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FROM THE EDITOR...

About the Journal

This is my first official issue of *Meridian*, and traditionally that calls for some statement of editorial purpose and practice. The basic purpose of the journal, at least as I see it, is to provide the membership and subscribers with substantive articles from the realm of cartographic information transfer. I use that long-winded and slightly pompous terminology deliberately. We have progressed far beyond the point where “map librarianship” adequately describes the wide range of activities undertaken by readers of this journal. From working with manuscript material in an archive to manipulating the latest digital spatial information in a GIS-oriented research company, *Meridian* readers have pushed the definition of the old terminology beyond the point where it is useful.

In one sense, the journal will not change radically. Articles and book reviews will continue to cover the cartographic waterfront. Most articles will be submitted to the double-blind refereed process—an acknowledgement that many of our readers live in “publish and perish” situations and the field needs a refereed journal. Also, to be honest, the policy was adopted because your editor firmly believes that the double-blind process produces better articles in the long run. However, some articles will be selected simply because they make a valuable contribution to the practice of our field. Refereed and non-refereed material will be clearly identified as such.

Other aspects of the journal will change. Two new columnists, Larry Carver and David Woodward, will join the editorial team. Starting with this issue David will keep us posted on goings in the realm of the history of cartography. With *Meridian* 10, Larry will be keeping us apprised of the possibilities—and problems—in the world of digital data and “virtual libraries.” Both, I think, are superbly suited to address their respective fields. Other new features will be introduced in coming issues. I think we’ll be able to keep the readership interested in *Meridian* as a vital part of their professional lives.

No journal lives without a good manuscript flow. *Meridian* aims to be the authoritative journal in the field. You, the readership, define that field, and it is your thought and work that will move us all along. Write up those projects you have been thinking about, and send them in. Report on research you’ve done that involves maps, mapping, or the practice of acquiring, storing, and retrieving cartographic information. Without your input our professional lives will be the poorer.

About this Issue

The Columbus Quincentenary kicked off a massive examination of the whole issue of the European arrival in the Western Hemisphere. A short time after Columbus arrived in the Caribbean, European concepts of world geography had changed radically, as did the practice of cartography. The articles in this issue both take note of those momentous events of 500 years ago, and call attention
to modern responses to those events. Louis DeVorsey kindly allowed us to reprint a chapter from his *World Apart: Native American World Views in the Age of Discovery*. I was particularly interested in this piece because of what I perceive as a long neglect of Native American contributions to the history of cartography. Living in the Southwest one is apt to be aware that Native Americans take a rather dim view of Columbus. Norman Thrower’s article is associated with a major exhibit dealing with the Columbus Encounter jointly mounted by the American Library Association and the New York Public Library. Last, but not least, Jim Coombs responded admirably when asked to do a review of much of the newly published material unleashed by the Quincentenary.

You can’t please everyone, but *Meridian* aims to please as much of the readership as possible. Watch this space as we go boldly where none have gone before. Feel free to comment, criticize, and argue with the editor. The process will keep us all honest.

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They imagined the world to be flat and round, like a trencher; and they in the middest.

_Travels and Works_
Captain John Smith

I will say at the outset that there is only one world and although we speak of the Old World and the New, this is because the latter was lately discovered by us, and not because there are two.

_Royal Commentaries of the Incas_
Garcilaso de la Vega, El Inca

Beringia, A Two-Way Bridge
An Age of Discovery of sorts began when the first groups of Old World hunters spread across the broad, tundra-covered plain that is now the floor of the Bering Strait between Alaska and Siberia. During the last ice age, when much of the earth's water was locked up in vast continental ice sheets, world sea-levels were much lower than they are today. In that period a low, tundra-clad plain, at times as much as a thousand miles wide, called Beringia, firmly joined and allowed movement between the Afro-Eurasian and North American land masses.

Most discussions of Beringia tend to lay stress on movements of people, ideas, and influences from the Old World to the New World without due consideration of similar movements in the reverse or opposite direction. While it may be true that the impact of the Old World on the New has been greater than vice versa, it would be a mistake to fall prey to the idea that Beringia was, for some unstated reason, a one-way passage. To omit consideration of the probability of reverse flows would be unscientific at best, and insulting to the proven genius and creativity of New World peoples at worst. It would be far more advisable to consider as a logical probability movements from the New World to the Old World in the spirit of the 18th century polymath-traveler, Count Volney. Volney had travelled widely in Europe, Africa and Asia before coming to America. While visiting the American frontier in what is today the State of Michigan, the French scientist was introduced to a famous Miami Indian chief named Mishikinakwa, or "Little Turtle." In a conversation with Little Turtle, Volney explained that the "Chinese Tartars" were strikingly similar to Indians in their appearance and that this had led to the belief that the American Indians originated in Asia. Volney continued:

"Why" said he, "should not these Tartars who are like us have gone first from the American side? Are there any proofs to the contrary? Why should not their fathers and ours have been born in our country?"
Volney obviously enjoyed Little Turtle's perspicacity and observed, "the Indians, indeed, give themselves the name of Metoktheniaka (born of the soil)." Responding to the Chief, Volney told him "I see no objection, but our black coats (the name given by the Indians to the missionaries) won't allow it. It is [singly] difficult to find out how any particular nation sprung up at the beginning."

Little Turtle was in no way swayed in his logic by Volney's invocation of the authority of Christian beliefs. He answered "But that is as great a difficulty to the black coats as to us."

Their numbers may have been small but the ancestors of Little Turtle were mentally on a par with modern humans. Equipped with language, fire, and other tools the new arrivals began to explore and make North and South America their own. These people, who erroneously came to be called Indians by the Europeans, had traversed every region of the Americas thousands of years before they were first encountered by Columbus. While these Native Americans "discovered" and "explored" as individuals and small groups they lacked the means to record the details of their findings in writing. This was in sharp contrast to the literate Europeans they began to encounter in the late fifteenth century.

**Recording Discoveries**

The Western Europeans were heirs of rich systems of written language, cartography, and mathematics that allowed them to accumulate an incredibly vast corpus of detailed knowledge about the world. This corpus could be shared across great distances of both space and time. New valid and verifiable information about the nature of the world heretofore unknown or unproven, when tested and shared in detail by the wide society of interconnected, literate peoples of Afro-Eurasia constituted discovery in the sense that the word usually conveys in the term "Age of Discovery." Only a relative handful of American native peoples at the apex of a few Meso-American and Andean polities came even near to enjoying a role in the process of "Discovery" that almost all literate or informed Europeans enjoyed in the late fifteenth century.

Far more typical were the record keeping and communication techniques of the Native Americans encountered by John Lederer when he explored the Southern Piedmont in 1670. Lederer attempted to "shew by what means the knowledge of them [the Indians] hath been conveyed from former ages to posterity." He wrote of the "three ways they supply their want of Letters: first by Counters, secondly by Emblemes or Hieroglyphics, thirdly by Tradition delivered in long Tales from father to son, which being children they are made to learn by rote."

Lederer continued by explaining what he meant by "counters," "hieroglyphics" and "tradition":

For Counters they use either Pebbles, or short scantlings of straw or reeds. Where a Battel had been fought, or a Colony seated, they raise a small Pyramid of these stones, consisting of the number slain or transplanted. Their reeds and straws serve them in Religious Ceremonies: for they lay them orderly in a Circle when they prepare for Devotion or Sacrifice; and that performed, the Circle remains still; for it is Sacriledge to disturb or to touch it: the disposition and sorting of the straws and reeds, shew what kinde of Rites have there been celebrated, as Invocation, Sacrifice, Burial, etc.

The faculties of the minde and body they commonly express by Emblems. By the figure of a Stag, they imply swiftness; by that of a Serpent, wrath; of a Lion, courage; of a Dog, fidelity; by a Swan, they signifie the English, alluding to
In Mexico and Andean America great cities were built by societies that rivalled or exceeded those of the Old World in their size and sophistication.

The Aboriginal Landscape

Indian populations increased as they devised improved systems of subsistence and resource exploitation. In time, imposing earthworks, massive effigies, and mounds were raised, palisaded villages built, fields and trails hewn from the forest, fish traps were constructed in rivers, lakes and coastal lagoons, and everywhere fire was deliberately loosed on the land to drive game, clear undergrowth, and achieve other desired alterations. Giovanni da Verrazano, whose landfall, near Cape Fear, North Carolina, was guided by Indian fires, was only one of scores of Age of Discovery visitors to North America who drew attention to the Indians’ recurrent use of fire as a tool in landscape modification and management. In Mexico and Andean America great cities were built by societies that rivalled or exceeded those of the Old World in their size and sophistication.

As their cultures evolved and numbers grew, the Indians altered their habitat in major ways over much of the New World. The sum total of these alterations of the natural state of the continent, by the time of the first European contacts, is still to be accurately determined. One thing is clear, however, the Americas were far from being covered by a “forest primeval” when Europeans reached their shores in the fifteenth and sixteenth centuries. On the contrary, what the European explorers found and reported is best described as an Aboriginal Landscape—a landscape palimpsest already inscribed with patterns and forms reflecting the cultural use of the Indian occupants for whom it had been home for millennia. Only to the Europeans were the Americas a “New Land.” In the words of John Collier, longtime U.S. Commissioner of Indian Affairs:

At the time of white arrival there was no square mile unoccupied or unused... The million Indians of the United States and Alaska were formed within more than six hundred distinct societies, in geographical situations ranging from temperate oceansides to arctic ice, from humid swamps to frozen tundras, from eastern woodlands to western deserts.

The accounts of early encounters between Indians and Europeans leave no doubt as to the great diversity of social and material accomplishment existing within the Indian populations. In terms of the usual indices of tangible human accomplishment, their societies appear to have represented a broad range of what some have termed “evolutionary types.” At one end of such a scale would be the socially highly-stratified and materially richly-endowed Aztecs and Incas, while at the other end one might place the mobile, egalitarian hunting, fishing and gathering societies, equipped with a minimum of portable tools, shelters, and clothing. The overriding problem with such schema is that they fail to plumb the intellectual achievements and belief structures of the members of the societies they index. What were the intellectual abilities, value systems, mind sets and world views operating on the Indian side of the encounters?

To attempt to answer this question would involve research far beyond...
Unfortunately most Indian documents including books, maps, and paintings were systematically destroyed by Cortés, his fellow conquerors and zealous Catholic priests. Regrettable as their systematic destruction was, the Spanish were doing nothing new. The Aztecs themselves had, in similar fashion, destroyed the codices and records of the societies they had conquered. The Aztec tradition of destroying historical records of other groups is exemplified in the Codex Matritense de la Real Academia. Translated from the Nahuatl it states:

They preserved their history. But it was burned at the time that Itzcóatl reigned in Mexico. The Aztec lords decided it, saying:

“It is not wise that all the people should know the paintings. The common people would be driven to ruin and there would be trouble, because these paintings contain many lies, for many in the pictures have been hailed as gods.”

As a consequence little evidence remains on which to base an authentic detailed reconstruction of Aztec or other Mexican Indian preconquest world views.

We do know, however, that they were capable of constructing detailed maps of extensive areas that could be read and understood by the Spanish. In his second report to the Emperor Charles V dated October 30, 1520, Cortés described how in an interview with Montezuma,

I likewise inquired...if there was on the coast of the Sea any river or bay into which ships could enter, and lie with safety. He answered that he did not know, but that he would cause a chart of the coast to be painted, showing the rivers and bays, and that I might send Spanish to examine them, for which purpose he would despatch suitable persons with them as guides; and he did so. The next day they brought me a chart of the whole coast, painted on cloth; on which appeared a river that discharged into the sea, with a wider mouth, according to the chart, than any others; this seemed to be between the mountains.
called Sanmin [San Martin], which extend to a bay until then believed by the pilots to separate the land at a province called Mazalmaco.8

In another despatch Cortés told of a group of chiefs from Tabasco and Xicalango who “drew on a cloth a figure of the whole land, whereby I calculated that I could very well go over the great part of it.” This map appears to have extended from Mexico east of Yucatan to Honduras and Panama and served Cortés as an indispensable guide “during all his difficult travels through the almost impassable regions of Chiapas and Guatemala.”9

While there are no documents to confirm it absolutely, there is good reason to suspect that Cortés’ map of the Gulf of Mexico was based to some extent on an Indian original. It is also possible that the original Indian information was supplemented by the pilot Pineda and his fellows when they explored the coast of the Gulf for Francesco Garay a few years before this engraving was prepared in Germany. In any event the map usually, if not correctly, attributed to Cortés is the first printed map to show the Gulf and name “Florida,” and “Yucatan.”

Of even more interest is the fascinating map of Mexico City, also attributed to Cortés, and first published in 1524 with the map of the Gulf in the Latin edition of his Second Letter. Like the map of the Gulf of Mexico it contains many clues suggesting it was based on an Indian original. It is for one thing centered on the island capital of the Aztecs in a way that echoes their view of the cosmos.

In Aztec myth and poetry their capital Tenochtitlan was portrayed as a majestic place—the center of the universe in both horizontal and vertical space. This revealing engraving (see figure 2) suggests a vertical photograph taken from above the city with a “fish eye” lens. Not only does the exaggerated scale of the Great Temple enclosure cause it to dominate the plane of the map, but it appears also to be raised vertically above the rest of the crowded city and circling lake shores beyond. In the words of Diego Durán, the Aztec capital set in the brackish waters of the lake now covered by the sprawl of Mexico City was “the root, the navel, and the heart of this whole worldly machine.”

As we noted the similarities existed between the mind-sets of
Figure 2: Maps of the Gulf of Mexico and Tenochtitlan (Mexico City), printed on a
single sheet and published in 1524 with the second letter of Hernando Cortés to
Charles V, the Emperor and King of Spain. There is much in both of these maps
to suggest that the drawings supplied to the Nuremberg engraver who prepared
the printer’s woodblock were based on Aztec originals. Cortés, anxious to inform
and impress Charles V, sent his lieutenant, Juan de Ribera, in 1522 to deliver
samples of Aztec objects d’art and treasure to the royal court in advance of a fully
laden treasure ship. Ribera also carried “numerous maps” of Aztec origin which
were examined by Peter Martyr. Martyr described an Aztec map that was “thirty
feet long, and not quite so wide” painted on white cotton cloth, and a smaller
“native painting representing the town of Temistitan (Tenochtitlan), with its
temples, bridges, and lakes. There is reason to believe that they were the original
maps from which these were derived (Courtesy Library of Congress, Rosenwald
Collection no. 654, Rare Book and Special Collections Division).

As we noted the similarities that existed between the mind-sets of Columbus and
Montezuma above, so here we can reflect on the marked similarities existing between the
Aztec and medieval European views of the universe. The European concept of a disk-like tripartite world
made up of Asia, Europe and Africa, all surrounded by the endless waters of the
ocean sea as illustrated by the T
in O map of Isidore of Seville. Like the Europeans, the Aztecs believed
that the earth was surrounded by a great expanse of water. The waters
extended to the four corners and eventually rose to the heavens like an unascendable wall. Each of the four
quadrants of this celestial space was in turn supported by one of the principal gods who held the heavens
aloft.

This cosmic order came into being when the four creator deities dis­
pered the all-flooding primordial
waters, graded four roads to the
center of the earth and then lifted the
sky. Predictably, the Aztec’s capital,
Tenochtitlan, was built at the center of the resulting four-quartered
universe to receive the fullest benefit
flowing from the forces and deities of cosmic space. As Duran wrote, it was
the navel of the cosmos.

Although many authorities have expressed the opinion that this
engraved image of Tenochtitlan is
“European” in its essentials, there is
evidence indicating that it retains
many of the Indian characteristics of the lost Aztec original on which it is
based. Peter Martyr was genuinely
impressed when he was shown what
may have been that original by Cortés’ lieutenant Juan de Ribera. In
his “Fifth Decade” Martyr told of
“numerous maps” Ribera brought
from Mexico with other treasures for
presentation to Emperor Charles V.
One of these was “a native painting
representing the town of Temestitan,
with its temples, bridges, and lakes.”

Martyr’s description of the archi­
tectural styles of Tenochtitlan’s
buildings, prior to their burning and
destruction by Cortés and his Indian
allies, suggests that the engraving
retains those details from the original
Indian depiction. In discussing the
zoos and aviaries present in
Montezuma’s capital, Martyr wrote,
“some day the pleasure houses will
be rebuilt. They were constructed of
stone from the foundations, finished
with crenaux like a fortress.”
The dwellings were also built with stone
first stories with the upper living
spaces “built by baked or sundried
brick, mixed with beams.” Roofs
were not tiled but were protected
with “a sort of bituminous earth” or
tar. As can be seen from these brief
descriptions, Tenochtitlan’s built
environment was not radically
different from that found in many
contemporary European urban
settings. There appears to have been considerably less “Europeanizing” of the
original Aztec map of
Tenochtitlan than most published
experts have assumed.

Columbus and Montezuma above, so
here we can reflect on the marked
similarities existing between the
Aztec and medieval European views of the
universe.

There appears to have been considerably less “Europeanizing” of the
original Aztec map of
Tenochtitlan than most published experts have assumed.
This is the map which Shakespeare refers to in *Twelfth Night*, Act III Scene 2, when Maria says of Malvolio, "He does smile his face into more lines than are in the new map, with the augmentation of the Indies."

Even the archetypal Spanish conquistador, Cortés, admitted that the Templo Mayor or Great Temple was of such "great size and magnificence" that "no human tongue could describe it." In spite of this he continued "for...within the precincts, which are surrounded by a very high wall, a town of some five hundred inhabitants could easily be built." And finally he wrote: "There are as many as forty towers, all of which are so high that in the case of the largest there are fifty steps leading up the main part of it; and the most important of these towers is higher than that of the cathedral of Seville." Fray Diego Duran recounted the description of Tenochtitlan that had been given to him by "the first conquerors to arrive in this land." These "trustworthy and reliable" informants, assured me that the day they entered the City of Mexico, when they saw the height and grandeur of the temples, they thought them castellated fortresses, splendid monuments and defenses of the city, or castles or royal dwelling places, crowned with turrets and watchtowers. Such were the glorious heights which could be seen from afar! With available eye-witness testimony like this it is exceedingly difficult to deny that the so-called Cortés map, whoever its author may have been, depicts the pre-conquest architecture and condition of Tenochtitlan.

Another unexpected bit of evidence of European-appearing crenellated towers in aboriginal Meso-America is found in Ferdinand Colon's *Life of the Admiral*. Ferdinand described how the tattoo designs on the Indians he encountered with his father on the coast of Honduras included "lions...deer...turreted castles, and...a variety of other figures."fray Diego Duran recounted the description of Tenochtitlan that had been given to him by "the first conquerors to arrive in this land." These "trustworthy and reliable" informants, assured me that the day they entered the City of Mexico, when they saw the height and grandeur of the temples, they thought them castellated fortresses, splendid monuments and defenses of the city, or castles or royal dwelling places, crowned with turrets and watchtowers. Such were the glorious heights which could be seen from afar! With available eye-witness testimony like this it is exceedingly difficult to deny that the so-called Cortés map, whoever its author may have been, depicts the pre-conquest architecture and condition of Tenochtitlan.

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Through Garcilaso we can discover that Cuzco, like the Aztec capital, was designed and built to enshrine in stone and architecture the essence of the Inca world view. In an unnecessarily apologetic tone the Mestizo author informed his European readers concerning the sophistication of Inca astronomy:

But for all their simplicity, the Incas realized that the sun completed its course in a year, which they called huata...The ordinary people reckoned the years by harvests. They understood also the summer and winter solstices; these were marked by large and visible signs consisting of eight towers built to the east and eight to the west of the city of Cuzco. They were arranged in sets of four: two small ones three times the height of a man stood between the two...
larger. The small ones were set eighteen or twenty feet apart, and at the same distance from them stood the larger, which were much higher than Spanish watchtowers. The larger towers were observatories from which the smaller could be more easily watched. The space between the small towers by which the Sun passed in rising and setting was the point of the solstices. The towers of the east corresponded with those of the west, according to whether it was the summer or winter solstice, an Inca stood at a certain point at sunrise and sunset, and watched whether the sun rose and set between the two small towers to the east and west. In this way they established the solstices in their astrology.16

The equinoxes also were observed "with great solemnity" by the sun-worshipping Incas. Garcilaso described how these feast days were similarly determined through use of architecture:

To ascertain the time of the equinoxes they had splendidly carved stone columns erected in the squares or courtyards before the temples of the Sun. When the priests felt that the equinox was approaching, they took careful daily observations of the shadows cast by the columns. The columns stood in the middle of great rings filling the whole extent of the squares or spaces. Across the middle of a ring a line was drawn from east to west by a cord, the two ends being established by long experience. They could follow the approach of the equinox by the shadow of the column cast on this line, and when the shadow fell exactly along the line from sunrise and at midday the sun bathed all sides of the column and cast no shadow at all, they knew that the day was the equinox. Then they decked the columns with all the flowers and aromatic herbs they could find, and placed the throne of the Sun on it, saying on that day the Sun was seated on the column in all his full light. Consequently they especially worshipped the Sun on that day with a greater display of rejoicing and celebration than usual, and offered to him rich presents of gold, silver, precious stones, and other valuable things.17

The territorial growth of the empire resulted in an unforeseen benefit to the Incas' understanding of the cosmos. As Garcilaso noted:

The Inca kings and their amautas or philosophers discovered as they extended their provinces, that the nearer they approached the equator, the smaller was the shadow cast by the column at midday. They therefore venerated the columns more and more as they were nearer to the city of Quito, and were especially devoted to those of that city itself and in its neighborhood as far as the sea, where the sun is in a plumb-line, as bricklayers say, and shows no shadow at all at midday. For this reason they were held in the greatest veneration, it being thought that they afforded the Sun, the seat he liked best, since there he sat straight up and elsewhere on one side.18

Like the temples and monuments central to the Aztecs' world view and religion, the astronomical towers and columns of the Inca cities were "pulled down and broken to pieces" by the Spanish conquerors "because the Indians worshipped them idolatrously."

Inca map skills appear to have been in no way inferior to those of the Aztecs. Garcilaso de la Vega wrote of scale models that were constructed to accurately depict the geography and land-use patterns of cities and provinces. A model of Cuzco and part of its surrounding area was
...the Indians living beyond the regions of America’s great empire builders appear to have shared broadly similar views of the world and cosmos in which they existed.

Cuzco, like Tenochtitlan, was planned and built as a nexus to the cosmos. Perhaps because he was a Catholic and long-time resident of Andalusia in Spain when he wrote his *Royal Commentaries*, Garcilaso de la Vega chose to secularize the motivations underlying Cuzco’s preconquest city plan. In a chapter he titled “The City Contained the Description of the Whole Empire,” Garcilaso wrote of how “anyone who contemplated the wards and the dwellings of the numerous and varied tribes who had settled in them beheld the whole empire at once, as if in a looking glass or a cosmographic plan.” The “wards” making up Cuzco were divided “according to the four parts of their empire,” a division that “dated back to the first Inca, Manco Cápac.” As his empire grew through military victories he ordered “that the savages he had subjugated should be settled according to their places of origin, those from the east to the east, those from the west to the west, and so on.”

When Cuzco was young “the dwellings of the first subjects were thus disposed in a circle within the limits of the town.” As infilling took place by people of status from the outlying provinces, the location of their houses relative to one another reinforced the symbolic character of the city. As Garcilaso explained “if a chief’s province was to the right of his neighbor’s, he built his house to the right; if to the left, he built it to the left, and if behind, he built his house behind.”

The Incas of Peru, like the North American Indians John Lederer described above, made effective use of a mnemonic device formed of colored and knotted cords called a quipu. In his *Letter to a King: A Picture History of the Inca Civilization*, the Inca Indian Don Felipe Huamán Poma de Ayala included the following discussion of the quipu’s use:

Both the Inca and his Council of the Realm were served by secretaries, some of whom belonged to my family in past times, and my ancestor the Inca’s viceroy also had his own secretary. Such people were highly esteemed because of their ability to use the quipu. The secretaries calculated dates, recorded instructions, received information from messengers and kept in touch with their colleagues who used the quipu in all parts of the country. They accompanied the rulers and judges on important visits, recording decisions and contracts with such skill that the knots in their cords had the clarity of written letters.

With such an effective mnemonic in wide use it is not surprising to find early Spaniards commenting on the absence of a written form of language in Peru similar to what they had found in Mexico.

**North American Indians**

In spite of the great diversity that characterized them, the Indians living beyond the regions of America’s great empire builders appear to have shared broadly similar views of the world and cosmos in which they existed. To be sure there was “a dazzling complexity” in the belief systems that grew out of these shared outlines of the universal scheme of things. As one leading ethnohistorian described as done:

in clay, pebbles, and sticks...to scale with the squares, large and small; the streets broad and narrow; the districts and houses, even the most obscure; and the three streams that flow through the city, marvelously executed. The countryside with high hills and low, flats and ravines, rivers and streams with their twists and turns were all wonderfully rendered, and the best cosmographers in the world could not have done it better.

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If there is a single term that can be said to epitomize both Indian and European belief systems during the Age of Discovery it is "order." The conscious desire to create a sense of order in what otherwise appears to be a chaotic universe seems to be a human trait that holds for all races and cultures. Like their Old World counterparts, the native Americans believed in an upper world which had heaven-like attributes that were structured, ordered, bounded, stable and generally of the past, and on a grander scale than the things of the here and now world around them.

Much of the ritual and symbology that entered into almost all phases of Indian life was aimed at achieving a balance between the forces of their upper world and the contrasting lower world, wherein lay a horde of threatening opposites of the upper world. It was the domain of disorder, chaos and instability, and inverted properties; it was inhabited by ghosts, witches, monsters and other powerful spirits.

A rich language of metaphor and symbol was invented by the many Indian societies as they developed their collective lifeways in the varied environmental settings of the Americas. The Cherokee Indians living in southern Appalachian valleys at the time of their first encounters with the Europeans have been chosen to exemplify what has been all too briefly discussed here. Ethnologist James Mooney devoted much of his long and productive career to collecting and publishing the largely oral histories and traditions of these internationally famous Native Americans. The following Cherokee story of creation is only a fragment of the corpus his work provides the modern reader:

How the World was Made. The earth is a great island floating in a sea of water, and suspended at each of the four cardinal points by a cord hanging down from the sky vault, which is of solid rock. When the world grows old and worn out, the people will die and the cords will break and let the earth sink down into the ocean, and all will be water again. The Indians are afraid of this.

When all was water, the animals were above in [the Upper World], beyond the arch; but it was very much crowded, and they were wanting more room. They wondered what was below the water, and at last..."Beaver's Grandchild," the little Waterbeetle, offered to go and see if it could learn. It darted in every direction over the surface of the water, but could find no firm place to rest. Then it dived to the bottom and came up with some soft mud, which began to grow and spread on every side until it became the island which we call the earth. It was afterward fastened to the sky with four cords, but no one remembers who did this.

At first the earth was flat and very soft and wet. The animals were anxious to get down, and sent out different birds to see if it was yet dry, but they found no place to alight and came back again to [the Upper World]. At last it seemed to be time, and they sent out the Buzzard and told him to go and make ready for them. This
was the Great Buzzard, the father of all the buzzards we see now. He flew all over the earth, low down near the ground, and it was still soft. When he reached the Cherokee country, he was very tired, and his wings began to flap and strike the ground, and whenever they struck the earth there was a valley, and where they turned up again there was a mountain. When the animals above saw this, they were afraid that the whole world would be mountains, so they called him back, but the Cherokee country remains full of mountains to this day.

When the earth was dry and the animals came down, it was still dark, so they got the sun and set it in a track to go every day across the island from east to west, just overhead. It was too hot this way, and...the Red Crawfish had his shell scorched a bright red, so that his meat was spoiled; and the Cherokee do not eat it. The conjurers put the sun another hand-breadth higher in the air, but it was still too hot. They raised it another time, and another, until it was seven hand-breadths high and just under the sky arch. Then it was right, and they left it so. This is why the conjurers call the highest place...“the seventh height,” because it is seven hand-breadths above the earth. Every day the sun goes along under this arch, and returns at night to the upper side to the starting place.

There is another world under this, and it is like ours in everything—animals, plants, and people—save that the seasons are different. The streams that come down from the mountains are the trails by which we reach this underworld, and the springs at their heads are the doorways by which we enter it, but to do this one must fast and go to water and have one of the underground people for a guide. We know that the seasons in the underworld are different from ours, because the water in the springs is always warmer in winter and cooler in summer than the outer air.

When the animals and plants were first made—we do not know by whom—they were told to watch and keep awake for seven nights, just as young men now fast and keep awake when they pray to their medicine. They tried to do this, and nearly all were awake through the first night, but the next night several dropped off to sleep, and the third night others were asleep, and then others, until, on the seventh night, of all the animals only the owl, the [cougar], and one or two more were still awake. To these were given the power to see and to go about in the dark, and to make prey of the birds and animals which must sleep at night. Of the trees only the cedar, the pine, the spruce, the holly, and the laurel were awake to the end, and to them it was given to be always green and to be greatest for medicine, but to the others it was said: “Because you have not endured to the end you shall lose your hair every winter.”

Men came after the animals and plants. At first there were only a brother and sister until he struck her with a fish and told her to multiply, and so it was. In seven days a child was born to her, and thereafter every seven days another, and they increased very fast until there was danger that the world would not keep them. Then it was made that a woman should have only one child in a year, and it has been so ever since.23

Regrettably none of the European participants in initial encounters between Native Americans and Europeans were trained ethnologists and, as a consequence, most of their available written accounts lack the depth and richness of the materials collected by Mooney and his fellows in the second-half of the last century.
Enough was captured, however, in many initial encounters to provide tantalizing glimpses of the richness of Indian world views and geographical understanding.

More typical of encounter accounts of Native American world views would be the one recorded by Father Chrestien Le Clercq based on his experiences with the Micmac Indians of eastern Canada's islands and peninsulas. When Le Clercq was residing with this tribe in the 1670s there was no generally accepted theory to explain the origin of New World populations. “It seems,” he wrote, “as if this secret must be reserved solely to the Indians, and that from them alone one ought to learn all the truth about it.”24 Fortunately Le Clercq shared what he was able to learn:

They have...some dim and fabulous notion of the creation of the world, and of the deluge. They say that when the sun, which they have always recognised and worshipped as their God, created all this great universe, he divided the earth immediately into several parts, wholly separated one from the other by great lakes: that in each part he caused to be born one man and one woman, and they multiplied and lived a very long time: but that having become wicked along with their children, who killed one another, the sun wept with grief thereat, and the rain fell from the heaven in such great abundance that the waters mounted even to the summit of the rocks, and of the highest and most lofty mountains. This flood, which, say they, was general over all the earth, compelled them to set sail in their bark canoes, in order to save themselves from the raging depths of this general deluge. But it was in vain, for they all perished miserably through a violent wind which overturned them, and overwhelmed them in this horrible abyss, with the exception of certain old men and of certain women who had been the most virtuous and the best of all Indians. God came then to console them for the death of their relatives and their friends, after which he let them live upon the earth in a great and happy tranquility, granting them therewith all the skill and ingenuity necessary for capturing beavers and moose in as great number as were needed for their substance.25

If this has a “sanitized” ring to it the reason is easily found. In Father Le Clercq’s words, he omitted “certain other wholly ridiculous circumstances” of the Indian’s creation story “because they do not bear at all upon a secret which is unknown to men, and reserved to God alone.” Priest that he was, Le Clercq felt compelled to strip the metaphorical and supernatural trappings from the Indians’ mythology and left only its skeleton postured in a crudely Catholic form. In this Le Clercq’s account is typical rather than exceptional.

As in the cases of the Aztecs and Incas, discussed above, the Indians of North America constructed towns and structures as metaphors of their views of the world and cosmos.
Of all the contact encounters between Europeans and Native Americans one of the most revealing took place in 1607, between Captain John Smith and Powhatan's Indians of eastern Virginia. While foraging for food the nearly starved Smith was taken captive and brought to “Opechankanough, King of Pamaunkee.” To gain the chief’s favor Smith gave him “a round Ivory double compass Dyal.” The Indians “marvailed at the playing of the Fly and Needle, which they could see so plainely, and yet not touch...because of the glasse that covered them.”

Anxious to keep his captors’ minds off torture or other unpleasant occupations, Smith began instructing the Indians on “the roundnesse of the earth, upon which sit the three grouped divisions of mankind, the human social groupings in their appropriate places; the eastern door is the point of sunrise where day begins and at the same time the symbol of the beginnings of things, the western door the point of sunset and symbol of termination; the north and south walls assume the meaning of respective horizons; the roof of the temple is the visible sky vault. The ground beneath the Big House is the realm of the underworld while above the roof lie the extended planes or levels, twelve in number, stretched upward to the abode of the “Great Spirit, even the Creator,” as Delaware form puts it. Here we might speak of the carved face images,...the representations on the center pole being the visible symbols of the Supreme Power, those on the upright posts, three on the north wall and three on the south wall, the manitu of these respective zones; those on the eastern and western door posts, those of the east and west....But the most engrossing allegory of all stands forth in the concept of the White Path, the symbol of the transit of life, which is met with in the oval, hard-traden dancing path outlined on the floor of the Big House, from the east door passing to the right down the north side past the second fire to the west door and doubling back on the south side of the edifice around the eastern fire to its beginning. This is the path of life down which man wends his way to the western door where all ends. Its correspondent exists, I assume, in the Milky Way, where the passage of the soul after death continues in the spirit realm. As the dancers in the Big House ceremony wend their stately passage following the course of the White Path they “push something along,” meaning existence, with their rhythmic tread. Not only the passage of life, but the journey of the soul after death is symbolically figured in the ceremony.

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Anxious to keep his captors' minds off torture or other unpleasant occupations, Smith began instructing the Indians on "the roundness of the earth, and skies, the sphere of the Sunne, Moone, and Starres, and how the Sunne did chase the night round about the world continually;...

was then made to witness a symbolic three-dance ritual, which he described in detail as follows:

...the soldiers first all in fyle performed the forme of a Bissone so well as could be; and on each flank, officers as Serjeants to see them keep their orders. A good time they continued this exercise, and then cast themselves in a ring, dauncing in such severall Postures, and singing and yelling out such hellish notes and screeches; being strangely painted, every one his quiver of Arrowses, and at his back a club; on his arme a Fox or an Otters skinne, or some such matter for his vambrace; their heads and shoulders painted red, with Oyle and Pocones mingled together, which Scarlet-like colour made an exceeding handsome shew; his Bow in his hand, and the skinne of a Bird with her wings abroad dryed, tyed on his head, a peece of copper, a white shell, a long feather, with a small rattle growing at the tayles of their snakes tyed to it, or some such like toy.29

After three similar dances the Indians departed and Smith was led away to a longhouse "where thirtie or fortie tall fellowes did guard him."

Smith was then taken on a long journey to Powhatan's other Indian towns along the Rappahannock and Potomac rivers before being returned to the principal seat "Pamaunkee." Here the Indians "entertained him with most strange and fearfull conjurations [conjuratioms]; As if neare led to hell, Amongst the Devils to dwell." What Smith was about to receive from his captors was his final lesson on the true nature of the cosmos. His journey through the many flourishing Indian towns of Virginia was doubtlessly to acquaint him with their world and power in the here and now. The ceremonies he described in the following extract provided him a view of their Upper and Lower Worlds:

early in a morning a great fire was made in a long house, and a mat spread on the one side, as on the other; on the one they caused him [Smith] to sit, and all the guards went out of the house, and presently came skipping in a great grim fellow, all painted over with coale, mingled with oyle; and many Snakes and Wesels skins stuffed with mosse, and all their tayles tyed together, so as they met on the crown of his head in a tassell; and round about the tassell was as a Coronet of feathers, the skins hanging round about his head, backe, and shoulders, and in a manner covered his face; with a hellish voyce, and a rattle in his hand. With most strange gestures and passions he began his invocation, and environed the fire with a circle of meale; which done, three more such like devils came rushing in with the like antique tricks, painted halfe blacke, halfe red; but all their eyes were painted white, and some red stroakes like Mutchato's [mustachios], along their cheekes: round about him those fiends daunced a pretty while, and then came in three more as ugly as the rest: with red eyes and white stroakes over their blacke faces, at last they all sat downe right against him; three of them on the one hand of the chiefe Priest, and three on the other. Then all with their rattles began a song, which ended, the chiefe Priest layed down five wheat carnes: then straying his armes and hands with such violence that he sweat, and his veynes swelled, he began a short Oration: at the conclusion they all gave a short groane; and then layd down three grains more. After that began their song againe and then another Oration, ever laying downe so many carnes as before, till they had twice encirded the fire; that done they took a bunch of little stickes prepared for that purpose, continuing still their devotion, and
Testimony concerning the geographical knowledge and cartographic ability of Powhatan's people abounds in the rich encounter literature that grew out of the Jamestown enterprise.

It is clear that the Indians regarded Smith as someone of high status and worthy of such an extended ritual discourse. It is to be regretted that no one was on hand to provide him with a full translation of the remarkable ceremony he was fortunate enough to witness. Were such a full account available it might assist in unraveling the mystery of the artifact known as “Powhatan's Mantle,” a treasure of Oxford University's Ashmolean Museum. Powhatan's Mantle is a cloak fashioned of four tanned deerhides and decorated with thirty-seven figures made of small shell beads sewn onto the garment. It may have been the “gowne” Powhatan gave to Christopher Newport on May 23, 1607, to seal the military alliance they had agreed to. Anthropologist E. Randolph Turner III has suggested that the thirty-four small shell roundlets sewn on the mantle represent the districts under Powhatan's control.

It might be added that Captain John Smith probably visited many if not all of those districts during his enforced walkabout organized by Opechancanough, Powhatan's half-brother and chief of Pamaunkee, who orchestrated his uncomprehended ceremonial introduction to the Indian world view.

When Smith and the original Virginians arrived to found Jamestown, Powhatan was making strenuous efforts to gain firm control over his subject tribes and fight off incursions by his enemies from afar. Rather than treating the Englishmen like Gods or exotics, Powhatan attempted a strategy of incorporating them as useful elements in his geopolitical scheme for control over eastern Virginia. Even the famous head-bashing from which heroine Pocahontas “saved” John Smith was, in all probability, the penultimate ceremony through which Smith was to become initiated into the kinoriented society over which her father Powhatan held sway. The final ceremony took place two days after the Pocahontas “rescue” when a fearsome Powhatan “more like a devil than a man with some two hundred more as blacke as himselfe, came unto him [Smith] and told him now they were friends.” When Captain John Smith’s accounts of Virginia’s first years are purged of their romantic hyperbole, heavy ethnocentric bias, and egocentric exaggeration, they reveal Powhatan to have been following a perfectly rational and intelligent strategy for dealing with a group of poorly organized but militarily threatening intruders who had strayed onto the stage of the socio-territorial drama formed by his efforts of chiefdom expansion.
his fellows were most hoping to find
was an easy route to the ocean we
now call the Pacific. Part of the
motivation directing first, Sir Walter
Raleigh's colonists, and then the
Jamestown adventurers to the
Carolina-Virginia coastal area was
the lingering hope that the continent
narrowed sufficiently in these
latitudes to make a crossing to the
Pacific feasible. Ever since Verrazano,
in 1524, had reported the Carolina
Outer Banks to be “an isthmus a mile
in width and about two hundred
long” separating the Atlantic from
the “oriental sea...which goes about
the extremity of India, China and
Cathay,” European maps either
showed or hinted at the presence of a
great gulf of the Pacific called
Verrazano’s Sea in these latitudes.
Here is a clear case of a geographical
misconception being as important in
decision making as any true geo-
graphical fact.

As knowledge of the American
Great Lakes began to permeate
Europe the concept of Verrazano’s
Sea weakened so the Jamestown
explorers had been charged with
penetrating the back country to find
whatever was there, be it sea, lake or
mountains called “Apalatse.” The
famous map of Virginia which
Captain John Smith published
in 1612 (see Figure 3) is, for its date, an
astoundingly complete and accurate
portrayal of the Chesapeake Bay

Figure 3. Capt. John Smith’s Map of Virginia first published in 1612. Longtime curator of maps
at the Library of Congress, Philip Lee Phillips was only one of the many experts to praise this
map. Phillips wrote in 1907, “of all the Virginia maps the most interesting is that made by
Captain John Smith under the most trying conditions owing to the enmity of the savage tribes.
If we knew nothing of the famous Captain but what is conveyed to us in his map of Virginia it
would alone entitle him to rank preeminently among great explorers and cartographers.” A
long-enduring vestige of the hope for an easy passage to the Pacific Ocean, first suggested by
Verrazano in 1524, is shown by Smith in the form of a water body just above the letters NIA
in VIRGINIA. Take careful note of the small maltese crosses along the courses of the rivers.
As the legend explains, everything that is shown beyond the crosses “is by relation” meaning
that Indian informants and maps were the sources for what is on the inner portions of the
map (Library of Congress, Geography and Map Division).
Before leaving Arahatec’s town, Archer had the Indian cartographer with the dextrous foot draw the map of the river again, before “kyng Arahatec” for his evaluation. Gabrie...
enemy and those towns subject to him. On hearing this Archer and the English “tooke occasion to signifie our Displeasure with them also.” In effect they were taking Powhatan’s cause as their own. Powhatan, described as “very well understanding by the wordes and signes we made,” proceeded “of his own accord” to enter into a formal league of friendship with the English.

At the conclusion of Powhatan’s oration, Captain Newport “kyndly embraced” the alliance, and, “for concluding thereof,” Powhatan “gave him [Newport] his gowne, put it on his back himselfe, and laying his hand on his breast saying Wingapoh Chemuze (the most kynde words of salutatyon that may be) he satt Downe.”

Powhatan had good cause to be pleased with his alliance, for Newport also promised to defeat his enemies, the Wirons and Monanacha, and make him “king” of their country by bringing five hundred English soldiers to his aid in the coming autumn!

Continuing up the river the explorers were not long in reaching the falls of the James River “in which fall it maketh Divers little Iletts, on which might be placed 100 water milnes [mills] for any uses.” Since the boats would no longer be of use they returned to Powhatan’s seat and in the evening enjoyed an informal meal with the chief and his people. After the dinner during which Powhatan ate “very freshly of our meat, Dranck of our beere, Aquavite, and Sack” the Englishmen quizzed him about the river. They wanted to know how far it was to the headsprings “where they gat their Copper, and their Iron.” Not deigning to answer their questions at that point, Powhatan promised to meet them at the falls the next day.

At the falls the English, in company with their friendly Indian cartographer, awaited Powhatan’s arrival. When he made his appearance the Indian mapmaker-guide coached them in the proper shouts of welcome that Powhatan’s station demanded. Sitting on the bank overlooking the falling waters of the James River, Powhatan launched into a discourse plainly aimed at discouraging any further penetration of the interior by the English. Not convinced of their reliability, the cautious Indian did not want to chance their meeting his enemies. As Archer wrote, “he began to tell us of the tedious travell we should have if we proceeded any further, that it was a Daye and a halfe Jorney to Monanacha, and if we went to Quiranck, we should get no vittailes and be tyred, and sought by all meanes to Disswade our Captayne from going any further: Also he tolde us that the Monanacha was his Enmye, and that he came Downe at the fall of the leafe and invaded his Country.”

Realizing how important Powhatan’s good will was to their survival, Captain Newport reluctantly cut short the exploration and ordered the party back to their boats. Before departing the neighborhood that would one day become Richmond, however, he selected an islet “at the mouth of the falls” and “set up a Crosse with this inscription Jacobus Rex 1607. and his owne name below.” To the disappointment of the Englishmen, Powhatan and his followers departed before the erection of the cross and so missed the ceremony and cheers that followed a prayer of dedication. In an effort to transmit word of the nature and significance of the ceremony to Powhatan in terms designed to flatter him, Newport fabricated the following prevarication concerning the cross which he told to the Indian guide named Naurinus, who was known to be the brother-in-law of Chief Arahatec: “Our Captayne told him that the two Armes of the Gosse signifyed king Powatah and himselfe, the fastening of it in the myddest was their united Leaug, and the shoute the reverence he Dyd to Pawatah, which cheered Naurinus not a little.”

Above its falls the river gave the...
The flow of geographical intelligence from these New England Indians did not stop with their artfully crafted map.

It is abundantly clear from the narratives and journals of scores of those European explorers, from Columbus onward, that Native American cartographers and guides in every region of the New World contributed immeasurably to outlining and filling in the details of the New World map.

Little if any socio-political stratification existed in a society where “it is the business of the head of the family, exclusively over all others, to give orders that camp be made where he pleases, and that it be broken when he wishes.”38 Leaders, although referred to as chiefs, had little or no coercive power over other members of the group. According to Father Chrestien Le Clercq, who lived among the Micmacs in the 1670s, there were only two or three individual Indians who had any sort of authority, and that was feeble at best. The “chief” with whom he appeared to be most familiar oversaw the assignment of hunting territories, held the band’s collective fur harvest, and disbursed their material goods according to need, more in the role of a respected elder than someone with true coercive power.

In spite of these facts, the Micmacs appear to have been the equals of Aztecs or Powhatans when it came to their ability to draw excellent maps. Le Clercq wrote: “They have much ingenuity in drawing upon bark a kind of map which marks exactly all the rivers and streams of a country of which they wish to make a representation. They mark all the places thereon exactly and so well that they make use of them successfully, and an Indian who possesses one makes long voyages without going astray.”39

Although he doesn’t discuss the Micmac maps in detail, it seems probable that they were, like most Native American maps, based on a topologic rather than a Euclidean geometry. This conclusion can be supported by what Father Le Clercq wrote with respect to distance as it was reckoned by his Indian companions: “They reckon distances only by the points and capes which are found along the rivers or coasts. They count and measure them also by the length of time which they take in their voyages, and by the number of nights which they are obliged to sleep on the way, not counting either the day of their departure or that of their arrival.”40

Most readers have had experience with maps like these, i.e., maps depicting places in terms of travel time rather than some absolute distance, such as miles or kilometers. Many city subway or bus route maps sacrifice true directions and distances...
for ease of rider comprehension. In a word, they too are topologic maps.

To date one of the least explored topics in the literature of the Age of Discovery is the role played by Native Americans as guides and cartographers for the Europeans bent on exploring their home territories. It is abundantly clear from the narratives and journals of scores of those European explorers, from Columbus onward, that Native American cartographers and guides in every region of the New World contributed immeasurably to outlining and filling in the details of the New World map. Even before they landed, Europeans like Bartholomew Gosnold took Indians aboard their ships where they chalked accurate sketch maps of the approaching coast and inlets on hatch covers or decks.

Samuel de Champlain, “founder of New France,” wrote of how comprehensive and helpful Indian geographical intelligence and mapping was as he pushed his exploration up the St. Lawrence River valley:

I had much conversation with them regarding the source of the great river and regarding their [the Huron] country, about which they told me many things, both of the rivers, falls, lakes, and lands, and of the tribes living there, and whatever is found in those parts. Four of them assured me that they had seen a sea, far from their country, but that the way to it was difficult, both on account of enemies, and of the wild stretches to be crossed in order to reach it. They told me also that during the preceding winter some Indians had come from the direction of Florida, beyond the country of the Iroquois, who were familiar with our ocean, and friendly with these latter Indians. In short they spoke to me of these things in great detail, showing me by drawings all the places they had visited, taking pleasure in telling me about them. And as for myself, I was not weary of listening to them, because some things were cleared up about which I had been in doubt until they enlightened me about them.41

Even earlier, in 1605, while surveying the coasts of the Gulf of Maine for manuscript chart of 1607 (see Figure 4), Champlain gained important information from Indians near Cape Ann in present day Massachusetts. Approaching the cape from the north Champlain wrote of how his party “caught sight of a canoe in which were five or six Indians.”42 The Indians approached the French pinnace for a closer look and then landed on the cape and began to dance. Champlain went ashore and gave each of them a knife and some biscuit which, in his words “caused them to dance better than ever.”

After the Indians finished their

Figure 4. Samuel de Champlain, founder of New France, personally prepared this elegant chart of the Gulf of Maine for presentation to King Henry IV. Rarely can one study original maps drawn by explorers of Champlain’s stature. Most of the great maps from the Age of Discovery were drawn by professional cartographers, working from notes and sketches, and engraved by professional engravers for printing in multiple copies. Beyond its rarity, this chart is of particular interest because Champlain incorporated Indian cartography and geographical information along with his own direct observations in its compilation. The chart includes the area of the Massachusetts coast where Champlain had local Indians draw a map with charcoal he provided them. One of the great cartographic treasures in North America, this unique vellum chart came to the Library of Congress as part of the bequest from Henry Harrisse, the distinguished lawyer, bibliographer, and historian of discovery and exploration (Harrisse Collection, Geography and Map Division).
It is hard to imagine a more favorable judgment of Native American geographic and cartographic capability than this from the pen of Samuel de Champlain, explorer extraordinaire and founder of New France.

dance, Champlain “made them understand as well as I could, that they should show me how the coast trended.” To make his request clear to the Indians Champlain used charcoal and drew the local bay and cape for them. The Indians, understanding his need, took the charcoal and, as Champlain wrote, “they pictured me...another bay which they represented as very large.” This large bay is now known as Massachusetts Bay. Within their charcoal map outline of Massachusetts Bay, the Indians “placed six pebbles at equal intervals,” as Champlain wrote, “giving me thereby to understand that each one of these marks represented that number of chiefs and tribes.” Much to the French explorer’s satisfaction “they represented within the map a river which we had passed [the Merrimac], which is very long and has shoals.”

The flow of geographical intelligence from these New England Indians did not stop with their artfully crafted map. They went on to tell the French “that all those who lived in this region cultivated the land and sowed seeds like the others we had previously seen.” As the encounter drew to a close the Indians departed to inform their fellows of the arrival of exotic white-skinned visitors from the north. “Having indicated to us the direction of their home,” Champlain wrote they made signal-smokes to show us the site of their settlement.”

As Champlain continued the reconnaissance of the Massachusetts coast and islands he found that he “recognized in this bay everything that the Indians at Island Cape [Cape Ann] had drawn for me.” It is hard to imagine a more favorable judgment of Native American geographic and cartographic capability than this from the pen of Samuel de Champlain, explorer extraordinaire and founder of New France.

NOTES
3 Ibid., p. 13.
6 Ibid.
11 Ibid., p. 193.
12 Cortes, Letters from Mexico, p. 105.
16 Ibid., p. 116.
17 Ibid., p. 117.
18 Ibid.
19 Ibid., p. 124.
20 Ibid., p. 422.

22 Charles Hudson, *The Southeastern Indians* (Knoxville: University of Tennessee Press, 1976), p. 120.


25 Ibid., p. 85.


28 Ibid.

29 Ibid.

30 Ibid., p. 399.


34 Ibid., p. xlii.


36 Ibid., p. xlvii.


38 Ibid.

39 Ibid., p. 136.

40 Ibid.


43 Ibid.

44 Ibid., p. 336.

As we all know, until 500 years ago—by “geographical serendipity”—the world consisted of two inhabited hemispheres, each oblivious to each other’s land and peoples. Then, in an attempt to reach the east coast of Asia, Christopher Columbus sailed west from Spain across the Atlantic Ocean, initiating a link between these two worlds and setting into motion the series of events that created the world we know today. Columbus’ achievements in finding a way to navigate across the Atlantic and back, and in informing Europe that land exists on the other side, are well documented. Still, much about the man remains a mystery. Over the last five centuries, many authors have speculated on the Admiral’s reputation, origins, motives, and conclusions. Even so, the quincentennial anniversary of Columbus’ arrival in the western hemisphere has been a new motivation to re-dissect and re-evaluate his life.

A somewhat new phenomenon during this quincentennial year is the reassessment of the old Eurocentric perspective of the “discovery” of the Western hemisphere. What once was described as a one-way European discovery of a New World by heroes of conquest, is now described as a two-way encounter. New accounts describe an exchange of natural resources, in addition to acknowledging that Europeans largely destroyed existing Western civilizations and exploited the environment.

The reassessment of Columbus’ feats and the European colonization of America has created much controversy and generated many new publications. Some are “neutral” reference books designed to aid those researching the topic, but most are biographies and encounter reassessments, some of which take a “pro-Columbus” stance; others regard the quincentennial as a time for repentance, and still others attempt to assess historical events solely within the context of their own time. The following is an annotated bibliography of books published about Columbus since 1990.

**Reference Books**


This two-volume set is designed to provide easy access to information on events of Columbus’ life and the age of European exploration, spanning the late fifteenth century through the middle of the seventeenth century. The articles cover a wide range of topics: the cultural and political motivations for making the explorations; the maritime technologies that made the explorations possible; the ecology and cultures of the Western hemisphere and their exploitation; the men and women who participated in the important events of the age; and literary and artistic depictions of Columbus. Articles vary in length from one paragraph to 35 pages; each is signed and includes a bibliography.
Entries for personal and geographic names are listed under the scholarly, “authentic” forms of their names, but the more familiar names appear in cross references, parenthetical remarks, and the index, to guide readers to appropriate entries.

In their preface, the editors state they felt it practical to use the conventionally accepted terms “America,” “Indian,” “New World,” and “discovery.” They point out, however, that the use of these terms is not intended to deny the prior existence of the Western hemisphere and its peoples.

The book includes a directory of contributors, alphabetical list of entries, cross references, black-and-white illustrations, and an index.


This atlas, divided into four parts, is a showcase of rare map reproductions. Part I, “The Cartographic Tradition Inherited by Columbus,” includes maps that Columbus is likely to have used, including a 1474 manuscript copy of Ptolemy’s 1500 A.D. world map; a 1375 world map by Abraham Cresques, which includes information from Marco Polo’s travels; and a selection of mappaemundi and portolan charts. Part II, “Columbus and His Contemporaries Change the Map,” includes Juan de la Cosa’s 1500 map (the first map to show Columbus’ voyages), and Waldseemüller’s 1507 and 1513 maps. Part III, “Filling in the Features of the Earth,” includes maps produced in the early 1500s, including those from Magellan’s voyage, as well as Diego Ribero’s world map, and Sebastian Cabot’s map of his explorations in North America. Part IV, “Europe’s Colonial Era Begins,” includes Mercator’s 1569 world map (the first Mercator projection), and Edward Wright’s 1599 map.

Though some of these maps are reproduced in other quincentennial publications, the reproduction quality in this book far surpasses that of other volumes. Rand McNally’s use of high quality paper and lithographic techniques yields spectacular results. The maps are reproduced in plates that span two pages, providing remarkable detail. In addition, sections of many of the maps have been enlarged to show even more detail. Each map is accompanied by a narrative on its historical context, as well as a list of references.

The book includes a two page introduction, a four page bibliography, and a four page index.


Provost’s dictionary provides definitions to people, places, events, concepts, objects, and circumstances associated with Columbus, particularly those related to his 1492-1506 voyages. The entries range in detail from a definition of latitude to a summary of one of the voyages. Most entries are followed by references to one or more passages in Samuel Eliot Morison’s standard works on Columbus (Admiral of the Ocean Sea, The European Discovery of America, and Journals and Other Documents on the Life and Voyages of Christopher Columbus), as well as to other relevant works (such as Kirkpatrick Sale’s The Conquest of Paradise). These references are all listed in a four page bibliography. Cross references to alternate forms of spelling are included.

This book is appropriate for all levels of research, from junior high to post-graduate. In his preface, Provost acknowledges his debt to library and information services in compiling this work, citing 22 libraries he visited, and thanking the National Union Catalog, OCLC, and RLIN, as well as the “hundreds of generous librarians” who helped him.
Instead, the focus is on publications "inspired by a genuine desire to establish the truth about the great navigator."


This is an annotated bibliography of 780 numbered items, including monographs as well as periodical articles. They are arranged chronologically by topic, and alphabetically within any given year. Provost personally examined almost all the items listed, and annotated nearly ninety percent of them. For the remaining ten percent, he reprinted annotations of other scholars, citing them as necessary. The annotations summarize the item or indicate its scope and purpose as objectively as possible. Occasionally, however, Provost does state his opinion on the quality of a work.

The bibliography is selective: most works published before 1875 were excluded as obsolete. A large number of works published in the 19th and 20th centuries also were excluded as addressing emotional, ethnic, religious, moribund, dead, or irrelevant issues. Instead, the focus is on publications "inspired by a genuine desire to establish the truth about the great navigator." The book is divided into six sections: collections of sources, texts, and studies; texts of primary documents; Columbus' life; Columbian; bibliographies; and Columbus scholarship.

The book includes cross references; a foreword by Norman Fiering of the John Carter Brown Library; a list of abbreviations; a nine page index of authors and editors; a seven page index of persons and places; and a seven page index of topics.

Provost states in his preface: "I owe a special word of praise and admiration to the personnel of the many libraries that I have used in the United States. They, as much as any group I know of, are selflessly dedicated to the dissemination of learning. They are generally underpaid and they work long hours at frequently inconvenient times."


This softbound government document is a 2600-title bibliography dealing with the life and times of Columbus. Sanchez claims it to be extensive, but not definitive. The entries for narratives, poems, ballads and dramatic scripts are separated into three groups: books, juvenile literature, and articles.

The volume includes nine black-and-white illustrations and a five page introductory essay on the two major schools of thought concerning Columbus: the "Colombino School," led by Bartolome de las Casas, Fernando Colon, and Samuel Morison; and the "Anti-Columbino School," led by Gonzalo Fernandez de Oviedo, Henri Vignaud, Cecil Jane, and Kirkpatrick Sale.

Exhibitions

This companion volume to the PBS series of the same name was compiled by Zvi Dor-Ner (who also conceived the PBS series), and William Scheller, a writer with WGBH (the PBS station in Boston, Mass.), where the book and series were produced. The seven chapters roughly parallel the seven parts of the series, but the book stands alone as a valuable contribution to quincentennial literature. The themes discussed include: Why didn't other societies, such as the Chinese or the Arabs, sail to the Americas first? What made 15th century Europe the initiator of global exploration? How did advances in navigational techniques, weaponry, and geographical knowledge make the Age of Discovery possible? Was Columbus an epic hero, or a shrewd entrepreneur?
Virtually every page of text includes an annotated illustration or map.


Harley describes 42 maps, atlases, and globes dating from 1240 to 1616. The collaborators of this exhibit selected these items as the best examples of the imagined geographies, inscriptions of political power, and revelation of geography of the Western hemisphere. Harley sees maps as portraying so much more than just the capes and bays where Columbus and others landed. In addition to discussing how geography was portrayed in each map, he focuses on the illustrations in the blank parts of the maps, arguing that these “peripheral” aspects are what turn maps into historical documents. The book has four sections: “The World Before Columbus,” “The Way to The Indies,” “Searching for an American Identity,” and “Colonial Cartographies.” Each map, atlas, or globe is described with a two to three page commentary, and there are references at the end of each description. The text of this book stands on its own sufficiently, but the 119 black-and-white illustrations most reproductions of maps—pale in comparison to those in other publications. The book seems to have been designed to have in hand as one tours the exhibition.

The volume includes a nine page bibliography, with two pages of general references and facsimile atlases, and seven pages of references relating to particular maps.


This government document is a product of the Library of Congress’ quincentenary program An Ongoing Voyage, which includes exhibitions, publications, film series, scholarly programs, and educational outreach projects. The book consists of seven 10 to 20-page chapters entitled “Life in the Americas When Europeans Arrived,” “Life in the Mediterranean World,” “Spain in Exploration Era,” “Maps, Navigation, and World Travel,” “Christopher Columbus, the Man and the Myth,” “Contact of Cultures in America,” and “Events in the Americas During and After the European Conquest.” They were written by John Fleming and Ida Altman, guest curators of An Ongoing Voyage; and James Lockhart, professor of history at UCLA. Virtually every page of text includes an annotated illustration or map. Some annotations run more than one page and are signed by their authors, some of whom are librarians at the Library of Congress, Geography and Map Division.

The work includes 100 illustrations and maps (some in color); a forward by James H. Billington; an overview by John R. Herbert, exhibition curator; an epilogue by Barbara M. Loste, exhibit director; a list of exhibition participants, chapter by chapter suggestions for further reading; biographies of authors; a five page list of illustrations; and a five page index.


This book is a companion to the Smithsonian’s Museum of Natural History quincentenary exhibition. It consists of 15 six to 22-page essays by various authors on the massive changes that have occurred since the initial contact between Eastern and
Western cultures, including the transfer of plants and animals; depopulation of native peoples of the Western hemisphere; forced removal of Africans from their homelands; and destruction of the environment by Europe's industrial conquest of the New World. The purpose of this book seems to be to illustrate the changes that resulted when plants, animals, diseases, and people were exchanged between the Old and New Worlds as a result of Columbus' voyages of discovery. The examples of Columbian exchange, chosen because of the human dimension to their story, are sugar, maize, disease, the horse, and the potato. Although both the positive and negative consequences of these examples are discussed, this book emphasizes the twin tragic failures of Europe to recognize the fragility of the American environment and to see the peoples of the Americas and Africa as human beings with cultures and histories on an equal level as their own. The editors state this was done purposely as a means of helping present and future generations avoid similar disasters.

The book includes illustrations, photographs, or maps on almost every page; more than half are in color. There is also a five page list of sources and suggested readings, arranged by chapter; a four page index; four pages of picture credits; and two pages of one-sentence contributor biographies.

Columbus Biographies

Fernandez-Armesto, the general editor of the *Times Atlas of World Exploration*, and author of four other books, describes the life of Columbus in nine 18 to 28-page chapters. His intent is to provide a biography based on facts verified or reasonably inferred from "unimpeachable" sources, such as Morison, Las Casas, and Thatcher. In his efforts to be objective, the author rejects the speculations that Columbus' plan for crossing the Atlantic concealed some secret objective or that he was Jewish. He also avoids speculating on what Columbus must have been thinking or doing at moments when source materials leave gaps. Even so, his interpretation of the facts paints Columbus as a socially ambitious, intellectually aggressive, self-taught upstart who becomes an adventurer inhibited by fear of failure and, finally, an embittered escapee from distressing realities.

The book includes five maps; a four page chronology; 16 pages of footnotes; and an eight page index.


Meltzer's book is written on the young adult level, but it is appropriate for adults, particularly for those interested in reading a less scholarly work. The first three chapters describe what was going on in Europe prior to Columbus' birth. Chapters 4 and 5 describe Columbus' youth, also in the context of what was going on around him in Europe. Chapters 6 through 15 describe Columbus' voyages, with a brief description of Native Americans in Chapter 9. Chapter 16 assesses what Columbus accomplished, and the results of the collision of Eastern and Western cultures. Meltzer has written 16 other history books for young adults.

The book includes illustrations (some poor), maps, and a six page index.


In 40 short chapters (each four to 10 pages long), Taviani, touted as "the world's leading expert on Columbus' voyages," has condensed his two two-volume works on
Taviani dismisses Columbus’ critics by anticipating questions they might ask, and then providing the answers. Columbus’ life, Cristoforo Colombo, La genesi della grande scoperta (1988) and I Viaggi di Cristoforo Colombo (1985), into an account intended for the general reader. He relates Columbus’ adventures to other events of the time, and comments on excerpts from Columbus’ diary. To Taviani, “the Columbus discovery was of greater magnitude than any other discovery or invention in human history.” Columbus was “a genius in the full sense of the word” and his maritime abilities were “extraordinary, almost magical.” Taviani dismisses Columbus’ critics by anticipating questions they might ask, and then providing the answers.

The book includes a six item bibliography and a seven page index.

The Columbus Diary
Many translations of Columbus’ Diario have been published lately. The ones published since Jan. 1, 1990 are listed below:

Includes an essay on Columbus’ language by R. J. Penny.


Historiography

Henige, an historian with an interest in the use and abuse of source materials, has analyzed Columbus’ diario of his first voyage—line by line in some cases—and he questions the generally held assumption that these writings represent Columbus’ own words or that they accurately reflect historical events. In Search of Columbus is divided into two parts: “The Documents,” in which Henige dissects Las Casas’s Historia de las Indias and Ferdinand Colon’s Historie; and the “Historiographical Debate,” in which he analyzes other historians’ assumptions and interpretations of the diario. Much of the discussion concerns the landfall controversy. Henige concludes that modern attempts to determine the site of Columbus’ landfall can only be speculative at best.

This is an example of a true “scholarly text.” While chapter titles are clever (i.e., “A Day in the Life of the Diario,” and “The Lie of the Land or the Lie of the Text”), Henige’s prose is quite difficult to comprehend. He uses lots of rare words and extensive footnotes. Reading this work requires considerable concentration and a dictionary.

The work includes a 45-page bibliography (with OCLC numbers), a 17-page index, and two appendices in modern Spanish (“Text of Diario, 11/12 to 15 October 1492” and “Oviedo’s Account of the Sighting of the Light”).

...and he questions the generally held assumption that these writings represent Columbus’ own words or that they accurately reflect historical events.

This 1991 ALA Notable Children's book is a young adult version of Wilford's *The Mysterious History of Columbus* (see below). Pelta discusses the ideas and biases some historians have injected into their accounts of Columbus, and how other historians have sorted the facts from the myths. Chapters 1 and 2 briefly describe Columbus' life and voyages, and related events surrounding both. Chapters 3 through 7 describe how biographers from the 16th century to near-present wrote about Columbus and the circumstances involved with their attempts to gather information about him. Chapters 7 and 8 reexamine the evidence available in the 1990s, and Chapter 9 discusses how to go about doing your own history research.

The book includes illustrations, maps, and photos; a four page bibliography, and a six page index.


In an attempt to write about Columbus with a somewhat different quincentennial slant, Wilford, author of *The Mapmakers*, examines the history of the story of Christopher Columbus by describing what is known about him and how this knowledge has come down to us. He discusses the many riddles about Columbus that persist and cause such heated dispute among historians; recent archival and archaeological findings; changing interpretations of the consequences of the encounter between Europeans and Americans; and the way Columbus's reputation has changed over time.

The book includes 21 pages of bibliographical notes and an 11-page index.


In this book, De Vorsey, Jr. takes the "intercultural encounter" approach in describing the principal personalities and events of the years from about 1450 to 1580, roughly from Columbus' birth to Drake’s circumnavigation of the globe. He describes separately the Native American and European pre-encounter perceptions of the world, Columbus' voyages, and the subsequent European conquest of the Western hemisphere. His descriptions emphasize accounts that portray Native Americans as intelligent human beings as well as those that reveal their exploitation.
The further purpose of this book is to demonstrate the breadth and richness of Age of Discovery research materials in the holdings of the Library of Congress.

He notes that the Columbus quincentennial has launched as "anti-myth" movement...

...the revisionists are no different than those who promote the Eurocentric discovery views.

As he states in his preface, "the further purpose of this book is to demonstrate the breadth and richness of Age of Discovery research materials in the holdings of the Library of Congress." The book is illustrated profusely with annotated reproductions of maps and illustrations from LC collections. It also includes a foreword by Librarian of Congress James Billington, descriptions of LC's quincentenary program An Ongoing Voyage, and an appendix on doing research on the Age of Discovery in the Library of Congress. Louis De Vorsey Jr. has written or edited seven other books, including In the Wake of Columbus: Islands and Controversy.


Paiewonsky, who is touted as quite knowledgeable on West Indian archaeology and history, wrote this book to describe the Spanish attempts to colonize Hispaniola, Puerto Rico, and St. Croix in the 22 years after Columbus' first voyage, and their impact on the native population. The narrative is a straightforward description of events. Quite a bit of it is quotes from other sources, such as Samuel E. Morison's books, and excerpts from the logs and journals of Columbus, Las Casas, and Ferdinand Colon. The type is quite large on the 74 pages of text. The 61 illustrations are woodcuts, maps, and photos, and most are from the MAPes MONDe archives. The 26 color maps and illustrations preserve the delicacy and detail of the originals quite well. Printed on acid-free handmade paper.

The book includes four pages of footnotes and a two page bibliography. There is no index.


In six 22- to 30-page chapters, Royal attempts to untangle the distorted historical record of Columbus and the Spaniards and their first New World contacts, as well as that of Christian missionaries, North American Indian tribes and early British and French settlements. He notes that the Columbus quincentennial has launched an "anti-myth" movement, which has largely replaced former idolizations of Columbus, and warns that, in attempting to recast the history of America, and by advancing the currently politically correct goals of rejecting Western culture, the revisionists are no different than those who promote the Eurocentric discovery views. Royal urges us to see the original historical record as a reality in its own time, though he admits that it requires effort and sympathetic understanding not to succumb to the temptation to let contemporary issues interfere.

The book includes 12 pages of footnotes, a 10-page bibliography, and an 11-page index.


As the title suggests, Sale paints the Europeans as despoilers of the environment, whose warped society allowed them to assume colonialism was their right. He argues that their plundering was more barbaric than the Native American practices that so appalled them. He also tries to show how Native Americans were at one with the environment and were in many ways a "better" society than the Europeans.

The first eight chapters concern
Columbus and events in Europe during his lifetime, while Chapter 9 covers the European reaction to his discoveries in the 16th century. Chapters 10 and 11 are about English explorers and Jamestown settlers; Chapter 12 concerns Native American perceptions, life, and society; and Chapter 13 covers historical events related to Columbus up to the 1992 quincentennial.

The text includes detailed descriptions of events in the voyages and lives of Columbus and other explorers, interspersed with background and context descriptions, excerpts from the journals of Columbus and others, and Sale’s criticism of what is said in these journals and in other writings evaluating them. There are extensive background notes at both the end of the book. Also included are 36 pages of source notes and a 25-page index.


This book attempts to provide the reader with a picture of the everyday life of Western hemisphere natives just prior to Columbus’ arrival. It covers all tribes, from the Inuit in the north to the Incas in the south, but most of the material is about the Maya, Aztec, and Incas. It describes in illustrations and text their food, hunting and farming practices, marriage and child rearing customs, notions of death and the afterlife, social organization and growth, and the systems of government and trade. The eight chapters covering these topics are “Civilization and Barbarity,” “Bread, Love, and Sex,” “Life in the Cities,” “Society and Power,” “Education and Knowledge,” “Music and Culture,” “Warriors and Priests,” and “Monsters Thrown Up By the Sea” (i.e., the arrival of the Europeans). There are over 300 illustrations, mostly in color, including photos of artifacts, pictures of codices, early Spanish paintings and manuscripts, and the few native documents that have survived. Every page has at least one illustration.

Includes a one page chronology from 1,000,000 B.C. to 1532 A.D., two pages of one-paragraph biographies of key Aztec, Maya, and Inca rulers, a three page glossary, a two page bibliography, and a five page index.

A “companion” book by Franco Cardini, Europe 1492: Portrait of a Continent 500 Years Ago, Translated by Jay Hyams, was published by Facts on File in 1989. This 238 page volume covers everyday life in Europe from 1453 to 1517, and includes a five page index and a two page bibliography.

**Conclusion**

The quincentenary of the first Columbus voyage has now come and gone. All things considered, the reassessment of this great turning point in history has had a positive impact. Most of the scholars listed above who reevaluated Columbus’ life and achievements made us see him as more of a human being in the context of his times than as a cardboard hero to put on a pedestal. The authors who evaluated the consequences of his fateful encounter with the people of the western hemisphere made us more aware of the consequences of cultural and environmental ignorance. Others, who used the Columbus encounter to show how historians interpret historical evidence, made us more aware of how modern day authors fail by injecting their own morals and biases into their narratives, or how they succeed by evaluating historical figures in the context of their surroundings. Supporting all this research were reference works, which gave us access to the sources of information on Columbus, the “Age of Discovery,” and the “Cultural Encounter.”
PRE-COLUMBIAN WORLD MAP: H. Schedel, 1493.

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Most preliterate peoples have a superb knowledge of their immediate environment for reasons of survival whether it is desert, tundra, mountain, forest, shoreline, etc., and many of them made maps.
This incident illustrates that the Aztecs kept original materials in places (archives) where they could be copied quickly.

Columbus was himself a map and chart maker, seller, and user, and would have been familiar with portolan charts in Genoa and Portugal before he went to Spain in 1485.

Fundamental to the general map of geographical discoveries is the map projection, which will receive some emphasis in this paper.

Columbus was himself a map and chart maker, seller, and user, and would have been familiar with portolan charts in Genoa and Portugal before he went to Spain in 1485.
The Catalan Atlas shows many offshore islands off the east Asian coast. It was this last area that Columbus believed he had reached as he threaded his way through the islands of the Caribbean.

At the same time Columbus was making his first Atlantic voyage, 1492-1493, a manuscript globe was being constructed by the Nuremberg cartographer Martin Behaim. Behaim’s globe accepted Ptolemy’s smaller measure of the circumference of the earth, as did Columbus.

At the same time Columbus was making his first Atlantic voyage, 1492-1493, a manuscript globe was being constructed by the Nuremberg cartographer Martin Behaim. Behaim’s globe accepted Ptolemy’s smaller measure of the circumference of the earth, as did Columbus.
Fig. I. Ptolomey’s conception of the world dominated geographic thinking in the
15th century. This example is from an edition of Ptolomey’s Geographica
published in Ulm in 1482.

The earliest true European map of the New World is the portolan-style chart of
Juan de la Cosa of 1500—the greatest cartographic treasure of the Museo Naval in
Madrid. La Cosa is believed to have been the owner, master, and mate of the Santa Maria.

Columbus corresponded with the Florentine humanist Paolo del Pozzo Toscanelli (died 1482) who drew a
map (now lost) to illustrate his belief that if one sailed west from Europe, one could reach the east coast of Asia.
Modern reconstructions of this map (which Toscanelli had sent to the King of Portugal in 1474) show the
west coasts of Europe and North Africa on the right, and East Asia with its many offshore islands on the
left. The most important of these, as reported by Marco Polo, was Cipangu (Japan); the island of
Antillia, which Columbus thought he had missed on his first voyage, is in the mid-Atlantic.

Columbus made four voyages to the New World (or, as he thought of it, the Indies) between 1492 and 1504.
Between these dates a number of other Europeans were in the area, notably Amerigo Vespucci between
1499 and 1502. On his return from his first trans-Atlantic voyage, Columbus
wrote a letter (translated and printed in several languages) to his patrons in
different places: Barcelona, Rome, Antwerp, etc. A Latin edition published in Basle in 1493, contains
illustrations. One of these shows Columbus sailing solo through the Islands of the Bahamas, which he has
renamed.

The conflict between Portugal and Spain for newly-discovered lands overseas precipitated a series of Papal
Bulls. After Columbus’ first voyage to the New World these culminated in the Treaty of Tordesillas, 1494.
Fig. 2. The Juan de la Cosa map is widely recognized as the first extant map to depict the Columbus voyages. This is thought to be a roughly 1502 copy of an earlier manuscript version.

The provenance of the Cantino map is interesting; it was drawn by an unknown cartographer in Portugal and smuggled out by Alberto Cantino who presented it to the Duke of Ferrara (Ercole d’Este) to inform him of the new discoveries. It is now in the Biblioteca Estense, Modena, Italy.

The Juan de la Cosa and the Cantino maps are manuscript, portolan style charts; the first printed map to show the New World discoveries was made by Giovanni Contarini and his engraver, Francesco Rosselli in Florence in 1506. Unlike the La Cosa and Cantino maps, the Contarini map has a regular projection—an orderly system of meridians and parallels, i.e., lines of longitude and latitude. Pytheas is credited with developing projections for geographical purposes, as indicated earlier. But the Renaissance cartographers invented many ingenious solutions to the problem of representing a world being rapidly expanded through the discoveries of contemporary explorers.

Thus on a fan-shaped projection Contarini showed most of the Old World as well as the “North Cape of Asia” discovered by Cabot and the Corte Reals, to the west of northern Europe. On this map the discoveries of Columbus and Vespucci in Central and South America are well delineated but Cipangu (Japan) is just to the west of Cuba, reflecting geographical ideas of the time. The Contarini map, of which only one copy exists, was discovered as recently as 1922, and is in the British Library.

A map that is similar to the Contarini map which is believed to have inspired it, is the engraved map of Johannes Ruysch, a Dutchman living in Germany (see figure 3). Before the discovery of the Contarini map, Ruysch’s map was thought to
There was a gradual realization that a New World, rather than the Indies, or Cathay, had been discovered. This is dramatically illustrated on the printed Ptolemaic-type map of Martin Waldseemüller, 1507.

Fig. 3. Johannes Ruysch produced this map in the first post-Columbian edition of Ptolemy in 1507. The map was very influential, mainly because of the wide distribution it received.

be the earliest printed map of the New World. Ruysch’s map accompanied the Rome edition of Ptolemy, 1507, and was widely distributed. Both in projection and map data there are differences between the Contarini and Ruysch maps; one of the most notable is the representation of the North Pole by a curving line on the former and by a point on the latter. Cipangu is omitted on Ruysch’s map.

There was a gradual realization that a New World, rather than the Indies, or Cathay, had been discovered. This is dramatically illustrated on the printed Ptolemaic-type map of Martin Waldseemüller, 1507, showing two separated parts of the New World, north and south (see figure 4). This map, one of the most important in the history of cartography, is very large (53 X 94 inches in six sheets) and difficult to reproduce. Only one copy of this woodcut map exists—at Schloss Wolfegg, Wütttenberg, Germany. It is the first dated map on which the name America appears—in honor of Amerigo Vespucci—in South America. Waldseemüller was influenced by Vespucci’s accounts (including the so-called Soderini letter) of his voyage to South America, Novus Orbis. Vespucci deserves credit for appreciating in a way that Columbus never did that a fourth continent had been added to those of Europe, Africa, and Asia. Later, Waldseemüller realized that he had given too much credit for the discovery of the New World to Vespucci. He tried to correct this on a plane chart of 1513 but it was too late—the name America had stuck. The inscription in South America on this map is translated as: “This land and adjacent islands were discovered by Columbus of Genoa for the monarchs of Castile.”

Other civilizations soon learned of the European discoveries and America was shortly delineated on Islamic maps (e.g. Piri Re’is map) and, later, on Chinese maps. Meanwhile the process of globalization went on apace with new discoveries being made and new projections devised. On an oval projection by Francesco Rosselli of 1508, parts of the New World, still separated from each other, are shown. It is printed on vellum and hand colored, and is now at the National Maritime Museum, Greenwich, England. A manuscript map of 1511 by Vesconte de Maggioli, a Genoese working in Naples, is on a new, polar azimuthal projection, with the Old and New Worlds (Siberia and the North Cape of Asia) connected across the North Pole.

By the second decade of the sixteenth century, it was discovered that North and South America were connected by an isthmus, as shown on the world map of Diego Ribero, 1529. This map was based on the official Spanish padrón which was kept at Seville and continually updated. The east coasts of the Americas are well delineated, but the west coasts of both continents are not drawn because they were not yet explored, except in Central America through the discoveries of Balboa in 1513, and his successors. Ribero was a Portuguese working for Charles V.

The circumnavigation of the globe by Magellan and El Cano, 1519-1522,
One of the most interesting arrangements of the earth grid developed at this time was the cordiform, or heart-shaped, projection. A variant of this is the double cordiform projection of Gerardus Mercator of 1538—the first general map to name America on the northern continent. But Mercator’s best-known projection is the one that bears his name, first published in 1569. It has lines of latitude (or parallels) with spacing increasing as latitude increases, a new feature on a world projection. This projection was of infinite value to navigators since any straight line on the Mercator chart is a line of constant compass direction, but it was slow to be adopted. Mercator’s friend and rival was Abraham Ortelius who published the first atlas using a uniform format, the Theatrum Orbis Terrarum in 1570.

A copy of the world map from Ortelius’s atlas is believed to have been aboard the Golden Hind on the global circumnavigation of Francis Drake, 1577-1580. When Drake returned, he presented Queen Elizabeth with a hand-drawn map of his discoveries which perished in the great fire at Whitehall about a century later. The closest surviving map to the one presented to the Queen is the manuscript Drake-Mellon map, now at the Center for British Art at Yale. This map, dated approximately 1586, shows the two principal discoveries of Drake on the Pacific coast of America: a body of water south of Tierra del Fuego, now known as Drake Passage; and Nova Albion, upper California. Drake was greatly indebted to indigenous navigators as he made his way north along the Pacific Coast and captured charts and maps from the Spanish. A printed map showing Drake’s discoveries is the broadside of Jodocus Hondius of 1595 on a double stereographic projection. The inset map of Portus Nova Albion, on Hondius’s map has been used as evidence by many who have speculated about the place where Drake sojourned on this coast June 10 to July 23, 1579.

The last map I will refer to is the so-called Wright/Molyneux chart on the Mercator projection to illustrate Richard Hakluyt’s Principal Navigations, 1599. Edward Wright, the co-author of this map, was a Cambridge mathematician who published instructions for constructing Mercator’s projection, which Mercator himself had failed to do thirty years earlier, when he invented it. This is the map which Shakespeare refers to in Twelfth Night, Act III Scene 2, when Maria says of Malvolio, “He does smile his face into
This is the map which Shakespeare refers to in *Twelfth Night*, Act III Scene 2, when Maria says of Malvolio, “He does smile his face into more lines than are in the new map, with the augmentation of the Indies.”

In the century following Columbus’ first trans-Atlantic voyage remarkable progress was made in the discovery of the Americas (often with much cruelty), and the delineation of the new continents (often with much help from the indigenous population). Unwittingly, this assistance often led to the undoing of the local inhabitants. The indigenous peoples of the New World made remarkable contributions in plant domestication, temple architecture, the calendar, the delineation of local topography, etc. But world map projections into which new local information was fitted were a product of the European Renaissance, with origins in cosmological and geodetic concepts of classical antiquity. Globalization was, for better or worse, a most important effect of the Columbian encounter. The global map projection, with its roots in Old World mathematics was the means of expressing this scientifically and symbolically.

NOTES

1 Many of the maps discussed in this paper are large and in color and are therefore difficult to reproduce in a journal format in black and white. A good many of them have been reproduced in facsimile or in collections. One of the most readily available sources of reproductions of most of the maps discussed in this article is Kenneth Nebenzahl, *Atlas of Columbus and the Great Discoverers* (Chicago: Rand McNally and Company, 1990).

2 The “Diario” of Christopher Columbus’s First Voyage to America, 1492-1493, abstracted by Fray Bartolomé de las Casas, transcribed and translated into English, with notes and a concordance of the Spanish by Oliver Dunn and James E. Kelley, Jr. (Norman and London: University of Oklahoma Press, 1988), p. 71.

3 There is an increasingly abundant literature on indigenous mapping of many areas including the Americas. Writings on this subject by G. Malcolm Lewis, Louis De Vorsey, and Miguel León-Portilla are listed in J. Brian Harley, “Rereading the Maps of Columbian Encounter” in *The Americas Before and After 1492: Current Geographical Research, Annals of the Association of American Geographers* 82.3 (Sept. 1992), 522-542.

4 The Unesco Courier (June 1991) is a special issue of this journal devoted to “Maps and Map Makers.” In this issue, which is published in thirty-five languages world-wide, there are a number of articles on less commonly reported aspects of cartography: Chinese, Arab, etc., including “The Treasures of Montezuma” (pp. 24-27) by Miguel León-Portillo, from which these quotations are taken.

5 Ibid. p. 25
6 Ibid. p. 24.
7 Much has been written on fifteenth and sixteenth century maps of the European discoveries, but little on the projections used on these maps. The author would like to recognize the work of his assistant, Terry Nakazono, in this research, and grants from the Academic Senate, University of California, Los Angeles.
Map Collections in Australia: A Directory
Compiled by Maura O'Connor. 4th ed.

The fourth edition of this directory is welcome due to the many changes that have taken place since the third edition was published in 1980.

Like its predecessor, this edition was compiled by a staff member at the National Library of Australia, but with the added assistance of the Australian Institute of Cartographers. The collection description section has been considerably expanded and now includes full collection address, telephone and FAX numbers, opening hours, contact officer, size of staff, subject and geographic specializations, collection control, chronological coverage, collection description, access conditions, and copying facilities.

The directory includes two unique sections. The first, entitled “Map Reference Material,” is a selected list of Australian map catalogues, bibliographies, journals, and atlases published since 1980 which will be of interest to all libraries with Australian cartographic collections. The second section, “Map Publishers in Australia,” is a comprehensive list of government and commercial map publishers which should be a useful acquisition tool for many map collections.

This fourth edition attempts to be comprehensive and includes the largest of collections, the National Library of Australia, with its 400,000 maps, and many collections that include only a few hundred maps. It is disappointing to learn from the foreword and introduction that over one-half of the collections in the third edition did not respond to the current questionnaire. The compiler offers several reasons for this which may have ramifications for collections in all countries. She notes that there have been several amalgamations and reorganizations of government agencies and private firms. In addition, the increasing use of digital data has reduced the need for many agencies and firms to maintain map collections. Not to fault the compiler, it is unfortunate nevertheless to have this fourth edition include only 130 collections when the third included nearly 300.

Additional useful features are a subject index, a geographic index, an index to the map collections themselves, as well as an index to map reference material. Following the introduction is a brief description of the “Principal Mapping Authorities in Australia” which is then followed by selected reproductions of some early Australian maps. The directory is organized alphabetically by state and then alphabetically by city. The text is easy to read with large lettering and appropriate use of bold face type.

This reviewer would prefer to see the “Description of Collection” moved forward in each entry to be read more quickly, rather than having it placed near the end of the entry. Additionally, there is one phrase, “30 year rule applies,” which appears in several collection descriptions that is nowhere explained. While this may be obvious to fellow Australians, international librarians and researchers who use the book will wonder about such terminology. Finally, why not include New Zealand in the next edition? Surely that country’s collections would be of interest to Australians and could be a useful addition to an already fine work.

Why not include New Zealand in the next edition? Surely that country’s collections would be of interest to Australians and could be a useful addition to an already fine work.
Traditional and South Asian Societies.
Edited by J. B. Harley and David Woodward.
ISBN: 0-226-31635-1. $125.00

The massive History of Cartography project originally anticipated six volumes to survey this important topic. Volume 2 however, which covers traditional Islamic, South Asian, Southeast Asian, and East Asian societies, has had to be split into two separate parts. The present volume covers only the Islamic and South Asian aspects of Volume Two. Each section in itself is distinct in treatment and coverage. The Islamic portion results from the contributions of nine individuals, while the South Asia section was done singlehandedly by Joseph E. Schwartzberg. Noticeable differences in treatment result from a collection of essays from various individuals versus the unified treatment of a single individual.

The choice of opening essay puzzles this reviewer; the first essay is the piece that will set the stage for the reader in understanding the function, purpose, and scope of the title. In this instance, Emile Savage-Smith discusses celestial mapping. Her 58-page essay, the longest by far in the Islamic section, might have been more succinctly written. She observes “the concepts and techniques of Islamic celestial mapping remained essentially medieval well into the nineteenth century” (p. 12). Thirty-four pages later she continues this same thought: “It can be seen from all the extant Islamic celestial globes that, except for some minor points of design and some considerable progress in construction techniques, the tradition of instrument design inherited from the Hellenistic and Byzantine world remained essentially unchanged through the end of the nineteenth century” (p.46). Similarly one might question why four pages were necessary to discuss al-Biruni’s ideas when “three methods are presumably original with al-Biruni. Of these three, the final two are highly impractical, and in all three instances the descriptions betray no actual experience with practical mapmaking” (p. 37). This is particularly true as she subsequently observes “how much immediate influence al-Biruni’s writings had on projections is difficult to assess” (p. 38).

Fortunately Ahmet T. Karamustafa revives the reader’s interest in his essay on cosmographical diagrams. While he observes “the literature of Islamic mysticism, vast in size and scope, is on the whole devoid of

LITERATURE CITED

World Directory of Map Collections
compiled by the Section of

Australian section of the World Directory of Map Collections (1986). I would recommend this directory to all large academic map collections and to any collection with an interest in Australian cartography or history.

David A. Cobb
Harvard Map Collection
Harvard College Library
Cambridge, Massachusetts

Geography and Map Libraries.
Edited by John A. Wolter. 2nd ed.
(IFLA Publication 31). Munchen;
New York; London; Paris: Saur,
1986.

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particularly appreciated in this section is the introduction of the dynamic tension between the Arab and Persian Muslim worlds and the effect this had on cartography.

Gerald R. Tibbetts then has three essays that serve a central core for the discussion of terrestrial mapping. They are “The Beginnings of a Cartographic Tradition,” “The Balkhi School of Geographers,” and “Later Cartographic Developments.” Treatment adequately surveys the topics indicated, supplemented, as are all the essays, by numerous illustrations. For those who are not specialists in the Islamic tradition, there are times of ambiguity and questioning. For instance, in the conclusion to “Later Cartographic Developments,” Tibbetts states “by the end of the fifteenth century classical Islamic geographical cartography was very much in decline” (p. 154). It is difficult to discern what constitutes “classical Islamic” and how it relates to “classical” as it is used in various European traditions.

S. Maqbul Ahmad’s “Cartography of al-Sharif al-Idrisi” next gives another intercultural example of a Muslim who accepted the invitation of Roger II (A.D. 1097-1154) to come to Sicily. While there, al-Idrisi assumed responsibility for producing a series of world maps. The interaction between East and West that Sicily provided sparked a concern to produce a supplementary text that would explain “how the form was arrived at, adding whatever they had missed (in the map) as to the conditions of the lands and countries, concerning their inhabitants and their possessions and places and the like­nesses, their seas, mountains and measurements, their crops and revenues” (p. 160).

Determining the precise measurements of the earth’s surface highlights the work of several Muslim scholars who undertook the task. The Muslim need to say five daily prayers facing Mecca provided numerous approaches to resolve this religious mandate. David A. King and Richard P. Lorch discuss them in “Qibla Charts, Qibla Maps, and Related Instruments.” The practical need for answers of course led to much ground-breaking work on the part of Muslim scholars.

The next major component of the Islamic section treats the Ottoman Empire, by far the greatest source of surviving maps, but ironically one of the least studied. Ahmet T. Karamustafa, in both the “Introduction to Ottoman Cartography,” as well as in the more extended “Military, Administrative, and Scholarly Maps and Plans,” points out that much of Ottoman map making reflected the concerns of the vast state bureaucracy. Given the wars fought with Europe, there has been Western influence in the Ottoman tradition. The Ottoman period saw the evolution of architectural plans, maps of water courses, siege plans as well as all the other needs the empire had for accurate representation of spatial relationships. Particularly fascinating are the waterway maps, documents that are just coming to light. While basically showing the path of a body of water from its source, “all relevant constructions such as feeders, collection areas, weirs, water towers, underground tunnels, and bridges, as well as some other architectural or natural features en route, were also shown in pictorial elevation” (p. 216). J. M. Rogers compliments this discussion with an essay on “Itineraries and town views in Ottoman histories.” As he patronizingly notes, “at its best the Ottoman work was fully up to the quality of the best being done in contemporary Italy and Germany” (p. 251).

The final two chapters in the Islamic section relate to navigational maps. Gerald R. Tibbetts contributed “The Role of Charts in Islamic
Schwartzberg...points out that art historians, rather than geographers, have done much ground-breaking work and dominated what knowledge we initially had of South Asian maps.

The concluding essay on “Nautical Maps” is brief, which is hardly surprising since Indians tended to have others conduct so much of their maritime work.

In discussing “Geographical Mapping,” Schwartzberg acknowledges the great work currently being done in historical cartography by Susan Gole. Of the 203 footnotes in this chapter, 51 mention Gole. One must note, however, that he often is referring readers to her for additional discussion. Of concern, as Schwartzberg notes, are the lack of surviving maps from southern and eastern India. We can only hope that subsequent investigations will bring such works to light. Working with present evidence he had to concentrate upon Rajasthan, Gujarat, Maharashtra, as well as numerous Mogul examples. Maps of the nineteenth century receive discussion, at least if they follow indigenous traditions and do not reflect European influences. Presumably, discussion of notable projects such as the great Trigonometrical Survey of India will appear in a future volume. The concluding essay on “Nautical Maps” is brief, which is hardly surprising since Indians tended to have others conduct so much of their maritime work. Again, surviving maps relate to the west coast of India as well as maps that would support the Muslim pilgrimage to Mecca for the Haj.

One cannot help but wonder if Schwartzberg were writing this section a decade from now how
The volume concludes with a masterful overview by J. B. Harley and David Woodward that places the essays in the broader perspective of cartographic traditions and raises questions the essays provoke.

...different indeed it would be. Constantly interspersed in the text are references to hints of promising new discoveries. He almost answers the question with a postscript indicating after the manuscript went to press “a catalog of a vast trove of maps and plans [was] newly discovered in a palace of the Maharaja of Jaipur.” Most importantly, some of the maps cover other parts of northern India “…as far east as Bengal and Assam, as well as peninsular India, Afghanistan, and Nepal” (p. 509). Is it too much to hope we indeed will be able to get a supplementary volume to the History which will discuss new knowledge that came to light as the project evolved?

The volume concludes with a masterful overview by J. B. Harley and David Woodward that places the essays in the broader perspective of cartographic traditions and raises questions the essays provoke. Unfortunately, the untimely death of Harley means the History of Cartography has been robbed of such future insights from his hand.

Donald C. Johnson
Curator, Ames Library of South Asia
University of Minnesota
Minneapolis, Minnesota

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History of Cartography Wins Major Award

At the Annual meeting of the Professional and Scholarly Publishing Division of the American Publishers Association on 11 February 1993 in Washington D.C., The University of Chicago Press received the R.R. Hawkins Award for Volume 2.1 of J.B. Harley and David Woodward, eds., History of Cartography: Cartography in the Traditional Islamic and South Asian Societies. The Hawkins Award is for the most outstanding scholarly book selected from among over 320 entries in all categories. The over 20 Book Categories included Philosophy and Religion, Physics and Astronomy, Chemistry, History, Economics, and Clinical Medicine. Penelope Kaiserlian, Associate Director of the Press, accepted the award at the Annual Dinner and delivered a speech tracing the origin and development of the History of Cartography Project.

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Maps from the Mind: Readings in Psychogeography

Whereas “psychobiography” in our time has become so much a part of biography that it hardly needs the prefix “psycho” anymore, psychogeography is a relative newcomer that requires introduction. As the editors and contributors stress, it is not a new discipline but a psychoanalytic perspective on the relationship between human beings and their physical environment. As such, it covers a very wide spectrum as the application of the perspective shows.

This book consists of a collection of papers in six chapters published by as many authors between 1921 and 1987. About fifty percent of it was written by Niederland, the doyen of psychogeography, a psychiatrist and psychoanalyst with a special knowledge of literature and old maps. This gives the book a distinct bias without, however, making it clear for whom these “Readings in Psychogeography” are intended. In my view, they are of peripheral interest to practicing analysts and have some entertainment value for cartographers and map historians.

The contributions are both varied and uneven with a bias towards what one might call “vintage” psychoanalysis. It is introduced by two extremely brief papers by Ferenczi, one of Freud’s early associates, and continued by Niederland who stresses the equivalence of geographi-
The earth, Urmutter, Gaea, mentioned no less than seven times in the index, as the model of human anatomy is rediscovered in various geographical features.

In reading through this volume, the curious impression emerges that some non-analytical writers are more up-to-date in analytic thinking than the analysts. This may be due to the opening papers being, as mentioned, all of an early date. In that case the question must be asked why they had to be included and put at the beginning. This could be justified on historical grounds, but it did not appeal to this reader.

The book ends as it started with fifteen, no less, clinical vignettes drawn by Fine, who applies the Freudian superego to his Psychology of Travel. He traces the response to travel to the degree to which the superego has been introjected (internalized) and comes to the conclusion that (1) the superego has a geographical component, that is the place where the parents said “No,” and (2) that a major motivation to travel is the wish to escape from superego pressure, adding that “the motivation remains unconscious for the most part.” One wonders why the motivation should be unconscious at all when these conclusions do require a high degree of analytic sophistication.

Volkan, who is a prominent psychiatrist and psychoanalyst, has done a brilliant job by writing a foreword that is personal and yet holds all the heterogeneous and uneven contributions together.

Fred Plaut
Society of Analytical Psychology
London, England
In case anyone did not notice, 1992 was the Columbian Quincentenary. At the beginning of the year, it seemed as if it would go by without much mention of maps. Why should it, after all? The social issues stirred up were so overwhelming and deep rooted that they might justifiably eclipse any discussion of the mapping aspects of the Columbian voyage. Most of the major scholarship had been done on the maps a hundred years ago, and when it comes down to it, there are very few important maps that survive from the period. I believe it was Gerald Crone who said that there were really only six key maps illustrating the discoveries between 1490 and 1510. There was certainly no promise of any new maps to emerge (despite the offer still open, as far as I know—of an "original" 1500 Juan de la Cosa world map in Peru). But by the end of the year, not only were maps put squarely on the map, but in a new way that attracted the attention of the public more than in any time in my memory. This was no mere rehash of the old research, no republishing of the same old images, although that happened too in spades. The public was introduced to the idea that maps after all—were not the disinterested objects everyone thought they were. Maps proved to be a headline grabber, spurred on by the influential Power of Maps exhibit at the Smithsonian's National Museum of Design, the Cooper-Hewitt Museum in New York, which occupies what was Andrew Carnegie's opulent mansion. Co-curators Lucy Fellowes and Denis Wood and their co-workers are to be commended on this wonderful exhibit. A debate was initiated, fueled by a full-page article in Newsweek (9 November 1992), with the headline that asked "Beware the Glove Compartment: Are Road Maps Really a Government Plot? Nah." The last time this magazine gave space to a map related story was either for the Vinland Map or Van Sant's GeoSphere Project. The New York Times entire Travel section for 15 November was maps old and new—which was also unprecedented, to the best of my knowledge. Denis Wood and John Fels's new book The Power of Maps, published to coincide with the opening of the exhibit although not a catalogue of the exhibit, provided stimulating reading around the theme. There was even a Yale-Smithsonian Symposium held at the Cooper-Hewitt in March 1993 (just before the exhibit closed) on the subject of "Maps as Material Culture" which brought together the likes of Denis Wood and Edward Tufte to discuss the themes of the exhibit. The picture essay on Cooper-Hewitt exhibit in the prestigious and widely read Smithsonian Magazine in the Spring can only help spread the word.
A point that may have been lost: the Cooper-Hewitt exhibit shows that a major national museum of design which is usually interested in the fashion world of interior design (wallpaper, textiles, furniture, knives and forks)—could actually be convinced that maps had to be designed, and did not grow on trees ex nihilo. It is not the first time that this has happened, but it is part of a growing trend. This is less surprising perhaps than museums of fine arts opening their doors to maps, which also happened. There the trend was led by the National Gallery of Art, which brought together what many have said is the most spectacular collection of major maps in any one space since the Walters Art Gallery’s *World Encompassed* in Baltimore in 1952. It is doubtful whether the Catalan Atlas, the Waldseemüller 1507 world map unbound and mounted as it was intended, Leonardo’s plan of Imola, the British Library’s Martellus atlas, the Barbari view of Venice, a Greek manuscript of Ptolemy’s Geography, the fifteenth-century Kangnido (Korean world map), and many other rare items... will ever again appear together. It was a great disappointment to the organizer of the exhibition, Jay Levenson, that the “Cantino” and Fra Mauro maps could not be added to the list, but there were other exhibitions going on in Europe and it is amazing he was able to get what he did. In addition to art museums, specialized art journals also took up the theme of maps. Two examples include a special issue of *Asian Art* devoted to maps, “The Art of the Map in Asia” (Vol.5, No.4), and Lou DeVorsey’s article in *Latin American Art* (Vol.4, No.3).

New York City was obviously the place to be for map exhibits. In addition to the Cooper-Hewitt, there was the New York Public Library, the New York Historical Society, and the Hispanic Society of America.

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New York City was obviously the place to be for map exhibits. In addition to the Cooper-Hewitt, there was the New York Public Library, the New York Historical Society, and the Hispanic Society of America. The IBM Gallery hosted “Christopher Columbus and the Spanish Exploration of the Indies” with several important manuscript maps. Had the American Geographical Society Collection still been in New York, no doubt there would have been another to add to the list.

Although no “Monumenta Cartographica Colombiana” appeared, it was a year of lavish and huge catalogues, both here and abroad. I can only pick out a few by way of example. In the United States, the Circa 1492 catalogue to accompany the National Gallery of Art’s exhibit was spectacular; so also was *The Age of the Marvelous*, the Dartmouth College’s exhibition that travelled to Raleigh, Houston, and Atlanta, and which sold out at the distributor, the University of Chicago Press. The only places to get copies were where the exhibit itself was shown. Other catalogues that included substantial numbers of maps were Susan Danforth’s *John Carter Brown Library exhibit Encountering the New World*, the New York Historical Society’s *Imagining the New World* (the catalogue was compiled by the Instituto della Enciclopedia Italiana), and the Hispanic Society of America’s *Maps, Charts, and Globes*. It would be a great service if an accurate bibliography of these exhibit catalogues (with ISBN numbers) could be compiled yearly (perhaps for this journal?) as libraries acquire them only idiosyncratically and they are often difficult to track down. Yet they are often the best sources of information on specific maps.

Abroad, two catalogues stand out: Hans Wolff, ed., *America: Early Maps of the New World* is the lavish catalogue for an exhibition held at the Bavarian State Library, Munich, from April to June 1992, on the occasion not only of the Quincentenary, but also of the library’s acquisition of the first globe gores to name America, published in woodcut by Martin Waldseemüller in 1507, one of only two impressions known, the other being in the James Ford Bell Library at the University of Minnesota. Wolff’s catalogue breaks some new
New Worlds, Ancient Texts: The Cultural Impact of an Encounter
Traveling Exhibition Itinerary

The American Library Association and the New York Public Library Collaborated in producing the exhibition with funding from the National Endowment for the Humanities. Twenty university and public libraries throughout the United States are hosting the two copies of the exhibition traveling between October 1992-December 1993.

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<td>April 2- May 7</td>
<td>Enoch Pratt PL, Baltimore, MD</td>
<td>U. Washington, Seattle, WA</td>
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<td>May 14- June 18</td>
<td>Ann Arbor PL, Ann Arbor, MI</td>
<td>Tulsa PL, Tulsa, OK</td>
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<td>June 25- July 30</td>
<td>DC PL, Washington, DC</td>
<td>Multnomah PL, Portland, OR</td>
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<td>August 6- September 10</td>
<td>Nashville PL, Nashville, TN</td>
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<td>September 17- October 22</td>
<td>Emory University Atlanta, GA</td>
<td>U. Arizona, Tucson, AZ</td>
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<td>October 29- December 3</td>
<td>Broward County PL, Ft. Lauderdale, FL</td>
<td>Los Angeles PL, Los Angeles, CA</td>
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ALA kindly provided your editor with a copy of the exhibition catalog. While the images contained therein are basically non-cartographic it is still a fascinating look at that period of initial contact between two very different cultures. As visual images do much to shape perceptions of far away places it is certainly worthwhile to look at the images of the new world seen by Western Europeans, and speculate on how those images helped form their view of the far away "New World." As they say in the book reviews "highly recommended."

Charley Seavey
"THE STANDARD REFERENCE FOR ALL SUBSEQUENT SCHOLARSHIP."
—John Noble Wilford, New York Times Book Review

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LOUIS DE VORSEY, JR.

Louis DeVorsey, Jr. is Professor Emeritus of Geography at the University of Georgia. His BA and MA degrees are from Indiana University, and his Ph.D., earned after a stint in the Navy as a Photo Intelligence Officer, is in Historical Geography from the University of London, England. Prior to joining the Geography Department at Georgia in 1967, DeVorsey was on the faculty at East Carolina University, and the University of North Carolina at Chapel Hill. In 1987 he became Professor Emeritus at Georgia.

Dr. DeVorsey has received a number of awards during his career. Chief among those are the Honor Awards for Meritorious Contributions to the Field of Geography in 1975, and the Honor Award in Applied Geography in 1983, both from the Association of American Geographers. In addition the University of Georgia Research Foundation awarded him its Medal for Research Creativity in the Social Sciences in 1980.

Professor DeVorsey has written numerous articles in the field of the history of cartography, as well as several books, including In the Wake of Columbus, Islands and Controversy (with John Parker, 1985), and Keys to the Encounter: A Library of Congress Resource Guide for the Study of the Age of Discovery (1992), from which the article in this issue of Meridian is excerpted.

Perhaps the most fascinating aspect of DeVorsey’s career is his five appearances as an expert witness before the United States Supreme Court in cases involving border disputes between various states. In addition he served as a Geographer Legal Consultant to the U.S. Litigation Team arguing a case before the International Court of Justice at the Hague.

JAMES A. COOMBS

Jim Coombs is the Map Librarian at Southwest Missouri State University. In addition to running the SMSU Map Collection, Jim draws the cartoon “Great Moments in Map Librarianship,” published in base line, and draws the “official” conference site maps for ALA annual conference programs. Other publications include “Exploration and Mapping of the Southwest Route, From Missouri to Southern California,” in Exploration and Mapping of the American West, MAGERT Occasional Paper Number 1, and “Globes: a Librarian’s Guide to Selection and Purchase,” in Wilson Library Bulletin.

One of the highlights of Jim’s career was being the only map librarian to participate in a 68-member library and information science delegation which visited the People’s Republic of China in April and May of 1985. Jim has given numerous presentations, the most recent of which was “Physical Geography of the Caribbean,” at the American Library Association Annual Conference, Atlanta, June 29, 1991. He has been a member of MAGERT since 1980. He has been the base line Production Manager since 1990 and the MAGERT Open File Report Production Manager since 1986. He was Vice Chair/Chair/Past Chair in 1983-85, and Exhibit Coordinator in 1987-90. Outside of work, as the sponsor of the Roundtree Elementary School ecology club, Jim is known as “Mr. Compost.” He is also the drummer and vocalist in “the Recliners” blues band.
## Vietnam

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<td>12 sheets</td>
<td>$250.00</td>
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## Topographic Maps

Our recent travels have yielded new stock of topographic maps for Bulgaria; Czechoslovakia; Philippines; all of Central America, particularly Nicaragua; all of South America, particularly Colombia; Burundi; Congo; Namibia; and South Africa.

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## Energy Maps of the World

These maps, published by the Petroleum Economist, show energy information using current data. Each map shows oil and gas fields, and deposits of coal, oil shale, and oil sands. Ship terminals, LNG plants, refining centers, and oil and gas pipelines are also shown. Each map has charts on energy production/consumption, GNP, GDP, etc. Printed on non-tear synthetic paper. Maps now available include:

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<td>Latin America Energy Map</td>
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## Atlas of E. & S.E. Europe

This atlas includes maps on ecology, population, and the economy. The maps are in English and German, and are accompanied by a 20-40 page bilingual text booklet. Recent issues include:

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<tr>
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<td>$17.95</td>
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<tr>
<td>Topoclimatic Types in Central Europe.</td>
<td>$17.95</td>
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Standing Order Price, per sheet $15.00
Norman J.W. Thrower has been Director of the (Columbus) Quincentenary Programs at the University of California, Los Angeles since 1989. He was born in England where he received his early education, including studies in Art at Reading University.

During World War II, he spent four years in the Survey of India followed by one year in the directorate of colonial (later Overseas) Surveys. He emigrated to the United States in 1947.

He received his B.A. Honours from the University of Virginia, where he studied under Erwin Raisz, and was awarded his M.A. and Ph.D. degrees by the University of Wisconsin where Arthur H. Robinson was his mentor. He took a Ph.D. minor in History of Science at Wisconsin, under Marshall Clagett.

In 1957, Norman Thrower joined the faculty of the University of California, Los Angeles (UCLA) where he has taught courses in cartography, remote sensing of the environment and geographical discoveries for over thirty years.

Professor Thrower was appointed to the Sir Francis Drake Commission of the State of California by then-Governor Ronald Reagan in 1973, and was appointed President of the Commission by Governor Gerald (Jerry) Brown, 1975-1981.

In 1963, Professor Thrower was awarded a Guggenheim Fellowship and since 1978, has been on the board of the Guggenheim Foundation. He was President of the Society of Discoveries, 1973-1975, and Charter President of the California Map Society.

At UCLA, he was appointed as Clark Library Professor in 1975 and became director of the Clark Library in 1981. During his six year Directorship he founded the UCLA Center for Seventeenth- and Eighteenth-Century Studies.

Professor Thrower is the author or editor of some 150 articles and ten books on geographical discoveries and cartography. His professional interests include cadastral surveys, cultural cartography, navigation, and piracy as indicated by titles of some of his major works which include: Original Survey and Land Subdivision; Maps and Man; Sir Francis Drake and the Famous Voyage; The Three Voyages of Edmond Halley; Standing on the Shoulders of Giants, and his latest collaborative work, with Derek Howse of the National Maritime Museum, Greenwich, A Buccaneer's Atlas.

He is the recipient of honors including the Distinguished Mentor Award of the U.S. National Council for Geographical Education and special session at the San Diego AAG Meeting. In his role as Director of the UCLA Quincentenary Programs he has recently delivered invited papers to the Renaissance Society of America, The American Association for the Advancement of Science and The American Geophysical Union and many other scholarly societies.

Norman Thrower was awarded the Cross 1st Class of the Orden del Mérito Civil (Order of Civil Merit) by H.M. King Juan Carlos of Spain. The decoration was given to Professor Thrower for his work as Director of the UCLA Quincentenary Programs and for his contributions to scholarship generally. The presentation was made at a reception at UCLA by the Honorable Eduardo Garrigues, Consul General of Spain in Los Angeles, 24 March 1993.
In Eastern Europe and the former Soviet Union, no one has been busier than cartographers. Boundary changes, the lifting of secrecy laws and the cessation of deliberate distortions in Soviet/Russian mapmaking—combined with the enthusiasm of the free market—have made an astonishing variety of new maps, atlases and related publications available.

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Davidson College, Davidson, North Carolina, is the proud recipient of the William Patterson Cumming Map Collection. Patterson, a 1921 graduate of Davidson and long time Professor of English, was a life long collector of maps relating to the Southeastern United States. His collection is now housed in the E.H. Little Library at Davidson. The Library recently published a small illustrated booklet describing the collection. The text is by Helen Wallis, long time Map Librarian at the British Library, and Elizabeth Cumming ("87 years young" notes Lou De Vorsey), and the illustrations are first rate. The maps in the collection range from a 1540 Munster, to some mid-19th century material, although the bulk of the collection dates from the 18th century.

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Speculum Orbis Press will issue its next book in June at a special reception for the Society for the History of Cartography. Robert Karrow's *Sixteenth Century Mapmakers and Their Maps* is presently being typeset. This comprehensive cartobibliography of over 700 pages will be a definitive reference work for many years to come. It is being published for the Newberry Library and will appropriately be debuted at that institution on Thursday June 24, 1993.

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**CartoFact #1**

**Most Frequently Occurring Street Names (in TIGER)**

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**CartoFact #2**

The editor notes with interest that the earth is shrinking, Literally. It seems that Mt. Everest has been remeasured by the surveyors and found to be seven feet shorter than previously reckoned. The new measurement involved laser beams, satellites, reflective prisms, and massive calculations to correct for temperature, air density, and gravitational pull. The result: Mt. Everest has shrunk from 29,029 feet, 3 inches, to a mere 29,022 feet, 7 inches. Somehow, it still looks the same.
It is interesting to note that a Spaniard, Bartolomé de las Casas in his “Very Brief Account of the Ruins of the Indies,” protested against ruthless Spanish treatment of Native Americans a mere fifty years after Columbus sailed.

The Final Word
Jenny Marie Johnson

Long before the first of January, 1992 was hailed as the year of Columbus. Celebrations of, and demonstrations against, Columbus were organized; exhibitions and publications were prepared. But what of all of the other happenings of ’92 (or even ’42)? There are many things that could have been commemorated beyond Columbus.

Columbus was not the only doer of 1492. During the same time, Martin Behaim assembled his globe in Nuremberg and Leonardo da Vinci was centuries ahead of Boeing, McDonald Douglas, and the Wright brothers with his drawings of flying machines. The Timetables of History states that during 1492 the “profession of book publisher emerges, consisting of the three pursuits of type founder, printer, and book seller.” 1992 could have also been celebrated as the five hundredth anniversary of Hernando de Soto’s birth; he died in 1542, yet another date to commemorate in 1992.

Spain remains a strong player in the ’42 and ’92 retrospective for the next 100 years. The same year that de Soto died Pope Paul III established the Inquisition, St. Francis Xavier arrived at Goa, and Antonio da Mota (Portuguese) was the first European to enter Japan. It is interesting to note that a Spaniard, Bartolomé de las Casas in his “Very Brief Account of the Ruins of the Indies,” protested against ruthless Spanish treatment of Native Americans a mere fifty years after Columbus sailed. What a “modern” view!

The Spanish begin fading from view after the middle of the sixteenth century and the British begin empire building. 1592 was an important year for the Pacific Northwest coast of North America because Juan de Fuca discovered “his” strait and British Columbia. Other discoveries of the year include Pompeii’s ruins and the Falkland Islands. The English navigator Thomas Cavendish died at sea while attempting to repeat his circumnavigation of the earth, and 15,000 died in London of plague. Britain’s first globes were made 100 years after Behaim’s by Edward Wright and Emery Molyneux.

In 1642 the world lost one great thinker, Galileo Galilei, and gained another, Isaac Newton. The British continued empire building with Abel Tasman’s discovery of Tasmania and New Zealand, and the French were busy finishing the Loire-Seine canal (begun in 1604) and founding Montreal, Canada. Britain was investing heavily in maritime trade, and Lloyd’s coffee house was established as the headquarters of marine insurance in 1692. This probably was not in time to insure any of the ships destroyed on July seventh when Port Royal, Jamaica was destroyed by an earthquake.

There were two ways to measure temperature in 1742, the Fahrenheit scale which had been introduced in the early 1720’s and the new Centigrade scale. Anders Celsius, a Swedish astronomer, originally indicated that water’s boiling point was 0° and its freezing point was 100°; these values were later reversed by Linnaeus. Celsius connects with geography through the exhibition he led to Lapland to confirm Newton’s flat pole theory.

Travel to chilly realms was also in the news for 1792 when Mackenzie traveled across Canada from the Atlantic to the Pacific. In the same year, news was traveling from Paris to Lille via a network of 22 semaphore stations using machinery invented by Claude Chappe.

Fast-forwarding 180 years, geogra-
In the worlds of cartography, geography, and exploration there are many players and events to commemorate every year. Although the world will always owe some kind of debt to the brave men and their leader who sailed in three small ships, there was much more to 1992 beyond "sailing the ocean blue."

**LITERATURE CITED**


**INFORMATION FOR CONTRIBUTORS**

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Fast-forwarding 180 years, geographers and cartographers could have commemorated the twentieth anniversary of the launching of Landsat 1 on July 23, 1972.
Corrections

Ed Dahl, of the National Archives of Canada, called your editor shortly after the publication of Meridian 7, to gently point out that Carolyn Martin, in her review of Cartographic Citations: a Style Guide (pages 47-49) stated that Archival Citations: Suggestions for the Citation of Documents at the Public Archives of Canada, dealt only with printed maps, when in fact there are extensive references made to manuscript material therein. He sent along a copy of Archival Citations... to make his point.

Carolyn Martin replies:

In my review of Cartographic Citations: a Style Guide (Meridian 7, pages 47-49) I stated that Archival Citations: Suggestions for the Citation of Documents at the Public Archives of Canada “…printed maps are the only cartographic medium addressed.” Ed Dahl has kindly pointed out that this is not exactly the case. I would like to go on record as stating that my use of the term “printed maps” was incorrect. I was trying to point out that media such as aerial photography or digital imagery were not covered, but that “printed” maps, either machine printed or hand printed material such as manuscript maps were the only type of image covered. But the term “printed” is too limited in a meaning to get that distinction across. Archival Citations... does cover manuscript maps in some detail, and so my review should have recognized that. My apologies for any misunderstanding.

Carolyn Martin
Westmont College
Santa Barbara, CA

Note from the Editor: I believe that the problem arises from Carolyn’s education and training as an artist. The term “printing” carries some broader connotations in that world than it always does in ours, and therein lies the confusion. We could mention any number of librarian authored books which routinely include discussion of maps in with “Non-Print Media” but perhaps we will leave that for another day.

Corrections to Meridian 8

Due to errors in the transcription process, there are some misspellings in “The Wonderful World of Geographic Names: Things Learned and Things Yet to be Learned” by Meredith F. Burrill, Executive Secretary Emeritus of the Board on Geographic Names. They are as follows:

Page 32, column 1, paragraph 2, line 3, read “cumpstable” for “comfortable,” likewise for lines 5 and 7.

Page 33, column 1, paragraph 3, line 16, read “Amundsen” for “Albertson,” likewise line 19.

Page 33, column 2, paragraph 4, line 3, read “Cienaga” for “Siennaga,” likewise line 4.

Page 34, column 1, paragraph 1, line 15, read “gurnet” for “gurent,” likewise line 18.

Page 34, column 2, paragraph 1, line 4, read “Donner” for “Donart,” and “Pass a Loutre” for “Passa Luch.”

Page 34, column 2, paragraph 1, line 5, read “Pas a Grille” for “Passa Gril.”

Page 37, column 1, paragraph 1, line 5, read “cumpstable” for “comfortable.”

Page 37, column 1, paragraph 2, line 17, read “Hoosac” for “Husak,” likewise line 18.

A slightly different version of Mr. Burrill’s article appears in Names 39.3 (September, 1991), pages 181-190.