
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	J. Ruysch, World 1508	
	WALDSEEMÜLLER { 1507- WORLD MAP Wall map of Europe 1511 STRASBOURG PTOLEMY 1513, 20 modern maps Carta marina 1516, 12 sheets	
	J. Schöner, Globes of 1515-1529 showing Terra Australis	
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	Gerardus MERCATOR, World 1536-1542-94	
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	Diago Gutierrez, America, Antwerp 1562	
	Philip Apianus, Bayerische Landtafeln, Mercator projection, World map, 1569	
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LATER DUTCH MAPMAKERS <i>Wischer family, 1601-1700, succ. by Peters, Schenk, 1640-1719, De Wit family, 1656-1721, Danckerts, Allard and others</i>	Hogenberg - Höfnagl, Civitates Orbis Terrarum	
	Gerard de Jode, Speculum Orbis Terrarum	
	J. Metellus, Itinerarium Orbis Christiani, 1579	
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	Plancius, World, 1592 Globes	
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	M. Martini, S.J. China all. 1755	
	I. Voss, De Nili 1739	
	Godunov, Russia + Siberia	
	A. Hermann, Survey of Md. + Va.	
	Jesuit map of L. Superior 1722	
	L. Joliet, Mississippi R. 1744	
	Hennepin, North America 1743	
	Remesov, Atlas of Siberia	
	Erwin Raisz at the Institute of Geogr. Exploration, Harvard University, Cambridge, Mass., U.S.	