

Gerhard Mercator as Sacred Geographer

Paradise at the North Pole

▼ **SPECIAL ISSUE ARTICLE** in *Mapping Uncertain Knowledge*

▼ **ABSTRACT** Mercator's *Description of the Northern Lands* (*Septentrionalium terrarum descriptio*), a map of the North Pole, appeared in his *Atlas* published in 1595. Despite returning to his research on magnetism and the geography of the Far North over the course of five decades, Mercator struggled to reconcile discrepancies in his data. This paper presents the various quantitative and qualitative methods Mercator used to grapple with uncertainty about the north, including relying on textual descriptions in historical travel narratives, comparing portolan charts and Ptolemaic maps, consulting studies by his contemporaries, and compiling compass readings. Although Mercator's exploration of multiple approaches did not yield the geographic or magnetic certainty he sought, he designed a map that projected certitude. This paper argues that in the absence of geographical information and clarity about magnetism and the topography of the north, Mercator turned to theological reasoning to form a hypothesis about the North Pole as Paradise. It shows, too, that Mercator's dual aim of describing both the physical and the sacred landscape of the Far North was gradually erased by his successors, thus obscuring the fact that his religious worldview informed his understanding and mapping of the Far North.

▼ **KEYWORDS** sacred geography; North Pole; magnetism; uncertainty

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BREPOLS

In the sixteenth century, the North Pole was a site of much curiosity and debate. The Far North was a notoriously impenetrable landscape, evidenced by the exhaustive, and often disastrous, efforts of English and Dutch traders to find a northern passage to the East Indies.¹ The coastlines of the Arctic were subject to great speculation and fluctuation on maps. Sometimes physical borders were completed, although information was missing, creating the illusion of certainty. Some mapmakers expressed conjecture using wavy or dotted lines. Others dealt with geographic uncertainty by omitting coastlines altogether. The enigma of the Far North compelled the cartographer Gerhard Mercator to return to the subject throughout his career.

Frans Hogenberg's portrait of Gerhard Mercator from 1574 depicts him as an expert on the Far North, despite its resistance to exploration [Fig. 1]. In the portrait, Mercator holds a pair of compasses over the top of a terrestrial globe. One compass leg rests on a small circle marked "magnetic pole."² The compasses possess layered symbolism. On the one hand, they were a standard symbol of geometry. On the other hand, the compasses recall iconography of God as the architect of the world found in several medieval *Bibles moralisées*.³ Mercator's contemporary Christophe Plantin also used this iconography in his printer's mark, which depicted a pair of compasses held by a disembodied hand reaching out of a cloud.⁴ The symbolism in Mercator's portrait is echoed in the depiction of Atlas on the frontispiece, in which the Greek god is shown making and measuring a pair of globes [Fig. 2]. This symbol of divine creation in Mercator's portrait suggests that he held the North Pole to be a sacred site of cosmological significance.

Mercator's *Description of the Northern Lands (Septentrionalium terrarum descriptio)*, a map of the North Pole, appeared in his *Atlas* published in 1595 [Fig. 3]. Despite returning to his research on magnetism and the geography of the Far North over the course of five decades, Mercator struggled to reconcile discrepancies in his data. This paper presents the various quantitative and qualitative methods Mercator used to grapple with uncertainty about the north, including relying on textual descriptions in historical travel narratives, comparing portolan charts and Ptolemaic maps, consulting studies by his contemporaries, and compiling compass readings. Although Mercator's exploration of multiple approaches did not yield the geographic or magnetic certainty he sought, he designed a map that projected certitude. This paper argues that in the absence

1 Shortly after the Treaty of Tordesillas, which divided the globe into Spanish and Portuguese hemispheres of control, the English began attempts to find a northern passage to the East Indies. Their efforts spanned the sixteenth century. The Dutch began exploring the Far North in the 1580s. Nielsen and Okhuizen, "Alternative Trade Route," 29–56.

2 "polus magnetis."

3 Codex Vindobonensis 1179 and 2554 at the Austrian National Library and MS. Bodl. 270b at the Bodleian Library contain examples of this iconography. Friedman, "The Architect's Compass," 419–29.

4 In 1557, Christophe Plantin began using an adaptation of this iconography as the printer's mark for his workshop *De Gulden Passer*. Voet, *Golden Compasses*, 31, 34.

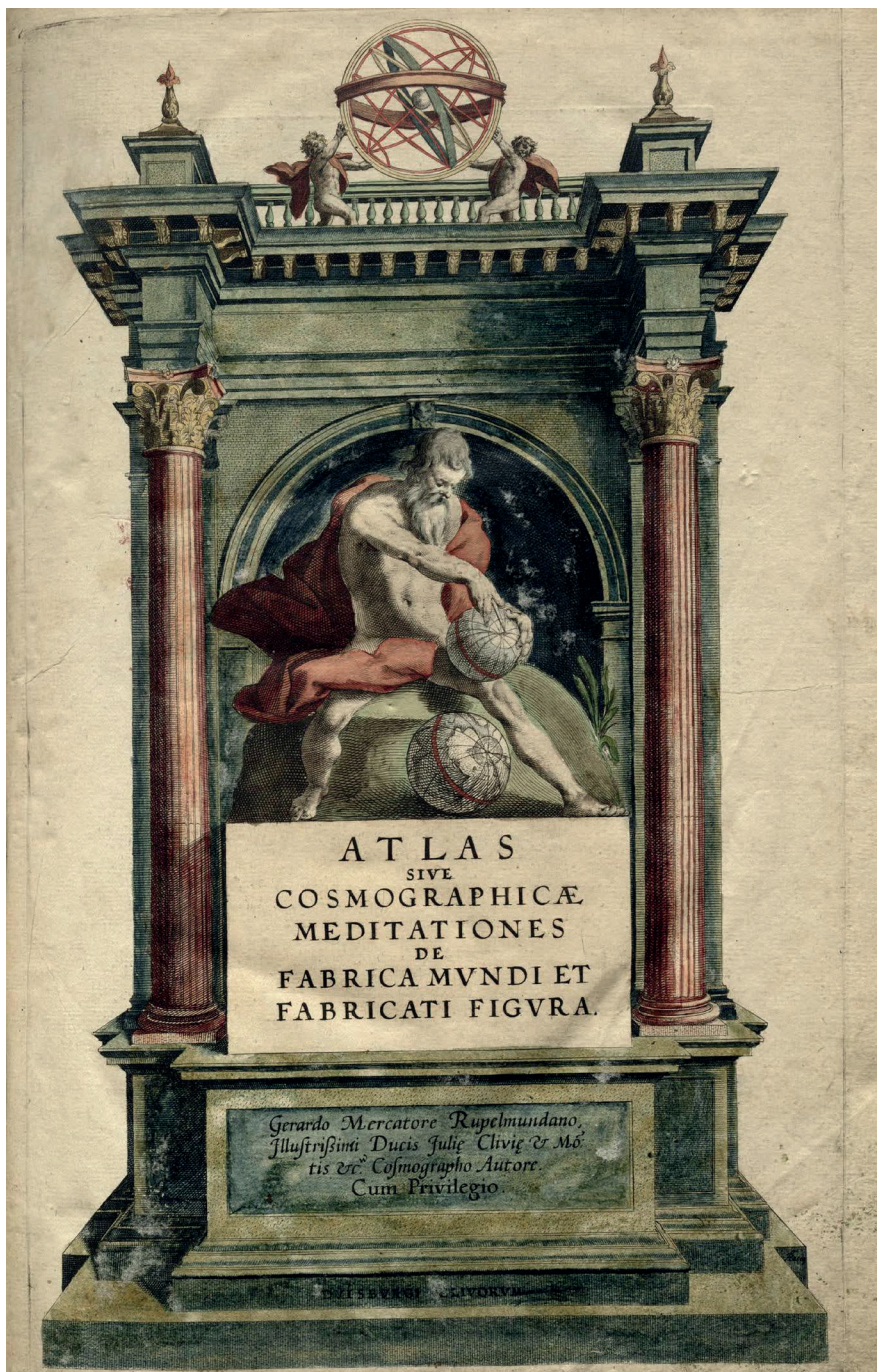


Figure 2. Gerhard Mercator, *Frontispiece*, in *Atlas*, Duisburg, 1595, fol. 4r. Hand-colored engraving, 38 x 25.5 cm. Washington D.C.: Library of Congress. Photo: Library of Congress Digital Collection.



Figure 3. Gerhard Mercator, *Septentrionalium terrarum descriptio*, in *Atlas*, fol. 42. Hand-colored engraving, 36.4 x 39 cm. Photo: Library of Congress.

of geographical information and clarity about magnetism and in the Far North, Mercator turned to theological reasoning to form a hypothesis about the North Pole as Paradise. It shows, too, that Mercator's dual aim of describing both the physical and the sacred landscape of the Far North was gradually erased by his successors, thus obscuring the fact that his religious worldview informed his understanding and mapping of the Far North.

Mercator as Sacred Geographer

Mercator's long career coincided with one of the most intense periods of religious upheaval in European history. Like many of his contemporaries, Mercator was itinerant—moving for opportunities as well as to avoid religious persecution. He was born in 1512 and spent his early childhood in Gangelt and Rupelmonde, before attending the Brethren of the Common Life school in 's-Hertogenbosch.⁵ In 1530, he enrolled at the University of Leuven, where he studied under the mathematician and geographer Gemma Frisius. After graduating, Mercator spent a brief, but not well-documented, time in Antwerp before returning to Leuven, where he established his career as a cartographer

⁵ Ghim, "Vita," 9r, quoted in Ghim, "Life of Mercator," 8; Hall, "Gerard Mercator," 164.

over the next eighteen years.⁶ In 1543, Mercator was arrested and imprisoned by the Inquisition for writing “suspicious letters” to Franciscan Friars in Mechelen.⁷ Mercator’s name appeared on a list of fifty-two suspected Lutheran sympathizers.⁸ The formal charges brought against him were “heresy” and “Lutheranism.”⁹ He was released approximately eight months later. In 1552, he permanently relocated to Duisburg to escape Leuven’s increasingly dogmatic climate. He remained there until his death in 1594.

Several studies focus on Mercator as a theologian, and they expound on his views regarding cosmology, harmonization of the Gospels, predestination, and exile.¹⁰ Other studies debate his confessional stance, but Mercator’s religious position has been notoriously difficult to pin down.¹¹ This paper focuses on Mercator’s contributions to *geographia sacra* (sacred geography), a scholarly

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- 6 Although little is known about this period of his life, the consensus is that Mercator stayed in Antwerp for about two years to pursue philosophical interests not well tolerated in Leuven. In his biography, Ghim wrote, “After his advancement [from university] for some years he devoted himself to private philosophical studies with singular mental pleasure.” *Post promotionem annos aliquot, cum singulari quadam animi delectatione, in studijs philosophicis sese exercuit priuatim, ...* Ghim, “Vita,” 95, quoted in Ghim, “Life of Mercator,” 8. In the preface to his book *Evangelical History*, Mercator expressed that he wanted to reconcile classical and biblical cosmologies and went to Antwerp alone. He claimed that he was tired of empty conversations in Leuven and delayed his return. “Ita ut aliquando Louanio Antuerpiam vsq voluntarie solus proficiscerer, et altissimè de mysterijs naturae perscrutari incoepi, ita ut nonnunquam taedio me afficerent assequentium à tergo vana colloquia & morae occasionem fingerem.” Mercator, *Evangelicae historiae*, 2.
- 7 Queen Mary sent a letter to the guardian of the “Friars Minor” in Mechelen for evidence against Mercator, writing “... Gerard Mercatoris, suspect van ketteryen, welcke in Gerard hier voermaels aen yemant vanden bruers van uwen convente zekere brieven gescreven soude hebben ...” Van Durme, *Correspondance mercatorienne*, 24–25. Walter Crane questioned whether the recipient could have been Franciscus Monachus. Crane, *Mercator*, 136.
- 8 The list was compiled by Pierre Du Fief, the procurer general of Brabant, who was appointed by Queen Mary of Hungary, then regent in the Low Countries, to find heretics. Van Raemdonck, *Gérard Mercator*, 57–62; Crane, *Mercator*, 135–41.
- 9 “Suspects of the Lutheran sect” (“*Suspects de la secte luthérienne*”) was how Queen Mary described Mercator and his co-accused in a letter to Louis de Steeland, the bailiff of the county of Waas in Flanders. Between February 1543 and May 1544, as Mercator was held in custody, she exchanged a series of letters investigating the situation. In them the accused were described as: “heretics and Lutherans” (“*ketters ende lutherianen*”), “infected from heresy” (“*van heresie besmet waere*”), “suspected of heresy” (“*suspect van ketteryen*”), and “for the cause of Lutheranism” (“*ter cause van lutheryen*”). Van Durme, *Correspondance mercatorienne*, 20–25.
- 10 Crane, *Mercator*, 83–84; Wandel, “Exile in the Reformation,” 208; De Jonge, *Sixteenth-Century Gospel Harmonies*, 155–166; Suhl, “Zu Gerhard Mercators Evangelienharmonie,” 53–59.
- 11 Jean Van Raemdonck and Elial Hall thought Mercator was Catholic. Van Raemdonck, *Gerard Mercator*, 231–41; Arthur Breusing wrote to Hall claiming Mercator was a Protestant. Hall, “Gerard Mercator,” 186. Carlo de Clercq showed that Mercator rejected Calvin’s ideas about predestination, and thus argued that he must have been Catholic. De Clercq, “Le commentaire de Gérard Mercator,” 233–43. In summaries of Mercator’s letters, Maurice Van Durme indicates where Mercator’s beliefs align with Calvin. For example, in letter 109 he points out that Mercator’s concept of free will aligned with Zwingli or Calvin. Van Durme, *Correspondance mercatorienne*, 128. Rienk Vermij and Jerry Brotton associated Mercator with an Erasmian position. Vermij, “Mercator and the Reformation,” 81; Brotton, “Devious Course,” 101–6. Following Jason Harris’s model, which avoids placing Ortelius into any religious faction, I suggest that Mercator’s affiliation and practice likely shifted according to political, religious, and social changes. Harris, “Religious Position,” 89–139.

and visual genre that flourished against the backdrop of the Reformation image debates. Geography had been a theologically oriented discipline long before the sixteenth century.¹² By the mid-sixteenth century, maps became a crucial facet of Protestant visual culture. Catherine Delano-Smith and Elizabeth Ingram demonstrated that nearly twenty percent of Bibles produced during the Reformation included maps, and nearly all appeared in Protestant, vernacular Bibles from 1525 onward.¹³ A notable exception are the four maps included in the *Antwerp Polyglot Bible (Biblia Polyglotta)*, a Counter-Reformation project overseen by Benito Arias Montano and published by Plantin in Antwerp in 1572.¹⁴ Montano's inclusion of maps in the *Antwerp Polyglot Bible* has been interpreted as a direct response to Protestant Bibles with maps that had flooded the market.¹⁵ The term *geographia sacra* was coined by Montano in this publication. In separate studies, Zur Shalev and Walter Melion demonstrated that biblical mapping took a more scholarly direction in the latter half of the sixteenth century with Montano, who along with his contemporaries and collaborators Abraham Ortelius, Guillaume Postel, and Andreas Masius, seized the visual capacity of maps in their biblical scholarship.¹⁶ Publications by each of these sacred geographers reveal that they exchanged maps and geographic expertise with Mercator.

Mercator was well-versed in the theological discourses of his day and incorporated biblical information and interpretation into much of his cartographic oeuvre.¹⁷ Mercator's first map, *A Description of the Holy Land for Understanding both Testaments (Amplissima Terrae Sanctae descriptio ad utriusque testamenti intelligentiam)* (1537), was a fifteen-sheet wall map that may have

12 Watts, "The European Religious Worldview," 382–400; Woodward, "Medieval Mappaemundi," 286–370; Büttner, "Religion and Geography," 163–96.

13 In 1525, a map of the Exodus appeared in Martin Luther's German translation of the Old Testament, published by Christopher Froschauer in Zürich. Exodus maps started appearing in Bibles printed in Antwerp, Geneva, Zürich, Basel, London, Paris, Frankfurt, and Amsterdam. Delano-Smith and Ingram identified eight categories of Bible maps: Eden, the Exodus route, the division of land between the Twelve Tribes of Canaan, the Four Kingdoms of Daniel's Dream, the general topography of the Holy Land, the Eastern Mediterranean as a region, the city of Jerusalem, and the world. Delano-Smith and Ingram, *Maps in Bibles*, xxii–xxix.

14 Shalev, *Sacred Words and Worlds*, 23–72.

15 Included were a map of Canaan with the Exodus Route, one of Canaan after the Hebrew conquest, a map of antique Jerusalem, and a world map illustrating the migration of Noah's progeny to the New World. Brekka, *The Antwerp Polyglot Bible*, 11–23.

16 Shalev, *Sacred Words and Worlds*, 3–4, 18.; Shalev, "Sacred Geography," 56–80; Melion, "Ad ductum itineris," 49–72. Shalev showed that the aims of sacred geography in the first half of the sixteenth century were consistent with the scope of the genre as defined by the fourth-century Christian exegete Eusebius of Caesarea in *Onomasticon, or On the Place-Names in the Holy Scripture*, insofar as sacred geographers were primarily concerned with describing biblical place-names.

17 The catalogue of Mercator's library, which contains over 1,000 titles, lists several books by Reformers, including one by Luther, four by Erasmus, seven by Melancthon, nine by Calvin, and several by lesser-known reformers, such as Theodore Beza, Johannes Oecolampadius, Johannes Brenz, Martin Bucer, and Heinrich Bullinger. Many Catholic authors are listed too, including Montano, Masius, Ruard Tapper, Johannes Molanus, and George Cassander, as well as several patristic authors, such as Hilary of Pointiers, Albert Magnus, and Bede. Basson, *Catalogus librorum bibliothecae*.

been inspired by Exodus maps in Protestant Bibles he encountered while in Antwerp.¹⁸ The map's size, Latin inscriptions, and engraved details suggest it was directed toward wealthier and more erudite audiences than the small woodcut maps in vernacular Bibles. In 1538, Mercator designed a heart-shaped world map called *World Image (Orbis Imago)*, which Giorgio Mangani argued was symbolic of his affiliation with the mystic religious sect the Family of Love (*Familia caritatis*).¹⁹ In 1554, he published a map of Europe (*Europae descriptio*) that delineated the peregrinations of Jesus, St. Paul, St. Peter, and the Israelites in the Book of Exodus. *Description of Europe* and *Description of the Holy Land* proved to be popular and were consulted by Montano, Masius, and Ortelius.²⁰ In 1569, Mercator released his now namesake map *New and More Complete Description of Earth (Nova et aucta orbis terrae descriptio)*. This cylindrical projection depicted rhumb lines as straight lines, which Jerry Brotton argued was symbolic of Desiderius Erasmus's *via media* approach to the religious conflict.²¹ Finally, Mercator's posthumously published *magnum opus* entitled *Atlas, or Cosmographic Meditation of the Fabric of the World and the Image of the World Made (Atlas sive cosmographicae meditationes de fabrica mundi et fabricati figura)* began with a commentary on the first two chapters of Genesis entitled *On the Creation and the Fabric of the World (De mundi creatione ac fabrica)*. *Description of the Northern Lands* was one of 107 maps published in the book. Several scholars have discussed the contents of this treatise, but Mercator's exegesis has been largely overlooked as it relates to the maps that follow.²² In publishing them together, Mercator clearly intended his biblical commentary and maps to be read in conversation; however, the *Atlas* was initially envisioned as an encyclopedia of cosmographic knowledge, but

18 A study by Paul Arblaster showed that Antwerp was the center for the printing of vernacular Bibles from 1523 to 1545. Mercator was there at the height of this activity. The Antwerp-based printers Jacob Van Liesveldt, Willem Vorsterman and Henrick Peetersen van Middelburch all published Dutch translations of the Bible with Exodus maps. Arblaster, "Totius Mundi Emporium," 9; Delano-Smith and Ingram, *Maps in Bibles*, 26.

19 Mangani, "Hermetic Meaning," 59–83.

20 Dirk Imhof revealed that Plantin purchased more than 100 copies of Mercator's *Holy Land* at the Frankfurt Book Fair in 1568. Throughout his career, Plantin also purchased several hundred maps of *Description of Europe*. Plantin sold 316 copies of the 1554 version and 88 copies of the 1572 reprint. Imhof, "Gerard Mercator," 106–14. Masius wrote to George Cassander expressing his desire to obtain Mercator's map of the Holy Land, which Mercator later sent him. See letters 45–46 in Van Durme, *Correspondance Mercatorinne*, 59. At the end of 1571, two copies of Mercator's *Description of Europe* were added to Montano's account at the Plantin Press. Museum Plantin-Moretus Arch. 16, fol. 107v: "2 Europa mercat blans en pap." Walter Melion argued that Montano was responsible for spurring Ortelius's biblical maps, but Mercator's depictions of sacred landscapes also served as models for Ortelius. Melion, "Ad ductum itineris," 49, 65–67. For example, Ortelius's map illustrating the peregrinations of Paul from 1579 and reprinted in 1603 was "based on the map of Europe made by Gerard Mercator." "Hanc Diui Pauli Peregrinationis descriptionem ex Tabula Europae Gerardi Mercatoris desumptam hic lubentes atteximus." Ortelius, *Parergon*, iiiijr.

21 Brotton, "Devious Course", 101–6.

22 Büttner, Manfred. "Mercators Hauptwerk," 3–42. Van der Krogt, "Gerhard Mercator," 112–30; Milanese, "Intentio totius cosmographiae," 131–45. Crane, *Mercator*, 273–84.

only two of the six intended books were completed, resulting in a disjuncture between the two completed pieces.²³ What is clear is that emphasis on sacred geographies permeates Mercator's cartographic output.

Mercator's Map of the North Pole

Description of the Northern Lands is constructed using a stereographic polar projection. It is presented in a round frame, with concentric parallels of latitude encircling the projection point, which is represented as a singular mountain at the map's center labeled "arctic pole."²⁴ Meridians emanate outward from the Arctic Pole, evoking the unusual phenomena of light and magnetism in the Far North. The map shows four islands separated by four-indrawing channels, which were thought to create a strong whirlpool where Mercator believed the ocean waters met and "disappear[ed] into the bowels of the earth."²⁵ Mercator also describes a "mountain range that goes round the North like a wall."²⁶ The map depicts another mountain between the lines marking 170 and 180 degrees of longitude with the label "magnetic pole with respect to the island of Cape Verde."²⁷ Just below this is a small circle indicating another possible magnetic pole labeled "with respect to the [Azores] island of Corvo."²⁸ The two possible locations for the magnetic pole were calculated based on conflicting reports about whether Corvo or Cape Verde was situated on the Prime Meridian.²⁹ The multiple magnetic sites on this map represent "the great number of testimonies" Mercator consulted, as well as his uncertainty about the magnetic pole's qualities and location.³⁰

23 Mercator first announced his idea for the *Atlas* in the introduction of his tabulated history *Chronologia* (*Chronologia*) published in 1569. Keuning, "History of an Atlas," 37. As part of the *Atlas*, Mercator intended to include books on the order, motion, and nature of the celestial bodies, astrology, the elements, and royal genealogies. Mercator, *Atlas*, 112r, quoted in Mercator, *Atlas*, 265. The biography of Mercator by Walter Ghim included in the prefatory matter of the *Atlas* describes a slightly different configuration. Ghim, "Vita," t. 2r, quoted in Ghim, "Life of Mercator," 15–16.

24 "Polus arcticus."

25 The inscription from Mercator's cylindrical map reads, "Oceanus 19 ostiis inter has insulas irrumperat. 4 euripos facit quibus indesinenter sub septentrionem fertur: atque ibi in viscera terrae absorbetur." Quoted in Taylor, "Letter Dated 1577," 65.

26 "... dese gheberchten ghingen ront / om septentrion ghelijcke een müer." This is how it was described in Mercator's transcription of *Inventio Fortunata*, which he sent to John Dee in 1577. A transcription of this letter can be found in Taylor, "Letter Dated 1577," 59 and letter 144b in Van Durme, *Correspondance mercatorienne*, 132–9.

27 "Polus magnetis respect insularu capitis Viridis."

28 "Polus magnetis respect Corui insule."

29 Jonkers, "Parallel Meridians," 17.

30 Legend five in Mercator's namesake cylindrical projection indicates little clarity was achieved between 1569, when he first depicted the magnetic poles, and 1595, when the final version of his polar map was published: "De longitudinũ geographicarũ ininit & polo magnetis Testatur Franciscus Diepanus peritissimus navarchus volubiles libellas magnetis virtute infectas recta mundi polum respicere in insulis C. Viridis, Salis, Bonavista, & Maio, cui proximẽ astipulantur qui in Tercera aut S. Maria (insulẽ sunt inter Açores) id fieri dicunt, pauci in earundem occidentalissima Corvi nomine id contingere opinantur. Quia vero locorum longi-

Throughout his career Mercator continually returned to the subject of magnetism and the geography of the Far North. Although *Description of the Northern Lands* was published in 1595, it is useful to begin the story of this map five decades earlier, from when the earliest evidence of Mercator's research into this region survives. In 1546, Mercator wrote to his university friend and patron Antoine Perrenot de Granvelle describing magnetism as a problem that kept him anxious.³¹ In the letter, Mercator delineated a few discoveries that came out of his research.³² These included: geomagnetism, magnetic variation, and coordinates for magnetic north. From repeated observations from the same location, Mercator found that the compass needle always pointed in the same direction. From this, he inferred that the magnetic force pulling compass needles north was located on Earth, contrary to the prevailing notion that it existed in the heavens.³³ Compass data collected from other locations led him to conclude that while the magnetic force existed on Earth, it was not directly at the pole. Instead, he hypothesized that it was positioned along the meridian of 168 degrees longitude, because from this meridian, the needle "always point[ed] due north."³⁴ Moving east or west from this meridian resulted in variation in the compass bearing. Mercator explained that it was discrepancies in his comparisons of portolan charts and Ptolemaic maps that drew him to study this magnetic phenomenon in the first place.³⁵ He deduced that "the cause of their errors ... rested on an ignorance of the nature of the magnet."³⁶ Mercator concluded his letter to Granvelle with resolve, writing, "there are many other and indeed difficult points to be discussed. ... if at some future

tudines a communi magnetis & mundi meridiano iustis de causis initium sumere oportet, plurium testimonium sequutus primum meridianum per dictas C. Viridis insulas protraxi, & quò alibi plus minusque a polo deviàte magnete polum aliquem peculiarem esse oporteat quo magnetes ex omni mundi parte respiciant, eum hoc quo assignavi loco existere adhibita declinatione magnetis Ratisbonæ observata didici. Supputavi autem eius poli situm etiam respectu insulæ Corvi, ut iuxta extremos primi meridiani positus extremi etiam termini, intra quos polum hunc inveniri neceffe est, conspicui fieret, donec certius aliquid nauclerorum observatio attulerit."

- 31 "Ea res cum divtius me teneret anxium, ..." See letter 18 in Van Durme, *Correspondance mercatorienne*, 32.
- 32 German and Iberian scholarship on magnetism pre-dated Mercator's, and the auction catalogue of Mercator's library indicates his awareness of some of this research. Mercator owned Nunes's *Art of Navigation* (1557) and *About the Errors of Oronce Finé* (1546). Mercator also owned a copy of Martín Cortés's *Art of Navigation* (1551). "Item Nonius de Arte navigandi. 1573," "Petrus Nonius de erratis Orintij, manuscriptus," and "Breve compendio de la Sphera y de la arte de navegar, por Martin Cortez. en Sevilla. fol." Basson, *Catalogus librorum bibliothecae*, 30–31, 36.
- 33 Verschuur, *Hidden Attraction*, 11–12.
- 34 "Sub hoc itaque meridiano quoties erit lingua ipsum septentrionem indicabit, verum si ab eo ..." Van Durme, *Correspondance mercatorienne*, 33.
- 35 The portolan charts Mercator consulted are not known. His library catalogue indicates he owned at least six editions of Ptolemy's *Geographia*. "Cl. Ptolomaei opera excepta geographia cum quiusdam notis marginalibus Gerardi Mercatoris. Bas. 1541." "Ptolomaeus cum annotationibus marginalibus Gerardi Mercatoris cum tabulis geographicis." "Claudij Ptolomaei opus geographia. 1522." "Descriptionis Ptolomaei augmentum Louanij." "Geographia Ptolemai. Josephi Moletij. Venet. 1562." "Ptolomaei geographia. Colo. 1540." Basson, *Catalogus librorum bibliothecae*, 30, 31, 34, 35.
- 36 "... potissimamque inveni in magnetis ignorata conditione consistere." "... cepi ego diligentius errorum causas perquirere ..." Van Durme, *Correspondance mercatorienne*, 32.

time, I shall be free from pressing matters, I have decided to pursue this subject in a suitable manner and solve it.”³⁷

Mercator returned to the subject in 1554, when he wrote a pamphlet entitled *A description of the most important application of the terrestrial and celestial globes and the astronomical ring to the most invincible Roman Emperor, Charles V (Declaratio insigniorum utilitatum quae sunt in globo terrestri, coelesti, et annulo astronomico ad invictissimum romanum imperatorem Carolum Quintum)*.³⁸ The pamphlet was written to accompany several scientific instruments that he sent to Emperor Charles V.³⁹ Part of the text explains “the fundamentals of the investigation of the North Pole” with an “exploration and disclosure of the most hidden and useful features of the magnet in geography.”⁴⁰ It described the same phenomena as the

letter to Granvelle, but the coordinates Mercator gave for the position of the magnetic pole differed slightly. In the letter, he claimed that it was at “about 168 degrees longitude and 79 degrees latitude.”⁴¹ In the pamphlet, he stated that magnetic north was “at 169 degrees and 34 minutes longitude and 73 degrees and 2 minutes latitude.”⁴² He did not describe how he came to a different conclusion, but one might surmise that he continued documenting his observations or consulted new sources.

The position for magnetic north changed again in 1569, when Mercator published *New and More Complete Description of Earth*. In the bottom left corner, he included a stereographic projection of the North Pole, because the



Figure 4. Gerhard Mercator, detail of polar map in bottom left corner *New and More Complete Description of Earth*. Gerhard Mercator, *Nova et aucta orbis terrae descriptio ad usum navigantium emendatè accommodata*, Duisburg, 1569. Engraving, 200 x 133 cm. Photo: Bibliothèque nationale de France.

37 “Sed quoniam multa essent alia et quidem difficilia in navigationum chartarumque marinarum castigationem dicenda, satis eris R.D. Tuae spero universae ejus speculationis fundamentum magnetis polum utcunque indicasse. Si quando gravioribus contingat sublevari oneribus, statui hanc rem justo opere prosequi et absolvere.” Van Durme, *Correspondance mercatorienne*, 33–34.

38 The pamphlet was not published until 1868 by Jean Van Raemdonck.

39 In their biography of Mercator, Averdunk and Müller-Reinhard wrote a technical analysis of how his globes and astronomical ring were tools used in his research on magnetism. Averdunk, *Gerhard Mercator*, 35–40, 121–44.

40 “... alacriter me dedam ad secretissima utilissimaque geographiae quae in magnete sunt investiganda promendaque.” Mercator, *Declaratio insigniorum*, 16.

41 “... reperietur hujusmodi circulorum intersectio fere in longitudine 168 graduum, latitudinis vero 79, atque hic magnetis polum esse necesse est.” Van Durme, *Correspondance mercatorienne*, 32.

42 “Ex his colligo: latitudinem poli magnetis esse g: 73 m: 2 proxime, ... erit longitudo poli magnetis in gradu 169 minuto 34.” Mercator, *Declaratio insigniorum*, 17.

polar regions were severely abstracted by the cylindrical projection [Fig. 4]. In the polar projection, Mercator aligned the magnetic pole and true north along the prime meridian, which is placed in the bottom center of the circular projection. The inset depicts two magnetic poles: one with respect to Cape Verde at approximately 180 and 75 degrees, and another in relation to Corvo at 174 and 78 degrees. This corresponds to two magnetic poles depicted in the top corners of the cylindrical projection. Mercator's polar projection piqued the curiosity of his contemporaries. In 1577, the English polymath John Dee, who served as an advisor to English voyages of discovery, wrote to Mercator inquiring about the source used to construct this "strange plat of the Septentrinonall Ilands."⁴³ Mercator responded with a partial transcription of the medieval travel narrative *Inventio Fortunata* by Jacob Cnoyen, which he relied on for its description of the region's physical geography.⁴⁴ The text summarized the northern explorations of a Franciscan friar from Oxford. The only substantial version of this questionable source appears in Mercator's letter to Dee, although select passages appear in Johannes Ruysch's world map from 1508.⁴⁵ A letter from Mercator to the English publisher Richard Hakluyt, who asked about the source in 1580, indicates that it was lost during his lifetime. Mercator wrote that he borrowed it from a friend, possibly Ortelius, but that he had "been unable to recover it since."⁴⁶ Not only was Mercator's empirical data on magnetic north precarious, but his supporting historical source on the region's topography was also dubious.

In *Description of the Northern Lands*, Mercator's final map of the North Pole, the magnetic poles are again in different positions. He placed one with reference to Cape Verde at 188 and 74 degrees, and one with reference to Corvo at 172 and 77 degrees. In this map, he also put a third mountain at the center, which his transcription of *Inventio Fortunata* described as magnetic, but this was not relayed in Mercator's letter to Granvelle, the pamphlet for Charles V, or the map.⁴⁷ In the text directly accompanying the map, Mercator admitted to being uncertain about the geography of the North Pole, but he remained optimistic that the region would soon be explored. He wrote, "There is as yet no certain knowledge among Europeans of the governance and state of these lands, especially those closest to the pole, but there is good reason to hope

43 Taylor, "Letter Dated 1577," 56.

44 Ibid., 59.

45 Johannes Ruysch's fan map appears in his 1508 edition of Ptolemy's *Geography*. Taylor, "Letter Dated 1577," 61.

46 "J'ai vu l'Itinéraire de Jacques Knoien de Boidleduc par toute l'Asie, Afrique et Septentrion, qu'un mien ami m'avoit prêté, mais je ne l'ai sù recouvrer depuis." Mercator's letter to Hakluyt dated July 28, 1580 was later published by Hakluyt in *Principal Navigations*. Hakluyt, *Principal Navigations*, 484. Also see letter 143 in Van Durme, *Correspondance mercatorienne*, 157–61. Taylor suggested that Ortelius may have lent the book, given that Dee had written to him about the North Pole prior to writing to Mercator. Taylor, "Letter Dated 1577," 61.

47 "... sonder dat recht onder den Pole / leet een blose rotse int middel van deser zee ... / in haren omganck heest omtrent .33. Franches / mijlen, ende is al aymant steen." Taylor, "Letter Dated 1577," 60.

that their location and boundaries shall be discovered more certainly soon by the daily sailings of the English and Dutch as they compete seeking a passage through the northern regions to the Moluccas.”⁴⁸ Regardless of his uncertainty, Mercator designed the map to appear complete, with clearly delineated lands, waters, and magnetic mountains.

From the initial stages of his research into the Far North, as described in the letter to Granvelle, to the final publication of *Description of the Northern Lands*, Mercator struggled to gain clarity on the nature of magnetism and the topography of the north. Despite employing several methodologies, Mercator’s knowledge of the Far North remained tenuous. Incongruous data on the Far North led Mercator to seek answers in the Bible and theology. His approach to natural philosophy was grounded in empiricism and the biblical text, which was congruent with *prima scriptura* (scripture first). Unlike the doctrine of *sola scriptura* (scripture alone), *prima scriptura* held that there were non-biblical sources of divine revelation, but that scripture held authority over empirical information that conflicted with the text.⁴⁹

Scholars have noted that *Inventio Fortunata*’s description of the North Pole echoed historical accounts of Paradise, and these elements were indeed reflected in Mercator’s map.⁵⁰ For example, *Inventio Fortunata* described four in-drawing channels and a surrounding mountainous wall that resembled the four rivers and impenetrable barrier of terrestrial Paradise.⁵¹ The Far North was a landscape that seemed to “forbid human habitation” and resist exploration, which was not unlike interpretations of Paradise that described it as inaccessible to humans.⁵² Similarly, the thirty-three-mile-wide magnetic rock said to be situated directly at the pole was reported as being “as high as (the clouds),” recalling medieval texts that described Paradise on a mountain or at a high altitude.⁵³

48 “De harum autem terrarum & praecipue polo vicinarum regimine & statu nihil certi Europaeis adhuc constat: bona tamen spes est, quotidianis Anglorum & Batauorum per borealiora transitum ad Moluccas certatim quaerentium navigationibus, earum situm & termino brevi certiores detectos fore.” Mercator, *Atlas*, 42r, quoted in Mercator, *Atlas*, 162.

49 Burger et al., “Introduction,” 8; Van den Belt, “Sola Scriptura,” 204–26.

50 Mangani, “Rupes nigra,” 14–15. Crane, *Mercator*, 210–11.

51 “Dese Monick seide dat dese gheberchten ghingen ront / om septentrion ghelijcke een mûer.” “...dese 4 com-mercen leet een Drayena / daer dese 4 Zugende Zeen in vallen, die Septentrion deelen.” Taylor, “Letter Dated 1577,” 59–60; Crane, *Mercator*, 11.

52 This is how it is described in Martin Behaim’s globe from 1492, Johannes Ruysch’s world map from 1507–08, and Oronce Finé’s double cordiform world map from 1531. Okhuizen, “Die Nordpolarkarte im Mercator Atlas,” 89; Taylor, “Letter Dated 1577,” 64. In his description of the Arctic in the *Atlas*, Mercator wrote, “He [James Cnoyen] says that the four rivers called Euripus are born with such force into an interior whirlpool that ships, once they have entered, cannot be driven back by any wind whatsoever, . . .” “Euripus illos quatuor dicit tanto impetu ad interiorem voraginem rapi, ut naves semel ingressae, nullo vento retroagi possint, neque vero unquam tantum ibi ventum esse ut molae frumentariae circumagendae sufficiat.” Mercator, *Atlas*, 42r, quoted in Mercator, *Atlas*, 163. Scafi, *Mapping Paradise*, 46, 175.

53 Taylor, “Letter Dated 1577,” 60. On the altitude of Paradise, see Scafi, *Mapping Paradise*, 174–5, 194, 274.

Evidence suggests that Mercator pursued this line of inquiry, which was championed by the French scholar Guillaume Postel.⁵⁴ Postel was a skilled linguist and avid Cabbalist with an interest in sacred geography.⁵⁵ He designed a map of the Holy Land and wrote extensively on the geography of Paradise and its relationship to sunlight.⁵⁶ Postel wrote extensively on the relationship between Paradise and sunlight. In 1553, he positioned Paradise along the meridian that passed through the Moluccas, calling it “the meridian of paradise.”⁵⁷ In 1555, Postel’s hypothesis shifted north. He made a marginal note in his manuscript *Summary of Cosmography* (*Le Sommaire ou épitomé de la cosmografie*), calling the North Pole the “hinge of the world” and arguing that “it is necessary that if under our pole there are very high mountains and Hyperborae, at their summit there should be perpetual light, which is the terrestrial place of Paradise.”⁵⁸ In 1561, he expanded this theory in *Concerning the Terrestrial Location of Paradise* (*De paradisi terrestri loco*).⁵⁹ In Alessandro Scafi’s comprehensive study on the subject of Paradise, he described Postel’s book thus:

... in the manuscript Postel described how it had once been at the very point in the center of the northern hemisphere through which, at the time of the world’s creation and at the moment of separation of the earth from the waters, God had drawn out the earthly element from the waters below. Postel saw paradise as situated on the top of an extremely high mountain at the northern Pole that reaches up to the middle region of the air, and as a place entirely different from any other place on earth. ... Postel claimed that this Arctic paradise was in an “absolute and eternal Orient,” where the sun would never rise more than 23 degrees above the horizon.⁶⁰

The book was never published, but Postel wrote an abridgment in *Cosmography* (*Cosmographia*) published in 1561. Following this, Postel released the map *Pole Adapted for a Universal Map* (*Polo aptata nova charta universi*) (1578), which depicted the North Pole at the center of the world.⁶¹ Similarities in the shapes of lands in Mercator’s 1569 polar inset and the small center ring of Postel’s Arctic Circle suggest that Postel looked to Mercator’s map as a visual model. Postel was likely attracted to Mercator’s polar projection because

54 Mangani, “Rupes nigra,” 14–15.

55 Wilkinson, *Kabbalistic Scholars*, 49–60.

56 Delano-Smith and Ingram, *Maps in Bibles*, 44, 163–4.

57 Scafi, *Mapping Paradise*, 286.

58 “*gond de monde*” and “*et fault si soubz nostre pole se retrouvent treshaultes montagnes et Hyperborees, qu’au sommet il y aye Lumiere perpetuelle qui est lieu du Paradis terrestre.*” BNF, Paris, MS Français 2122, fol. 5r, quoted in Salvadori, “Dis-Orienting the Map.”

59 Scafi, *Mapping Paradise*, 285–6.

60 *Ibid.*

61 A single version of the 1621 print of *Polo aptata nova charta universi* by Nicolas de Mathonière exists at the *Services historique de la Marine*. A reproduction can be found in Frank Lestringant and Monique Pelletier, “Maps and Descriptions of the World in Sixteenth-Century France”, in *The History of Cartography*, Vol. 3, part 2.

the meridians radiating from the central point appear to symbolically capture the phenomenon of “perpetual light” in Postel’s theory of Paradise. Like Mercator’s map, the focal point of Postel’s map is a mountain labeled “column of the world.”⁶² Although Paradise is not explicitly marked on Postel’s map, the column is a clear visualization of his textual hypothesis. By placing the world within this new visual and conceptual framework, Postel transposed the physical and symbolic center of the Christian world to the Arctic Pole, which he understood to be the site where Earth was physically connected to the cosmos.

There is no existing correspondence between Mercator and Postel, but the auction catalogue of Mercator’s library lists four titles by Postel, including *Cosmography*, indicating familiarity with his work.⁶³ Although Mercator claimed in the *Atlas* that he would show “in the ancient geography where Paradise was and what were its rivers,” he did not include a map titled Paradise, nor did he include it as a place name in any of the maps in the *Atlas*.⁶⁴ However, he did mention four rivers in his textual accompaniment to the Arctic map.⁶⁵ Mercator’s association of Paradise with continuous light in his treatise on Genesis suggests he may have shared Postel’s unconventional opinion. In chapter fourteen of his treatise entitled “On the creation of the lights: the fourth day begins” (“*De luminarium creatione: quartus dies incipit*”), Mercator explained that light was created on the first day but was “still scattered” and “drawn up into the hemisphere of the heaven that surrounded all of chaos, turning from the beginning around the poles of the world.”⁶⁶ He continued:

For we read, “God divided the light from the darkness” ([Genesis 1:] 4), which could not have provided day and night except by gathering light into one part of heaven and by its drawing it around Paradise. Therefore, since day follows night the creation of light happened first in the half that was below the horizon of Paradise, where becoming more intense and gathered, by a motion made to the west, it rose from the eastern part of paradise above its horizon and made the day.⁶⁷

62 “*Stolp mons. Toto in mundo altifsimus qui ea de re Colonna mundi dicitur.*”

63 “*Guilielmus Postellus de nativitate Mediatoris ultima.*” “*Guilielmus Postellus de Originibus. Bas.*” “*Postelli Cosmographicae disciplinae compendium.*” “*Guilielmi Postelli de universitate liber.*” Basson, *Catalogus librorum bibliothecae*, 6, 22, 33, 34.

64 “*De paradiso, ubi fuerit, & quae eius flumina, in veteri geographia restituta demonstrabo.*” Mercator, *Atlas*, 29v, quoted in Mercator, *Atlas*, 145.

65 See note 50.

66 “*Creatio luminarium licet quarto demum die perfecta fuerit, primo tamen die creari coeperunt, id liquet, quia non est, aliud lumen quod diem à nocte distinguat quam solis. ut v. 14. proprietates illi ascribitur, & iam tres dies elapsi sunt, quare illud lumen, quod primū diem à nocte distinxit, . . .*” Mercator, *Atlas*, 27v, quoted in Mercator, *Atlas*, 130.

67 “*. . .versu enim 4 divisit Deus lucem a tenebris, quod non nisi collectione luminis in unam partem coeli, cuisq; circumductione in paradiso, diem & noctem praestare poterat, quia igitur dies noctem sequitur, ncidit creatio lucis primum in illam medietatem, quae erat sub horizonte paradisi, ubi intensior & collector facta, motu in occasum facto, ab orientali paradisi parte supra eius horizontem ascendit & diem fecit.*” Mercator, *Atlas*, 27v, quoted in Mercator, *Atlas*, 130–1.

The relationship between continuous light and Paradise in Mercator's commentary bears a striking similarity to Postel's writing on the subject. His reference to the "horizon of Paradise" echoes Postel's "meridian of Paradise," in that it ascribes symbolic significance to the movement of the sun. There are also similarities in their conceptualizations of Paradise as the spatial and temporal beginning of creation. Marcia Milanese suggested that Mercator's conception of *geographia sacra* most resembled Postel's, but that Postel's repeated run-ins with religious authorities were reason enough for Mercator's reluctance "to take part, at least publicly, in this prophetic moment."⁶⁸

Changes to Mercator's *Atlas* and *Description of the Northern Lands*

The Amsterdam mapmaker Jodocus Hondius established his career by publishing translations and updated editions of Mercator's *Atlas*. In 1604, Hondius acquired Mercator's engraved copperplates, possibly at an auction in Leiden.⁶⁹ In 1606, Hondius published his first edition of Mercator's *Atlas*, which included several new maps and reworked versions of Mercator's original plates. In this edition, Hondius revised Mercator's *Description of the Northern Lands* [Fig. 5]. The changes Hondius made reflect information collected during Willem Barentsz's voyages in the Far North in the 1590s, which were published by Gerrit de Veer (1570–1598).⁷⁰ Edwin Okhuizen argued that the differences between Mercator's 1569 and 1595 representations of the Arctic, the latter of which shows Nova Zembla as a separate island and includes new place names, suggests that Mercator and his heirs likely received information from Barentsz's first and second voyages.⁷¹ This conclusion is supported by evidence that Mercator was in communication with Balthazar de Moucheron and Oliver Brunel, supporters of Netherlandish exploration in the Far North, over a decade earlier.⁷² Barentsz's later expedition revealed that at least part of the islands Mercator originally placed southeast of the North Pole did not exist, which is reflected in Hondius's changes to the map. Sections of these islands' borders were scraped out of the original copperplate, leaving partial coastlines that appear to sink from the page into the Arctic Sea. Instead, new islands with unresolved coastlines emerge.

In the years between Mercator's and Hondius's maps, Theodore De Bry published De Veer's accounts of Barentsz's voyages with several illustrations,

68 Milanese, "Intentio totius cosmographiae," 138–9.

69 Keuning, "History of an Atlas," 44.

70 The first publication was published in Dutch under the title *Waerachtige beschryvinghe van drie seylagien*.

71 Okhuizen, "Die Nordpolkarte," 92.

72 Spies, *Arctic Routes*, 115.

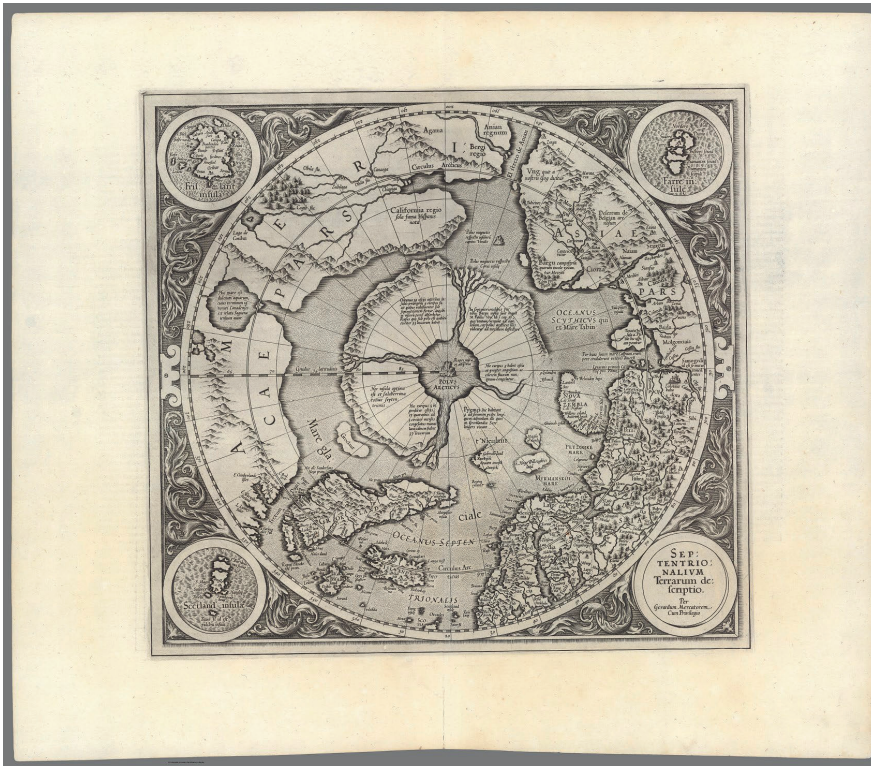


Figure 5. Jodocus Hondius, *Septentrionalium terrarum descriptio*, in *Atlas*, Amsterdam, 1607. Engraving, 37 x 38 cm. Photo: David Rumsey Map Collection, David Rumsey Map Center, Stanford Libraries.

including a map of the region [Fig. 6].⁷³ Unlike *Description of the Northern Lands*, the center of the map is blank, aside from several sea monsters that lurk in the unknown. Since the map was designed to illustrate the travel narratives, emphasis remains on the routes described. Dotted lines provide readers with a traceable path taken by the ships that extends from Hollandia in the bottom left corner, around Norway, up to Het Nieuwlandt, then back down and eastward, hugging the shores of Nova Zembla. Hondius did not use De Bry's cartographic model. For Hondius, altering Mercator's original rather than making a new one was likely a practical decision motivated by time and financial concerns, since the plates were already in his possession. An alternative, but not competing, conclusion for Hondius's altered plate is that audiences would have

⁷³ The map, entitled *Deliniatio cartae trium navigationum per Batavos ad Septentrionalem plagem Norvegia, Moscovia et Nova Zembla ...*, was originally published in Amsterdam by Cornelius Nicolai in 1598 and republished by De Bry in Frankfurt in 1599.

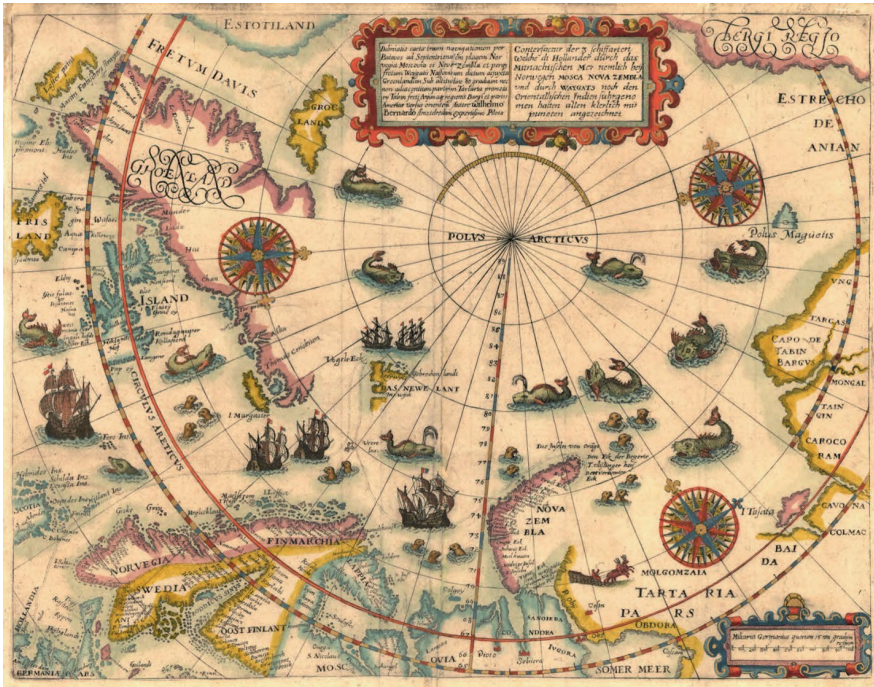


Figure 6. Theodore De Bry, *Deliniatio cartae trium navigationum per Batavos ...*, Frankfurt, 1599. Engraving, 28 x 35.5 cm. Photo: The Barry Lawrence Ruderman Map Collection © Stanford Libraries.

expected the map to reflect information conveyed in De Veer's account, first published in Amsterdam 1598.⁷⁴

Between 1606 and 1628, Hondius, together with his son Hendrick and son-in-law Johannes Janssonius, published approximately ten editions of the *Atlas*, multiple editions of a miniature version called *Atlas minor*, and appendices in several languages.⁷⁵ As new editions and adaptations were released, the *Atlas* moved further away from Mercator's original concept. Significantly, Mercator's treatise on Genesis was omitted from all editions of the *Atlas minor*. The folio editions continued to contain the treatise, until Willem Janszoon Blaeu obtained the copperplates from Hondius's son Hendrik in 1629. By 1635, Mercator's exegesis on Genesis was completely removed from folio editions.⁷⁶ By 1638, Mercator's name no longer appeared on the title page. The gradual erasure of Mercator from the Hondius, Janssonius, and Blaeu editions of the *Atlas* marks a shift away from Mercator's emphasis on sacred geography.

⁷⁴ The original's title was *Waerachtighe beschryvinge van drie seylagien, ter werelt noyt soo vrent ghehoort*.

⁷⁵ Keuning, "History of an Atlas," 44.

⁷⁶ Van der Krogt, "Gerhard Mercator," 122.

Conclusion

To modern audiences, *Description of the Northern Lands* may appear to depict a mythical landscape with numerous cartographical blunders; however, these “errors” provide valuable information about how the Far North was created and understood in the sixteenth-century European imagination. Despite using a variety of methods to collect data over the course of fifty years, the landscape of the Far North remained an enigma to Mercator. His desire to “solve it” led him to seek answers in the Bible, biblical commentaries, and theological reasoning. Analyzing his map alongside his commentary on Genesis and the writings of contemporaneous sacred geographers reveals that Mercator speculated that Paradise was located in the impenetrable Far North. Mercator’s research on and mapping of the North Pole exemplify the complex interplay of scientific and religious inquiry in his work that was gradually erased by subsequent mapmakers.

About the Author

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