Title: *Septentrionalium Terrarum descriptio* **Date:** 1595

Author: Gerard Mercator

Description: Gerardus Mercator (1512-94) is perhaps the only figure in the history of cartography whose name has become a household word, and his system of map projection, called the "Mercator projection", is still widely used today, albeit usually in slightly modified forms. Mercator was famous for his meticulous research and accuracy, and thus it is quite a surprise to see for the first time Mercator's map of the northern polar regions, *Septentrionalium terrarum descriptio* (1595): the map shows a North Pole that is very unfamiliar to modern eyes. At the center of the map, and right at the Pole, stands a huge black mountain; this mountain was made of lodestone, and



was the source of the earth's magnetic field. The central mountain is surrounded by open water, and then further out by four large islands that form a ring around the Pole. The largest of these islands perhaps 700 by 1100 miles, and they all have high mountains along their southern rims. These islands are separated by four large inward-flowing rivers, which are aligned as if to the four points of the compass; though of course there is no north, east, or west at the North Pole: every direction from this center is south. Mercator's notes inform us that the waters of the oceans are carried northward to the Pole through these rivers with great force, such that no wind could make a ship sail against the current. The waters then disappear into an enormous whirlpool beneath the mountain at the Pole, and are absorbed into the bowels of the earth. Mercator also tells us that four-foot tall Pygmies inhabit the island closest to Europe. The Septentrionalium terrarum descriptio was printed (posthumously) in 1595, and is very similar to an inset map of the northern polar region (lower left) Mercator made on his world map of 1569, Nova et aucta orbis terrae descriptio ad usum navigantium emendate accommodata, [Adapted] to the new description of the world and is increasingly correct by the use of navigation], commonly referred to as Ad usum navigantium [For use in navigation] (#406). The map is extended to 60 degrees, to incorporate the recent explorations. The 1595 map has been widely reproduced. The northern islands did not appear on Mercator's world map of 1538. Mercator held that there were two additional magnetic poles north of the strait between Asia and the New World, in order to account for the deviation of the compass.

The first edition, first state of Mercator's map of the north polar regions, represents the first separate map of these regions. Gerard Mercator was the first cartographer to create a polar projection of the earth. This map, the first separate map devoted to the Arctic regions, is drawn from an inset on Mercator's world map of 1569. The map is extended to 60 degrees, to incorporate the recent explorations in search of the Northwest and Northeast Passages by Frobisher and Davis. *California* is identified as Spanish Territory and *El Streto de Anian* [Alaska's Bering Strait] is clearly shown. As mentioned above, in this map the pole itself is made up of four surrounding islands, which myth had it were separated by four strong flowing rivers. These carried the oceans of the world towards a giant whirlpool at the pole where there stood a large rock. An account of this myth in Mercator's own hand still exists.

One of the most intriguing early maps, this map combines theoretical, medieval geographic concepts with some of the most advanced cartography of its day. It displays the 14th century conception of the polar region, in which the oceans of the world flowed into a polar sea through in drawing streams between four huge islands. Although this was essentially fantasy, its notion of an open polar sea was accidentally correct.

On the other hand, the map shows an awareness of recent discoveries of the day, namely those of Frobisher and Davis. Like the progressive men of his age, Mercator was intensely interested in the possibility of a northern sea passage through or over North America to Asia, and this map clearly shows he thought such existed. His ideas especially influenced English proponents of exploratory voyages to the northern regions of America, since the English stood to gain the most if a Northwest Passage was found.

Published one year after his death by his son Rumold, Gerard Mercator's classic map of the arctic is in hemispherical form framed by four medallions and a handsome floral border. Three of the medallions contain inset maps of the Faeroe Isles, the Shetland Isles, and the mythical island of *Frisland*. The first edition of the map is extremely rare, especially in the true first edition. The first edition can be distinguished from later editions by its inclusion of a definitive coastline in the lower right of the four islands surrounding the pole (*Pygmei*). Later editions omit part of the coastline.

In 1569 Gerard Mercator published an 18-sheet world map using the projection that, to this day, bears his name. The *Mercator Projection* increasingly spreads out the vertical space required to portray each degree as the latitude increases towards each pole. In fact, an infinite spread would be required to reach the actual North or South Pole in this projection. For this reason, world maps drawn on a Mercator projection stop well short of 90°. Mercator, however, wanted to depict the north polar regions on his map, so he came up with the idea of including a small inset map, on a polar projection, which he drew in the lower left-hand corner of his large wall map. The polar map shown here, published in the first edition of Mercator's famous *Atlas*, is basically a copy of the polar inset from his 1569 world map, but with some added features.

In 1595 - never mind 1569 - no explorer had been anywhere near the North Pole, and today we view the ring of islands shown surrounding the North Pole on this map as pure fantasy. Yet Mercator based his polar depiction on the most credible information available to him at the time. His source was a work named the *Itinerarium* by Jacob Cnoyen. No copy of this book is known to have survived, but Mercator quoted from this book in letters he wrote to the British polymath John Dee, in which he explained the source of his ideas regarding the geography of the far north.

Among the ideas shown on this map - ideas which are curious to us today - are that the North Pole was encircled by four land masses, separated from each other by rivers or channels in which the water flowed northwards from the surrounding oceans and then flowed into the earth at the North Pole, flowing beneath a large and tall black rock, 33 leagues around, that is located there.

Another idea, expressed in one of the text annotations on the map, is that "pygmies," at most four feet tall, live on one of these four arctic islands.

The suggestion that there must be a large mountain of lodestone at the North Pole to account for the earth's magnetism goes back to at least the 13th century, not long after the invention of the compass, but what was the source of the four islands and the inward-flowing rivers, of the mountains and the Pygmies? Mercator cites his authority for his delineation of the northern regions: the *Itinerarium* of a Flemish traveler named Jacobus Cnoyen (now lost); Cnoyen gave as his sources the *Res gestae Arturi britanni*

(now lost), and a book written by an English Minorite, a mathematician from Oxford, who had traveled in the far north in 1360 and recorded what he saw; this work was called the *Inventio fortunata*, which also, (ironically, in light of its title) is lost. Ruysch (#313) cites the same sources, and Fridtjof Nansen (*In Northern Mists: Arctic Exploration in Early Times*) argues convincingly that Martin Behaim (#258) was working from the *Inventio fortunata* also. Mercator and his contemporaries believed the author of the *Inventio fortunata*, the English Minorite, to be Nicholas de Linna (Nicholas of King's Lynn); others have argued against this identification.

As mentioned above, in the four corners of the map are the title and three insets showing islands of the North Atlantic: the Shetlands, the Faroes, and *Frisland*. This latter, *Frisland*, is one of the "phantom" islands that have appeared over the centuries in maps of the Atlantic. On the main map *Frisland* can be seen in the ocean south of Iceland and Greenland. Mercator copied *Frisland* from an Italian map of the mid 16th century, but he was unknowingly perpetuating an earlier cartographer's error since no island actually exists in that location.

More remarkable than this map itself is the fact that many other contemporary maps, maps by the most respected cartographers of the time, show a very similar configuration around the North Pole. Martin Behaim (#258), who died before Mercator was born, made a famous globe in 1492 (this is in fact the oldest surviving terrestrial globe) that shows land surrounding the North Pole. There are two large islands right near the Pole in the western hemisphere, while extensions of Europe and Asia reach northwards so as to form, together with the two islands just mentioned, a broken circle of land around the Pole. A world map by Johannes Ruysch, the Universalior cogniti orbis tabula (#313), published in an edition of Ptolemy's Geographia in Rome in 1508, shows four islands around the North Pole; two (the one north of Greenland and its opposite across the Pole) are labeled Insula Deserta; the one north of Europe is that of the Hyperboreans; and the one north of America is labeled Aronphei. He labels the waters within the four islands as the Mare Sugenum, and speaks of a violent whirlpool that sucks the incoming waters down into the earth; in addition, his map shows a ring of small, very mountainous islands around the four islands, which numerous islands Ruysch says are uninhabited.

Other maps that show these northern islands include: Orontius Finaeus' *Nova et Integra Universi Orbis Descriptio* (#356), published in 1534-6, but designed about 1519 for Francis I; Abraham Ortelius' famous *Typus Orbis Terrarum* (1570) and also his *Septentronalium regionum descriptio* (1570), which latter follows Mercator particularly closely; the anonymous world map in George Best's *True Discourse* (London, 1578); Cornelius Judaeis' *Speculum orbis terrae* of 1593, as well as his maps of *Quiviriae regnum* and *Americae pars borealis* (also 1593); and Petrus Plancius' *Orbis terrarum typus de integro multis in locis emendatus* (1594), published in Jan Huygen van Linschoten's *Itinerario* (1596), as well as his influential *Nova et exacta terrarum orbis tabula geographica ac hydrographica* (Amsterdam and/or Antwerp, 1592). There are many, many other contemporary maps, literally scores, including examples from as late as the 1700s that show the same configuration of islands around the Pole.

It should be noted that on world maps centered on the equator, rather than the Pole, the northern islands appear as elongated strips across the top of the map, due to the distortions involved in projecting the surface of a sphere onto a two-dimensional map. Mercator's *Septentrionalium terrarum descriptio* was popular enough to inspire a number of blatant imitations, including maps by Matthis Quad (Cologne, 1600), Petrus

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Bertius and Jodocus Hondius Jr. (Amsterdam, 1616), and Johannes Cloppenburg (Amsterdam, 1630).

The cartographic influence of Mercator and Ortelius even extended to China: there are Chinese maps that show the northern islands (e.g., *Shanhai Yudi Quantu*, Complete Geographic Map of the Mountains and Seas, 1609. These maps are derived from the world maps of the Jesuit missionary Matteo Ricci (1552-1610), who established a mission at Zhaoquing Prefecture (in present-day Guangdong Province) in 1583 (*see #441*). Mercator-influenced maps also appear in Japan: Abe Yasuyuki's *Banukoku Chikyu Yochi Zenzu* or Map of the World (1853), shows the four northern islands. Basically though Mercator's view of the northern regions lost favor after 1598, when the Dutchman Willem Barentsz made his famous chart of the northern polar regions showing open water there.



Nova et Aucta Orbis Terrae Descriptio ad Usum Navigantium emendate . . ., 1569, Gerard Mercator, #406



Another surprising feature of the map is the place-name *California*, which appears on a very northerly part of the American landmass. This is not the first time the name *California* appeared on a printed map (it first appeared in a map published in 1562), but the northern location of the place-name on Mercator's map is very unusual.

Not long after this atlas map was published, the Dutch discovered Spitsbergen, an island archipelago north of Norway. Jodocus Hondius, who acquired the plates to Mercator's *Atlas* in 1604, made a change to this plate, erasing part of one of the four arctic landmasses and putting in a depiction of Spitsbergen. Mercator's *Atlas* went through many editions, under the stewardship of Hondius and his brother-in-law Jan Jansson. Only the first two editions of the *Atlas*, published by Mercator's son Rumold in 1595 and 1602, contain the pre-Spitsbergen version of this map. All the subsequent editions show Spitsbergen.

Smaller sized editions of Mercator's *Atlas* were produced by a number of Dutch publishers in the early 17th century, and these contained miniaturized versions of this map. Two smaller versions of this map were also published by the Cologne mapmaker Matthias Quad, the first of these in 1600. But by the 1630's cartographers had begun to doubt the island-encircled view of the North Pole, and began producing maps showing a blank polar area - more accurately reflecting the lack of knowledge that existed at the time.

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*illustrated





The North Pole on the 1569 world map by Mercator sheet 13



Example of the "first edition" by Gerard Mercator, 1595

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Example of a later edition published by Jodocus Hondius showing Spitsbergen



Smaller version of Mercator's polar map by Matthias Quad

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1593 polar map by Gerard de Jode

By the 1500s, not very many people had ventured up to the Arctic – no explorer would set foot on the Pole itself until 1909. This didn't stop Mercator, who explored some questionable sources to determine what he should include. The most influential, called *Inventio Fortunata* [Fortunate Discoveries] was a 14th century travelogue written by an unknown source; in Mercator's words, it traced the travels of "an English minor friar of

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The presence of this formation was widely accepted at the time. Most people thought it was magnetic, which provided an easy explanation for why compasses point north. But Mercator was not quite convinced by this argument, and included a different rock, which he labels "Magnetic Pole," in the top left corner of the map, just north of the *Strait* of *Anián*.

Mercator draws the Arctic in four large chunks separated by channels of flowing water, which meet in the middle in a giant whirlpool. He got this idea from two 16th century explorers, Martin Frobisher and James Davis, who each made it as far as what is now Northern Canada. Both documented their experiences with vicious currents, which, they wrote, pulled giant icebergs along like they were nothing. "Without cease, it is carried northward, there being absorbed into the bowels of the Earth," Mercator wrote on his original map.



Each piece of the Arctic also has particular qualities. According to Mercator's labels, the one in the lower right is supposedly home to "pygmies, whose length is four feet" – likely another reference to the *Inventio Fortunata*, which described groups of small-statured people living in the polar regions. It's possible that the author of the *Inventio* was referring to the indigenous inhabitants of Lapland. The landmass on the bottom left, is apparently "the best and most salubrious" of all the chunks, although no evidence is given to support this—or to explain why the pygmies wouldn't want to live there, instead.

After Mercator died in 1594, explorers continued to gain new knowledge of the Arctic, and cartographers revised their view of both Poles. By 1636, up-to-date maps of the region lacked Mercator's four regions, along with the *Rupus Nigra* and the central whirlpool. Instead, they showed one large piece of land, surrounded by smaller islands and, often, adorned with the ship's routes that enabled this geographical knowledge in the first place. As we peer at modern Arctic maps, wondering what changes are ahead, it's fascinating to think back to Mercator's original version, mysterious and broken from the beginning.

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