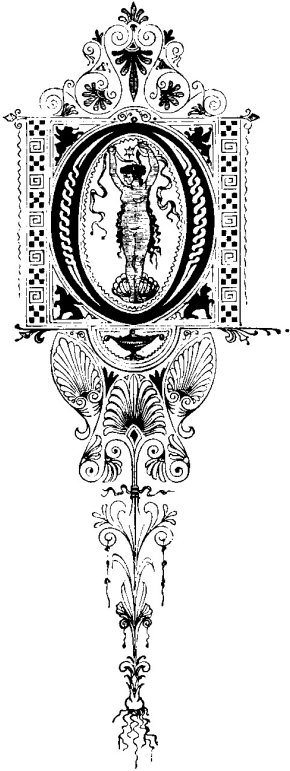


Map Orientation



The orientation of a map is the relationship between the directions on the map and the corresponding compass directions in reality. The word “orient” is derived from Latin *oriens*, meaning “East”. In the Middle Ages many maps, including the ubiquitous T-O maps, were drawn with East at the top (meaning that the direction “up” on the map corresponds to East on the compass). Today, the most common – but far from universal – cartographic convention is that North is at the top of a map. Several kinds of maps are often traditionally not oriented with North at the top:

Maps from non-Western traditions are oriented a variety of ways. Old maps of Edo show the Japanese imperial palace as the “top”, but also at the center, of the map. Labels on the map are oriented in such a way that you cannot read them properly unless you put the imperial palace above your head.

Medieval European T-O maps such as the *Hereford mappamundi* were centered on Jerusalem with East at the top. Indeed, prior to the reintroduction of Ptolemy’s *Geography* to Europe around 1400, there was no single convention in the West. *portolan* charts, for example, are oriented to the shores they describe.

Maps of cities bordering a sea are often conventionally oriented with the sea at the top.

Route and channel maps have traditionally been oriented to the road or waterway they describe.

Polar maps of the Arctic or Antarctic regions are conventionally centered on the pole; the direction North would be towards or away from the centre of the map, respectively. Typical maps of the Arctic have 0° meridian towards the bottom of the page; maps of the Antarctic have the 0° meridian towards the top of the page.

Reversed maps, also known as *Upside-Down* maps or *South-Up* maps, reverse the “North is up” convention and have South at the top. An orientation very common with Arab Islamic maps.

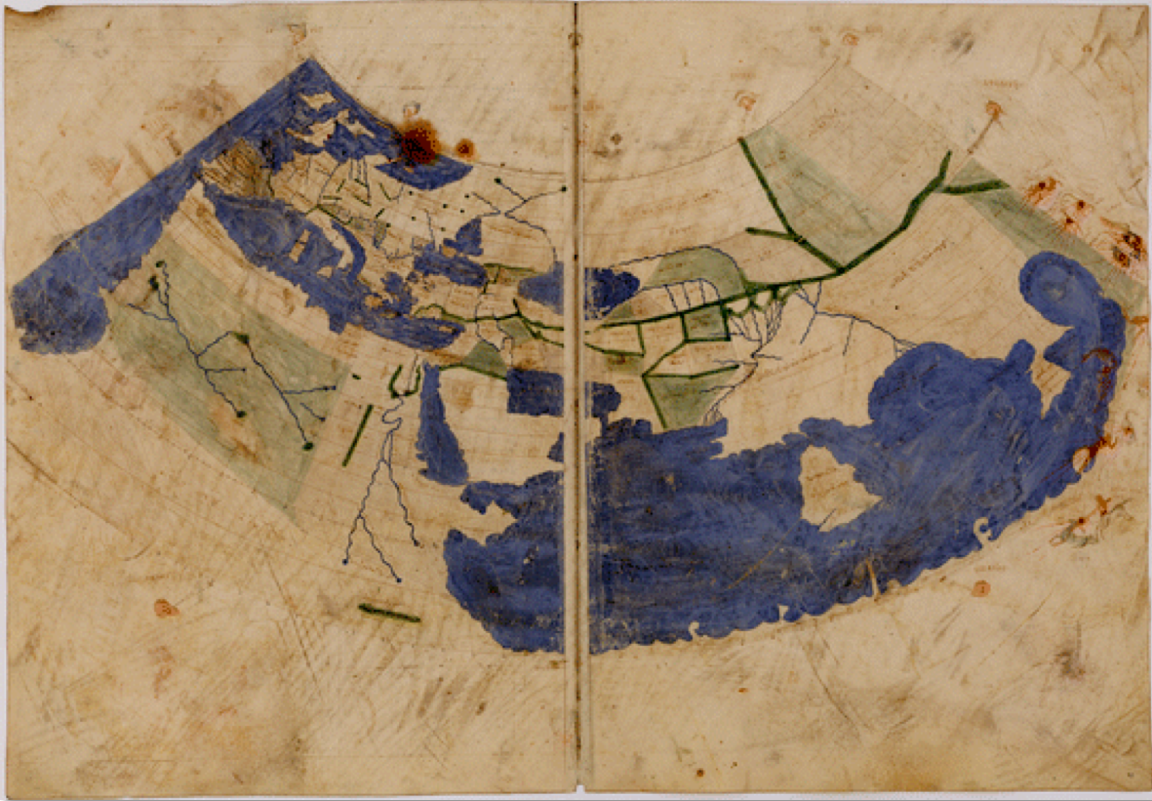
Maps are usually created from a particular direction. The directionality of a map is known as its orientation. The popularity of online mapping such as *Google Maps* has conditioned many people to expect due north to always be towards the top of the map and south towards the bottom. As mentioned, historically, maps have not always been oriented north. Different geographic and religious influences have changed over time how maps are oriented. Aesthetics, political interests, egotism, and navigation are some of the other reasons why cartographers over the ages have used different map orientations.

North Orientation Maps

Claudius Ptolemy (90-168 AD/CE, #119), a classical Greek cartographer was credited with creating the first known atlas. His collection of cartography in *Geographia*, was an early example of orienting maps towards the north. North orientation came back into favor during the Great Age of Exploration with the need for seafaring explorers to orient themselves with their compasses. The importance of orienting maps towards the north was a reflection of the importance of knowing where magnetic north was. Today,

Map Orientation

a north orientation is commonplace among many cartographers and almost all online mapping applications.



Ptolemaic world map A Byzantine Greek world map according to Ptolemy's first (conic) projection. From Codex Vaticanus Urbinas Graecus 82, Constantinople c. 1300. Parchment 575 x 418 mm. Probably assembled by Maximus Planoudes #119

Map Orientation



Ptolemy's world map in the Ulm edition, 1482, #119

Map Orientation



Complete Map of the Nine Border Towns of the Great Ming and of the Human Presence and Travel Routes of the Ten Thousand Countries. (#236)

Dà míng jiǔ biān wànguó rén jì lùchéng quán tú. 1663 / 1680 (dated), 54 x 49 in (137.16 x 124.46 cm)
 A rare and extraordinary 1663 (Kangxi 2) xylographic map of Ming China, and indeed the entire world, by Wáng Jūnfū issued during the reign of the Kangxi Emperor (1661 – 1722). This massively proportioned map focuses on China, which, bounded on the north by the Great Wall of China, on the west by the Yellow River, and on the east and south by oceans, occupies some three fourths of the map. As is characteristic of most Chinese world maps, the less detailed surrounding regions illustrate the rest of the world, but on a much reduced and often hard to interpret scale. This world map's focus on China to the diminishment of all other lands is neatly summed up by the 17th century Chinese cartographer Chen Zushou, All the barbarian people within the Four Seas should come to pay tribute to the Chinese emperor. Although they [the Jesuits] might describe the world as comprising Five Continents, yet four of them should surround the nucleus of China.

Map Orientation

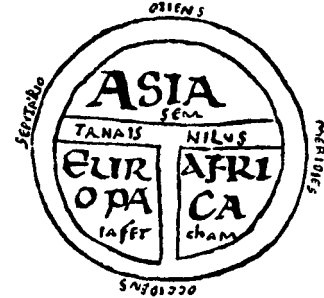


Macrobian world map. 1483, #201

Map Orientation

East Orientation Maps

During the medieval age religious doctrine influenced cartography. European cartographers oriented their maps towards the Holy Land since Jerusalem was the place of Christ's death and resurrection. In fact, the world "orient" comes from the Latin word "oriens", meaning "East". And there was a long stretch in the medieval era when most European maps were drawn with the East on the top. If there was any doubt about this move's religious significance, they illuminated it with their maps' pious illustrations, whether of Adam and Eve or Christ enthroned. Examples of maps with an east orientation are the *mappamundi* (medieval European world maps) such as the T-O map (see #205). The T-O map was a symbolic representation of the world, with the O representing boundary of the world, encircled by the earth's oceans. The T nested inside the O divided the world into the Northern Hemisphere's three continents: Asia at the top, Europe to the left, and Africa to the right (the southern hemisphere was ignored as it was considered inhabitable at the time). The horizontal bar of the T represented the Mediterranean Sea and the vertical portion of the T the Nile and Tanais [Don] Rivers. Heavily influenced by Christianity, European cartographers in medieval times oriented the maps so that east was at the top where the sun rose and the *Paradise* was thought to lie.



Map Orientation

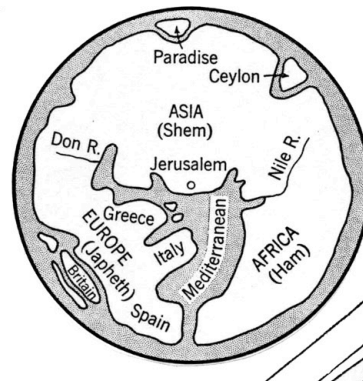


*East-oriented Cottoniana or Anglo-Saxon Map, c. 995, 21.2 x 17.6 cm,
British Library, Cotton MS Tiberius BV, f.56v, #210*

Map Orientation



The Hereford Mappa Mundi. Oriented with East at the top. God dominates the world, with the Last Judgment below. The map is an outstanding example of a map type that had evolved over the preceding eight centuries. #226



Map Orientation

The first known compass rose depicted on a map, in a detail from the *Catalan Atlas* (#235) from 1375, attributed to cartographer Abraham Cresques of Majorca. Bibliotheque nationale de France.



Catalan Atlas, 1375 #235

Unlike many other nautical charts, the *Catalan Atlas* is meant to be read (according to the Arabic tradition) with the north at the bottom; thus the maps are oriented – from left to right – from the Far East to the Atlantic. The assemblage of plates giving an overall view of the document is presented as it is meant to be read, in other words with the south uppermost; but to facilitate consultation, excerpts from the Atlas are shown with the north uppermost.

Often the question of the “correct” orientation of the sheets arose. George Grosjean, in his commentary on the 1977 facsimile edition of the Atlas, stresses that the orientation of this map must be understood from its essential part. The map was constructed in the *portolano* style, a type of medieval navigation chart which was intended to lie on the chart-table of a ship and always was oriented to the necessities of navigation, thus there is no “orientation of priority” of such maps. Since the Atlas was not intended as a *portolano* for daily use but instead was a luxury edition for a princely (or royal) library, it is useless to ask for correct orientation of the map-sheets. This fact notwithstanding, however, as the legends that are legible prevail in north-orientation, in the modern literature of the maps the north-orientation is now adopted.



Map Orientation

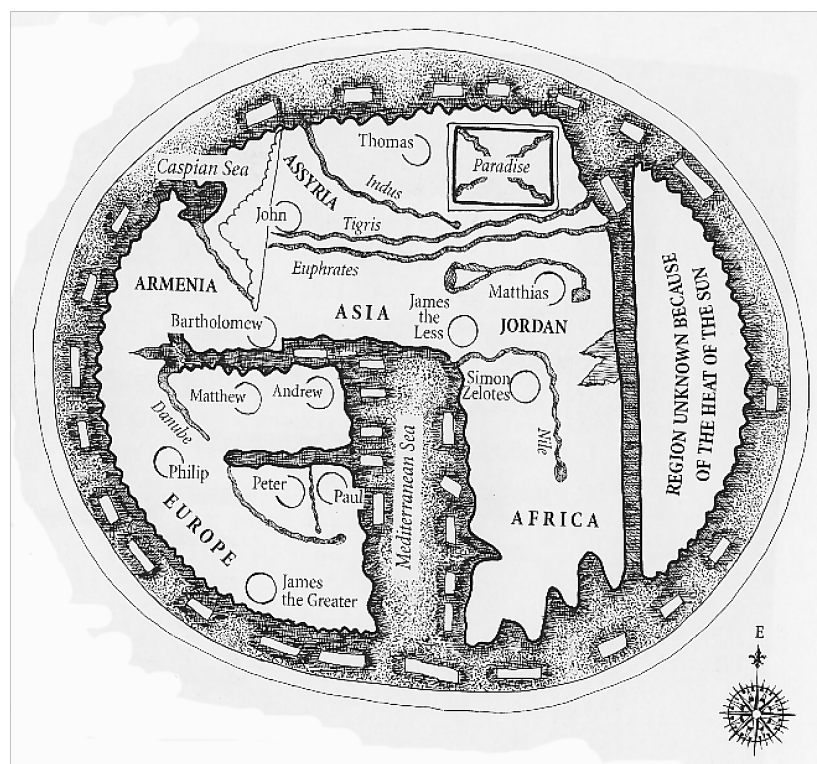


Oriented with East at the top. 11th century Isidore mappamundi, 26 cm diameter (#205DD)
 Bayerische Staatsbibliothek, Munich, Clm 10058, f. 154v

Map Orientation



The El Burgo de Osma Beatus, 1086 (#207.14)



Map Orientation



Linschoten's Asia, 1596, oriented with East at the top (#436.1)
 Besides China various other countries are identified through text and color: Borneo, Iava Mayor, Iava Menor, Timor, Siam, Cambo, Pegu, Sunatra, Celebes, Gilolo, OS Papuas, Corea, Iapan.
 However, without the color, the countries are simply identified by text without distinct boundaries (except, of course the island nations)

Map Orientation

West Orientation Maps

There are not a lot of West oriented maps. In 1634, a map of *Nova Belgica et Anglia Nova* [New Netherlands and New England] created by Dutch cartographer Willem Blaeu shows a West orientation.



This is an example of Willem Blaeu's 1634 map of the American Northeast, the region settled by the Dutch (New Netherlands) and the English (New England). Oriented to the West, Blaeu's map covers the American coast from Virginia, past New York and Long Island to Cape Cod, New England, and Quebec. The map is the first of the region to accurately depict the fur-bearing and food animals of the region, and it does so in profusion. Between this imagery, and the fleet of trade ships heading towards the coast, the decorative elements vividly emphasize the potential for wealth offered by this region. This map is cartographically derived from data accumulated by Adriaen Block and other Dutch fur traders active in the early 17th century. It is one of the earliest to name *Nieu Amsterdam*, which is correctly marked as a fort at the tip of an island separated on the east side by Hellegat, or the East River. The whole map is adorned by deer, foxes, bears, egrets, rabbits, cranes, and turkeys. Beavers, polecats, and otters appear here for the first time on a printed map. The map also includes an engraving of a Mohawk village at the top right, loosely derived from the De Bry-White engravings.

Map Orientation



*West-oriented Angliae, Scotiae, Et Hiberniae Sive Britannicae Insularum Descriptio
Abraham Ortelius, 1574*

Map Orientation



Delineatio Omnium Orarum Totius Australis Partis Americae, Dictae Peruviana, a R. de la Plata, Brasiliam, Pariam, & Castellam . [South America], 1596, Jan Huygen Van Linschoten.
#436.1

Map Orientation

South Orientation Maps

Maps with south oriented towards the top of the map are known as south-up or reverse maps, since the map appears upside down to those used to a map orientation towards the north. In these maps, South is oriented the top of the map, east is towards the left of the map and west towards the right.

Some of the very earliest Egyptian maps show the South as up, presumably equating the Nile's northward flow with the force of gravity. Islamic Arab map makers often drew maps with the south facing up, possibly because this was how the Chinese did it. Arab cartographers like Ibn Hawqal commonly use a South map orientation; in the 10th century he created a world map with South at the top. The Moroccan cartographer, Muhammad al-Idrisi, drew a world map in 1154 commonly known as *Tabula Rogeriana* (Book of Roger) for King Roger II of Sicily, showing south at the top of the map (#219). In Europe, the famous Venetian Fra Mauro world map of 1459 (#249) also employed a South orientation.



A modern copy of Al-Idrisi world map from the Nuzhat al-Mushtāq fi'khtirāq al-āfāq, a.k.a Tabula Rogeriana, oriented with South at the top, 1154, Bibliotheque nationale de France (MSO Arabe 2221) as reconstructed by the German cartographer Konrad Miller in 1927 and published in Stuttgart in 1928, better known as "The large Idrisi Map", Size 195 x 92 cm.

Map Orientation



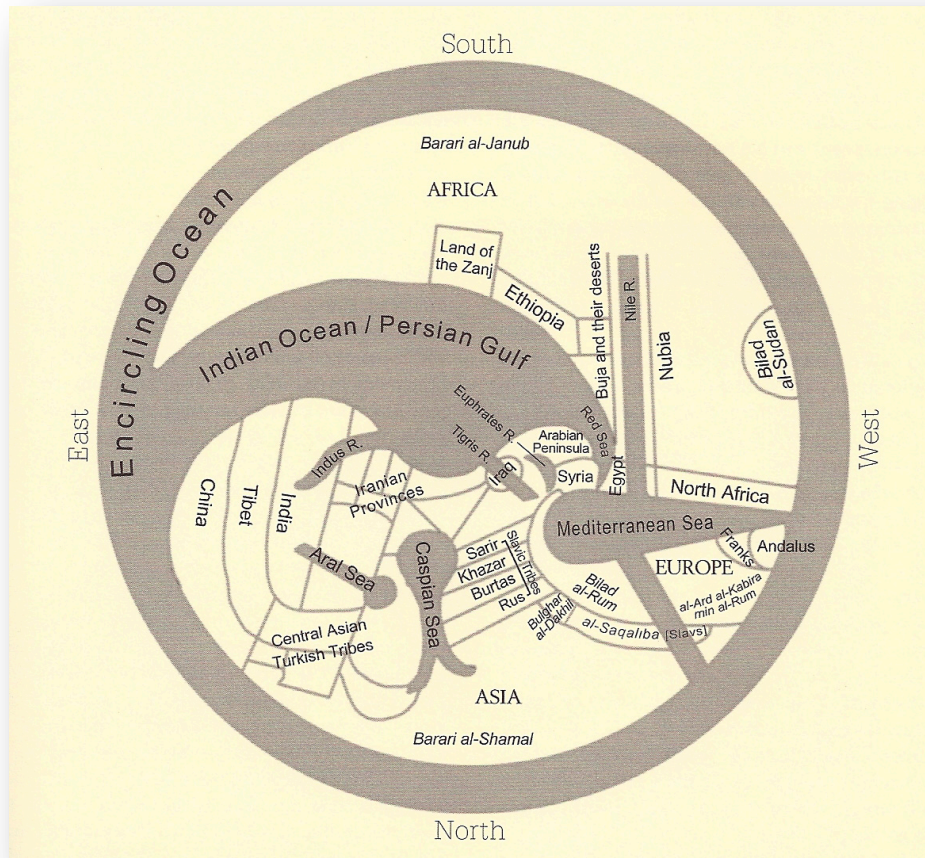
*al-Idrisi's world map, oriented with South at the top, 21 x 30 cm (23 cm diameter), 1154
Bodleian Library, MS Pococke 375, dated 1553/960 H*

Map Orientation



al-Istakhri's world map, Arabic, 977/1570 A.D., oriented with South at the top (#211)

Map Orientation



Map Orientation



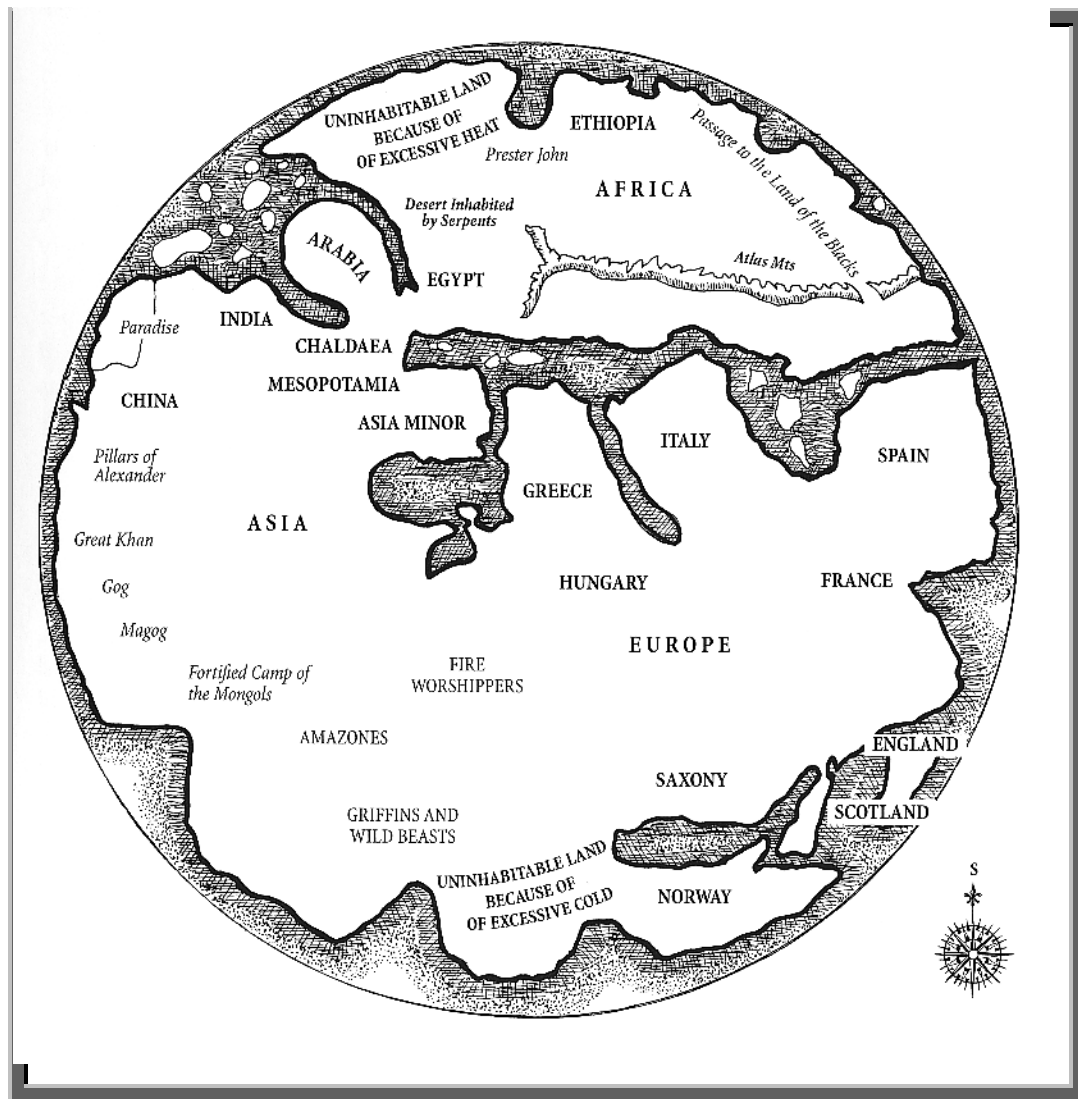
Ibn Hawqal's world map, Arabic, 980 CE oriented with South at the top, 35 x 43 cm (#213)

Map Orientation



South-oriented map, the Borgia/ Velletri World Map. 141-1458, #237

Map Orientation



Cartographers from the Dieppe School of Cartography in the 16th century produced table maps with a south orientation. Pierre Desceliers, a French cartographer during the Renaissance creating a world map in 1550 meant to be viewed around a table and showed parts of the world turn towards the south (#378). In 1566 Nicolas Desliens also created a map of the world showing South towards the top (#393.3). The map is currently housed in the Bibliothèque Nationale in Paris. In contemporary cartography, South-up maps are mostly created to protest Western Hemisphere bias in some world maps. Launched on Australia day, Stuart McArthur premiered his *Universal Corrective Map* that showed a South orientation.

Map Orientation



World map of Nicolas Desliens (1566) part of the Dieppe Maps, Bibliothèque Nationale de France, Paris. Oriented with South at the top (#393.3)



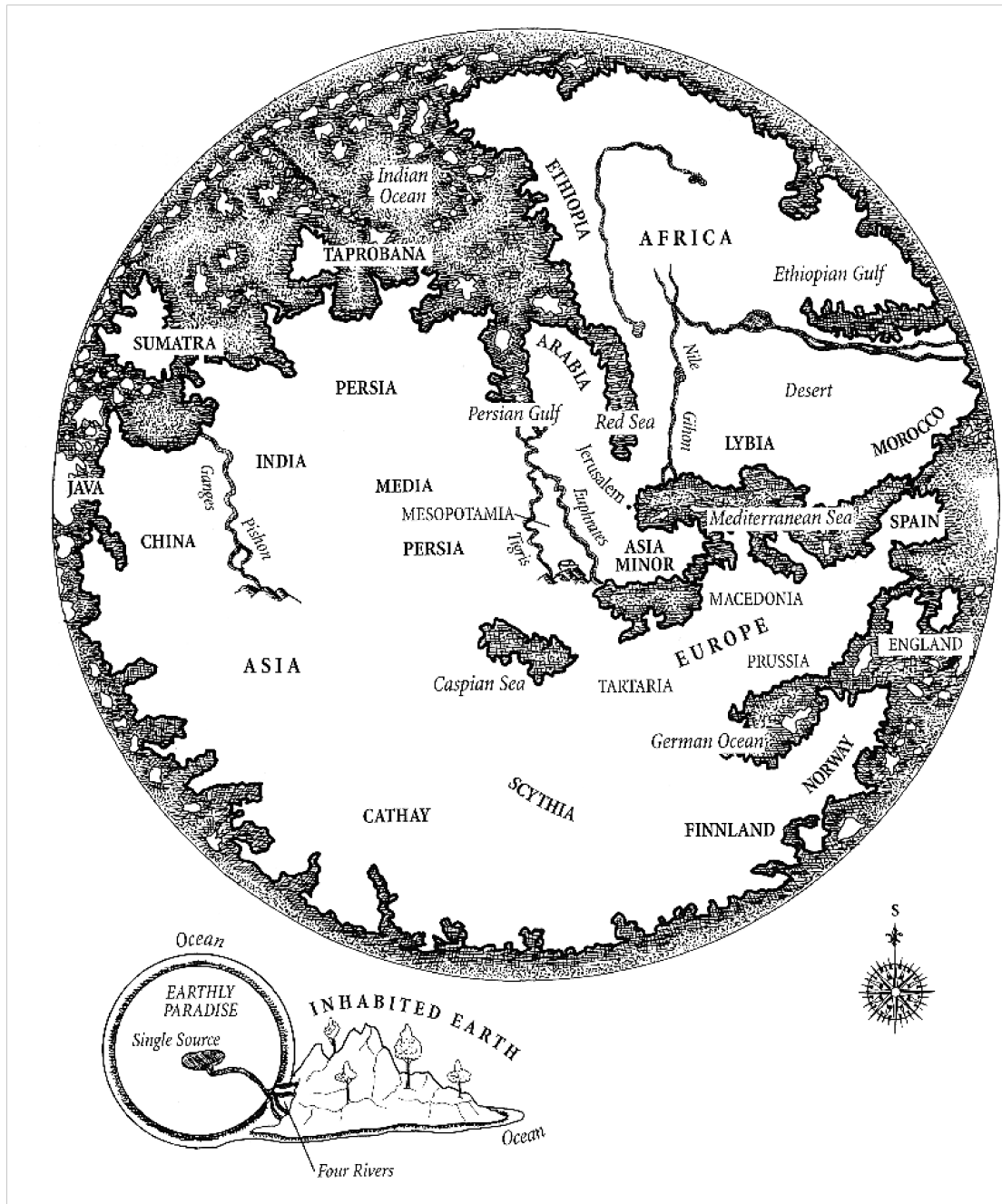
Pierre Desceliers' Planisphere detail: North America, 1550 (#378)
(oriented with South at the top)

Map Orientation



*Fra Mauro's Mappamundi, 1459
(oriented with South at the top)
190.5 cm diameter, #249*

Map Orientation



Map Orientation



The profound arbitrariness of our current cartographic conventions was made evident by McArthur's *Universal Corrective Map of the World*, an iconic "upside down" view of the world that recently celebrated its 35th anniversary. Launched by Australian Stuart McArthur on Jan. 26, 1979 (Australia Day, naturally), this map is supposed to challenge our casual acceptance of European perspectives as global norms.

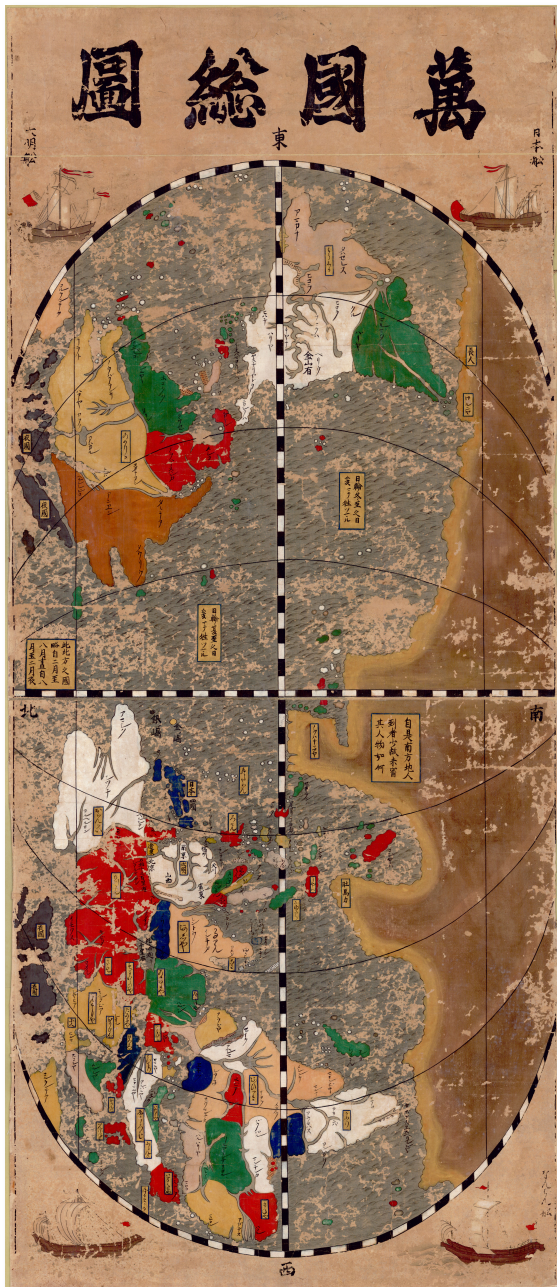
The McArthur map also makes us wonder why we are so quick to assume that Northern Europeans were the ones who invented the modern map — and decided which way to hold it — in the first place. As is so often the case, our eagerness to invoke Eurocentrism displays a certain bias of its own, since in fact, the north's elite cartographic status owes more to Byzantine monks and Majorcan Jews than it does to any Englishman.

There is nothing inevitable or intrinsically correct — not in geographic, cartographic or even philosophical terms — about the north being represented as "up", because "up" on a map is a human construction, not a natural one. Some of the very earliest Egyptian maps show the south as up, presumably equating the Nile's northward flow with the force of gravity. And there was a long stretch in the medieval era when most European maps were drawn with the east on the top. If there was any doubt about this move's religious significance, they illuminated it with their maps' pious illustrations, whether of Adam and Eve or Christ enthroned. In the same period, Arab map makers often drew maps with the south facing up, possibly because this was how the Chinese did it.

Map Orientation

No Unified Orientation

Maps produced during the Golden Age of Japanese cartography from the 1600's to around 1855 actually had no "standard" orientation. Many maps had a center orientation radiating from the palace in Edo or no apparent directional orientation. It wasn't until the influx of foreign influences starting with Commodore Perry's Expedition in the 1850's that Japanese cartography started to adopt western traditions of orienting maps towards the north. Below is an example of a Japanese world map, the *Bankoku Sozu* [Map of the World], 1645 44.8 x 22 inches/134.5 x 57.6 cm. A double-sided woodcut found in the Japanese Maps of the Tokugawa Era. On the reverse (below), are illustrated examples of the peoples of the world. This map was designed to hang with East at the top. University of British Columbia Library - Rare Books and Special Collections.



Custom Orientations

Not all maps are oriented due North, South, East, or West. Some maps have a custom orientation to promote a political purpose or to help with navigation. For example, maps created by the City of Santa Monica have a rotation of 46 degrees so that the beach is always shown at the bottom of maps. This is done for aesthetic purposes and results in an orientation that is northeast instead of due north.

The New York City Department of Transportation places pedestrian friendly maps around the city with the orientation rotated to be "heads-up" or forward-facing so that viewers are facing the map in the same direction they standing for readability. This helps pedestrians to better orient themselves in relationship to the landmarks on the map and to better navigate the city.

Polar Maps of the Arctic and Antarctica have custom projections with orientations towards the poles.

There is nothing inevitable or intrinsically correct – not in geographic, cartographic or even philosophical terms – about the North being represented as up, because "up" on a map is a human construction, not a natural one.

Beginning in the Mediterranean, somewhere between Europe and the Arab world in the 14th and 15th centuries, increasingly precise navigational maps of

Map Orientation

the Mediterranean Sea and its many ports called *portolan* charts appeared. They were designed for use by mariners navigating the sea's trade routes with the help of a recently adopted technology, the compass. These maps had no real "up" or "down" — pictures and words faced in all sorts of directions, generally pointing inward from the edge of the map — but they all included a compass rose with north clearly distinguished from the other directions.



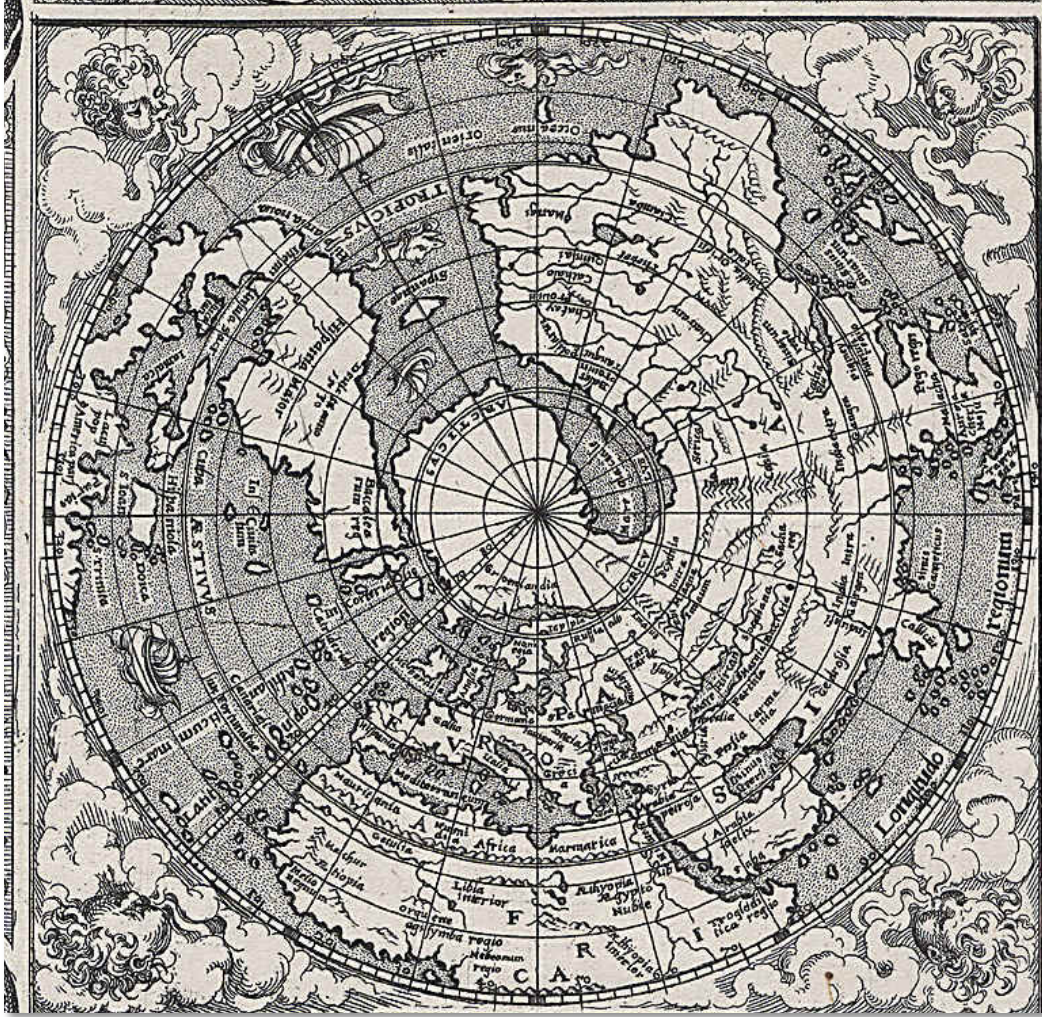
Septentrionalium terrarum descriptio by Gerardus Mercator, 1595 (#407)

Members of the Italian Cartographic School preferred to mark North with a hat or embellished arrow, while their equally influential colleagues from the Spanish-ruled island of Majorca used an elaborate rendering of Polaris, the North Star. These men, who formed the Majorcan Cartographic School, also established a number of other crucial mapping conventions of the era, including coloring in the Red Sea bright red and drawing the Alps as a giant chicken foot.

But this is only part of the explanation. The arrow of the compass can just as easily point South, since the magnetized metal needle simply aligns with the earth's

Map Orientation

magnetic field, with a pole at each end. Indeed, the Chinese supposedly referred to their first compass magnets as “South-pointing stones”. Crucially, the Chinese developed this convention before they began to use compasses for navigation at sea. By the time Europeans adopted the compass, though, they were already experienced in navigating with reference to the North Star, the one point in the heavens that remains fixed anywhere in the Northern Hemisphere. Many mariners saw the compass as an artificial replacement for the star on cloudy nights and even assumed it was the pull of the star itself that drew the needle North.



Polar view by Jost Amman, 1564, Globus Terrestris (#402)

Yet even as this North-pointing compass became essential to navigation and navigational charts in the 15th century, less precise land maps showing the entire known Old World continued to offer a disorienting array of perspectives. Some had the East on top, in keeping with European medieval tradition, while others preferred the South, in keeping with Arab tradition, and others went with the North, in keeping with the point on the compass rose. Among other things that stand out in these maps is that, given the extent of the known world, the location of the Mediterranean and a bit of uncertainty about the equator, Italy was more or less centered between the north and the south — meaning that whichever way you turned the map, Italy remained more or less halfway between the top and bottom. Conveniently, Italy was at roughly the same latitude as

Map Orientation

Jerusalem, which through most of the European medieval mapmakers assumed was at the center of the known world. In fact, the first blow to this pious assumption came with the discovery of just how much of the Old World lies to the East of Jerusalem. Only later did it become apparent just how far North of the equator Jerusalem — and by extension, Italy — really was.

The North's position was ultimately secured by the beginning of the 16th century, thanks to Claudius Ptolemy, with another European discovery that, like the New World, others had known about for quite some time. Ptolemy was a Hellenic cartographer from Egypt whose work in the second century A.D./CE laid out a systematic approach to mapping the world, complete with intersecting lines of longitude and latitude on a half-eaten-doughnut-shaped projection that reflected the curvature of the earth. The cartographers who made the first big, beautiful maps of the entire world, Old and New — men like Gerardus Mercator #406, Henricus Martellus Germanus #256 and Martin Waldseemüller #310 — were obsessed with Ptolemy. They turned out copies of Ptolemy's *Geography* on the newly invented printing press, put his portrait in the corners of their maps and used his writings to fill in places they had never been, even as their own discoveries were revealing the limitations of his work.



Nova et Aucta Orbis Terrae Descriptio ad Usum Navigantium Emendate Accommodata,
1569, Gerard Mercator, #406

For reasons that have been lost to history, Ptolemy put the North at the top of his maps. Or at least that's the way it appears from the only remaining copies of his work, made by 13th century Byzantine monks. On the one hand, Ptolemy realized that, sitting in Alexandria, he was in the northern half of a very large globe, whose size had been fairly accurately calculated by the ancient Greeks. On the other hand, it put Alexandria at the very bottom of the inhabited world as known to Ptolemy and all the main centers of civilization in the Greco-Roman Mediterranean.

Map Orientation

Even if compasses and Ptolemy had both pointed to the south, northerners could still have come along and flipped things around. In fact, with North seemingly settled at the top of the map in the 16th century, there were still some squabbles over who in the Northern Hemisphere would end up left, right or center. The politics of reorientation are anything but simple. For Americans, it's easy to think that our position, at the top-left of most maps, is the intrinsically preferable one; it certainly seems that way if you happen to be from a culture that reads from left to right. But it's unclear why Arabs or Israelis, who read from right to left, would necessarily think so. And while map makers usually like to design maps with the edges running through one of the world's major oceans, it is certainly possible to put North America in the very center by splitting the world in half through Asia.

The orientation of our maps, like so many other features of the modern world, arose from the interplay of chance, technology and politics in a way that defies our desire to impose easy or satisfying narratives.

